1985 CASUALTY LOSS RESERVE SEMINAR TRANSCRIPT

The following pages include the transcript and/or handout materials from the opening session, panel sessions and luncheon presented at the 1985 Casualty Loss Reserve Seminar.

Special thanks are extended to the moderators and panelists of these sessions for the invaluable time and effort which they contributed to the editing and preparation of this volume.

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September 29 - 30
Kansas City, Missouri

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OPENING REMARKS

By

Michael A. McMurray, Chairman
Casualty Loss Reserve Seminar
W. James MacGinnitie, Past-President
Casualty Actuarial Society
M. Stanley Hughey, President
American Academy of Actuaries
C. Donald Ainsworth, Director of Insurance
State of Missouri

1985 Casualty Loss Reserve Seminar

Kansas City, Missouri

OPENING REMARKS
1985 CASUALTY LOSS RESERVE SEMINAR
WESTIN CROWN CENTER
KANSAS CITY, MISSOURI

Michael McMurray, Chairman- Casualty Loss Reserve Seminar
James MacGinnitie, Past-President, Casualty Actuarial Society
M. Stanley Hughey, President, American Academy of Actuaries
C. Donald Ainsworth, Director of Insurance- State of Missouri

My name is Mike McMurray, I'm the Chairman of the Joint Program Committee for the 1985 Casualty Loss Reserve Seminar. I'd like to welcome you all and thank you for attending our fifth seminar. As most of you are aware, the Casualty Loss Reserve Seminar is a joint effort of the Casualty Actuarial Society and the American Academy of Actuaries. Therefore, I think it is only fitting that we have some introductory remarks from the Presidents of those two organizations. Unfortunately, the President of the CAS, Stan Khury, was not able to fly out of New Jersey last night, so, Jim MacGinnitie, a past president of the Casualty Actuarial Society has graciously agreed to fill in for him. Jim is probably most famous for being the president of the CAS when I attained my fellowship. Good move, Jim.

That was an auspicious year, Mike. What year was that? 1980. Well, we've certainly come a long way in the lost reserve seminar business. I'm not sure how many of you remember or are aware that the first of these seminars was held in 1976. It was attended by less than 100 people. It was, I think, quite successful, but the need for a continuing program became more and more apparent with the adoption by the NAIC of the instruction relation to the opinion of a qualified loss reserve specialist and on square root day, Septemer 9, 1981, the first of the current series of these seminars was held in St. Louis. I had to sub for a past president of the CAS at that meeting, too. It seems that whenever we come to Missouri, something happens and someone can't get here, and I get pulled in at the last moment. I think it's only appropriate that we stop for a moment on the fifth of these annually regularly scheduled meetings and ask whether or not they have been successful. There are many ways that you can measure success. One is by attendance, and certainly once we had something in the order of 90 people and we now have over 400, we can find ourselves to be very successful. We've succeeded in drawing international attention. I just saw a friend of mine from Syndey, Bob Buchanan, in the audience. He works for the Government Insurance Office there in New South Wales. It's one of the largest insurers down there, and I just love their advertising slogan, its "Big, safe, and friendly." We can also access our success by the question of whether or not we've had an impact. And I know you all believe that reserves are now more adequate than they were 5 years ago when this series started. Right? Or perhaps, we know a little better what the reserves ought to be--whether we have the resources to fund them and whether our management and others like the news that we bring. But, I think perhaps most importantly the success of this venture has been measured by the fact that it's now clearly established in the minds of most of the important players that establishing loss reserves for casualty insurance enterprises is a very specialized discipline, and by coming together and sharing the knowledge and insights and the information we have in forums such as this we help to build the professional nature of our work and we help to continue to establish that fact in the minds of the regulators, the auditors and the managements of all of these enterprises. You have an exciting program ahead of you for the rest of

today and tomorrow. I know that you'll find it most fruitful, and on behalf of the Casualty Actuarial Society, we are very pleased that you are here.

Thank you Jim.

Giving us some remarks from the American Academy prospective will Stan Hughey current President of the American Academy.

Thank you, Mike. Welcome on this sunny day in Missouri. I'm sure we're all delighted to be here to tackle what promises to be a very interesting, exciting and educational session. The American Academy of Actuaries is pleased to jointly sponsor this activity--The Casualty Loss Reserve Seminar with the Casualty Actuarial Society. As Jim has indicated, this is the fifth of what might be termed the regular programs, and I think it is fair to report that the committee that originally organized these things thought we ought to do one or two of these and see how much response we get infact the responses just kept growing. So, it's clear that there is a need for a continuing program of this kind. From the standpoint of the American Academy, we are attempting as our "mission in life" to try to work on what we call the "interface activity of actuaries." This means that we are working to interface the actuaries with the other professions--with the regulators, with the insurance companies--all of those people that we, as actuaries and as accountants and others are serving as our publics. From the standpoint of the Academy, this gets to be a lot of publics, but we try to serve them.

We are also working to trying to improve the total professionalism of actuaries. This includes education, more education and continuing education and right now we're working on a joint project with the other actuarial societies on a continuing education recognition project which you'll be hearing about as it tries to provide actuaries with better recognition from their publics in the activities that they're prepared to perform.

With specific regard to this session, I'm pleased to note that the attendees include not only actuaries that are here to learn and exchange ideas on this complicated question of loss reserves, it also includes regulators who have a deep and very great interest in this subject, accountants, loss reserves specialists and all of those people who are looking reserves as they impact on insurance companies and the public that these insurance compaies serve. It is a question that needs a lot of exploration Jim somewhat by reference raised the question, "Are reserves adequate?" This is a problem that we all are wrestling with because it's still a bit of an art as distinguished from plugging in a formula. And unfortunately the formulas don't always work. In any case, I know that all of you will benefit from the wide range of information provided in this program.

Thank you, Stan.

It's now my pleasure to introduce our welcoming address speaker, the Director of Insurance for the State of Missouri, Donald Ainsworth. Director Ainsworth has held his current positon since 1981. In addition to his responsibilities within the State, he serves on the Executive Committee of the National Association of Insurance Commissioners, and is the Secretary of Midwestern Zone of the NAIC. Director Ainsworth is also a member of the Missouri Bar Association, the Society of CPCUs, and the Society of Former FBI Agents. I wonder what the meetings of the latter organization are like? Finally, Don has a very important historical role within the Casualty Loss Reserves Seminar. In 1981, we held our first regular seminar in St. Louis and our initial welcoming address was given by Director Ainsworth. I'd be curious to hear his remarks regarding the progress we've made in the last five years. Director Ainsworth, the floor is yours.

Thank you very much, Mike. On behalf of our Governor, the Honorable John Ashcroft, I do want to welcome you all to Missouri. We're happy to have you here. We are happy that you were in St. Louis four years ago and we'd like for you to come back to Missouri often. We like you!

I want to make an explanation for self-serving purposes. I spoke to the Central Missouri CPCU Chapter last night in Columbia, and I was making notes for this meeting at 2:00 this morining in my hotel room. I'm telling you that so that if I have trouble with those notes, you'll sympathize with me rather than get mad.

If any of you were in St. Louis four years ago, you might recall that the weather was absolutely beautiful and I told you at that time that that was typical Missouri weather. We always have nice weather in St. Louis, and I would anticipate that it will be the same here in Kansas City isn't quite as good as St. Louis in any respect. And you can guess where I live.

And, speaking of weather, Mike, is this an all-work occasion or will they have time to play golf? No golf? Well, that's unfortunate because there are a lot of lovely golf courses in this area, and I hope you will have a chance to play them some time. But speaking of golf, you may know that Willie Nelson is one of the very few people in this world, who owns his own golf course. And he does have a very lovely golf course down in Texas, and he's very proud of it. He was showing a guest around and one day and standing overlooking the golf course, and his friend said, "By the way, Will, what's par on this course?" And Willie said, "Well, that's really the greatest thing about owning your own golf course, par right here, par is 43." And the guy said, "Go on, Willie, you must mean, par for this nine is 43." He said, "No, par for this hole is 43. And you know what? Yesterday I birdied the sucker."

Usually, when I speak this early in the morning, I try to tell a few quick jokes to see if the audience is awake. However, this morning I'm doing it to see if I'm awake. You all probably know who Bobby Knight is, the fabulously successful basketball coach at Indiana University. If you do know who he is, you also know that he has a strong aversion to all sports writers. I read a qote the other day attributed to him in which he said, "The best three years in the life of any sports writer are the ones he spent in the third grade." And then there was the football player who was showing his grades to his coach, and the grades were four E's and one D. And the coach looked at him and said, "Son, it seems to mee you're spending too much time on one subject." And then there's the story I like to tell, and one you may have heard, about one of my faverite characters, that he was a great all-American football player at the University of Iowa, and for many years an all-pro lineman for the Detroit Lions. He was explaining to a friend one day why he had never graduated from the University of Iowa. He said, "After all, I was on there two terms--Truman's and Eisenhower's." Well, I think you're awake, but I'm not sure about myself, yet.

When I spoke at your meeting in St. Louis, I mentioned Instruction 9 for the preparation of the Fire and Casualty Convention blank. And I said that we would probably require the companies to submit loss reserve opinions with their 1982 statements. We have not yet required them because my chief examiner fells there are too many weaknesses in the present system. He says that the present rule permits the reserves to be certified by persons he feel are not qualified. He says there are no provisions for penalizing companies or individuals for certificatins negligently or fraudulently made. Now, I'd like to ask a favor of you people. I'd like somebody to volunteer to come to Jefferson City to help us develop a rule that will accomplish what we should be doing. And just to make it

a little more attractive, I'd like to tell you that for the first time in many, many years, our Legislature, at our request, appropriated some funds in our budget this year for actuarial services. And that's a major accomplishment! I guess Missouri's Legislature is no different than most legislatures, but that's like pulling teeth from the proverbial hen. The Office of Administration in Jefferson City right now is going through the required budding procedure. And I hope that there is response, because we don need your help. I am still of the opinion that having a loss reserve opinion signed by a qualified specialist is an important weapon in our constant battle to avoid insolvencies.

On the subject of insolvency, it is my opinion that if the regulators did there job properly, there would be very few insolvencies. I think we're smart enough to develop better techniques than we have now and I'd like to share with you some of the ideas that we're trying to get into place in Missouri. If they work there, I think they'll work anyplace. Some people would say, "Why don't you go to NAIC on something like this?", and I say, "We don't have ten years to wait."

I have asked my legal department to study what regulations and/or laws need to be developed to require companies to do the following: (1) notify the Division and probably get prior approval on surplus relief agreements. Surplus relief agreements, to me, are always an indication that a company has some financial problems. There may be some legitmate reasons for them, and I'm sure there are. There may be some legitimate reasons for them, and I'm sure there are. We would try to draw our regulation in such a way that we wouldn't get those that we didn't want to see. It seems to me that a lot of the innovative accounting that is designed to hide the ball from the regulators would cease immediately if we could require prior approval for some of it, and we intend to try; (2) we want to require the companies to notify the Division if they sell investing on better terms. There's been a long standing argument within the NAIC as to whether the bonds should be shown at the current value or maturity value, and I say it is totally immaterial if we find out what we really need to know, and that is when a company starts to sell its bonds at depressed prices everybody; (3) I would like to require companies to notify the Division when they have an abnormally large growth of sales of any line of insurance. If this had been done in the Baldwin-United matter, I think we would have known a lot sooner than we did that they weren't selling a product, they were giving it away. And, that was the reason everyone wanted to but it. It was too good a deal, and it was bound to put the company under. We're smart enough to devise ways to find that out ahead of time and we're going to try; (4) I'd like to develop a format for notifying the public when an insurance company fails to meet certain predetermined financial standards. And then I'd like to have our Legislature pass a law requiring us to make that information public if the condition were not corrected within a given period of time. It is my contention that if companies knew that when they let their financial picture deterirate below a certain point it was going to become known to the world, they would find all kinds of ways to avoid that horrible catastrophe. During the last few years, for example, some of them might have discovered that it was time to increase their premiums.

Each of these requirements would alert us to problems at the time they are occuring. Finding out the problems by examining annual statements is always after the fact. I think we can do a lot better.

Again, let me tell you that we are truly pleased to have you in Missouri and I hope you have a great time while you're here. I hope you'll come back. Thank you very much.

Panel Session 1C

CONSEQUENCES OF UNDERRESERVING

Moderator: Michael Hogue, Managing Director
Philadelphia Insurance Research Group

Panel: James A. Hall, III, Partner
Coopers & Lybrand
G. Alan Zimmermann, Vice President
Kidder Peabody & Company

1985 Casualty Loss Reserve Seminar

Kansas City, Missouri

Good morning, Welcome to Session 1C Consequences of Underreserving. Actually because the title seems pretty obvious as to what the consequences are we decided to really to have a discussion on the manifestations of underreserving on the finanancial statements of the Property Casualty Insurance Company. I would like to begin by introducing the panelists that will be joining us on the subject. We begin with Alan Zimmermann, far left. Despite the fact that Alan is a graduate of the University of Pennsylvania and Harvard, he was able to find employment -- he began with Brown Brothers Harriman, from there was at Conning & Company, was a partner for five years and is now the industry analyst for the insurance group at Kidder Peabody. He will bring us particular perspective as to what the street is saying about the property/casualty industries reserve positions and what affect they expect it to have on earnings and other comments. JIM HALL to my immediate left is partner to Consulting Actuarial Group of Coopers & Lybrand, which is the second largest consulting actuarial group in practice. He is a fellow to CAS and a member of the AAA (that is the Academy of Actuaries) not the other AA. Prior to joining Coopers & Lybrand for six years he got industry experience at USF&G and INA, American Mutual, California Casualty, AIG, it took him a while to hold on to a job. He is also a northeasterner as Alan. I am MICHAEL HOGAN the Westerner in the group. I am with Philadelphia Insurance Research Group and prior to joining and forming that operation in 1978 I was teacher at the Wharton School of the University of Pennsylvania. We would like to take this subject and break it into really three component parts. The first part we would like to discuss is the current reserve position of the Property Casualty Industry and who has what perspective as to degree of adequacy or redundancy of deficiency of those reserves. The second portion of our discussion we would like to look at the company in the process of failure and talk about the sorts of things of that can or cannot be done with this company to prevent it from going into liquidation. The final subject that we would like to address is the subject that deals with what should you be looking at to prevent the situation that we just looked at i.e., the company on the road to insolvency. We only expect to speak for about 50-55 minutes because we would like to leave plenty of time for interaction with you. If there are any questions you may have, so please jot those down as they become apparent so that we can discuss them with the panel group.

I would like to begin with a picture of the 1984 development factors and the 1983 accident year for the property/casualty insurance industry. We will start the discussion by reserves.

I believe some of you have picked up these slides from the far table. If you look at the property casualty insurance industry's total reserve adjustments for Schedule P only effective accident year 1984 as presented by the 200 company listing of AM Best Loss Development Books you will see that a billion three was added to the 1983 accident year results. Interest in the period starting with the best profitability period of the property/casualty industry that the reserve adjustment in aggregate for the prior five years was a very modest 520 million dollars. If you carry that reserve number to the industry's aggregate income statement, we had 5.6 billion dollars of botom line income reported in 1983 for the property/casualty industry's results. If you make an after tax adjustment for the 1.3 billion dollars of reserve deficiency, the property casualty industry would have reported 4.9 billion dollars of income. About a 13% adjustment caused by the 1984 development on '83 business. A rather modest affect on income. If you turn to what is currently being reported by AM Best Company vis a vis the property/casualty industry's reserve position, you will note in their latest series of management reports on the advance rating system, that they are indicating that there is about an 8.3 billion dollar reserve deficiency if you use a paid projection of the outstanding reserves of PC industry. That is equivalent to about 6.1% of unpaid losses which is about 13% of surplus and about half of the last five years of net income. On the

other hand if you drop down the page on the Best report you will see that they are indicating a redundancy in surplus on the balance sheet of the aggregate industry. They are indicating that the true adjusted surplus taking into effect equity in the various asset and liability accounts and discount in the inner and premium reserve and a loss reserve per ____. The actual surplus position in the PC industry is 9.2 billion dollars. If you subtract the policy over surplus as reported, this leaves us with about 28.2 billion dollars of redundancy or understatement of surplus. If you look at their conditional reserves which partly make that up, that accounts for about 2 billion dollars. The equity in the investment portfolio is about even and accounts for zero adjustment because the preferred stock and the common stock growth about offsets the market value differential on bonds and the drop in preferred stock value. You look at the equity in the unearned premium reserve perhaps is 20%. If it is 20% that would be about 10 billion dollars. So the net leaves you with somewhere between 16 and 17 billion dollars of redundancy in the loss reserves of the industry if you discount the loss reserves. Ergo if you put the property casualty insurance industry into a runoff position the industry would have 64 billion dollars worth of surplus and meet the deficiency estimate above and have change left over -- at least if I interpret these numbers correctly. That is a different statement than we generally hear in the industry today about the reserve position of property casualty companies. So I would like to turn the first question to Alan Zimmermann about what the analysts are saying about the insurance industry and how they come to that determination and how they believe that those results will manifest themselves.

Alan Zimmermann: Thank you Mike. First, I would like to say as a security analyst, I am extremely jealous of people inside companies who I always have this picture have this really great data on how reserves really are playing out. Please don't break my stereotype if that is not true. On the otherhand I have to confine myself with dealing with very limited numerical data, because, for the most part, all I have to look at on reserves are Schedule P which as all of you know is of very limited use and is probably less useful now than in the past.

In that context the question become how does an outsider go about thinking about a company or an industry's reserves given that one little statement every year and we all agree how useless it is.

The answer is that the reserve numbers are really just a small part of any total reserve analysis. What you are trying to do is look at a company within the framework of what you know is going on in the industry overall and what you think is going on at that company. In other words, we all set up an expectation for what we think the numbers are going to look like and analyze the data to look for factors that don't play out according to expectation. Another way to say this is to say that you can't just look at reserves in isolation. You can't say "well I'm going to study this company's reserves and just pick up a Schedule P and then start there". What you've really got to do is make Schedule P the last step in a process that starts by saying what's going on the industry?, -- what's going on at this company?, what's the company's history in terms of reserving? When you really get down to it the actual analysis of Schedule P is really just a small part -- although an important part of the total picture.

To explain my view of the total industry reserves, I've got a handout that some of you may have picked up. Let me walk you through it as an overview. I believe companies have a basic philosophy, whether stated or not, that is that when things are good they overcharge reserves and when things are bad they undercharge reserves. This may sound very basic, but it;s just human nature. Yet it underpins a lot of what we've seen in reserves for the last few years for the industry.

Look at the handout, and let me tell you briefly what the data is and we can try to interpret it together. As of 1984, companies had to file reserve runoff data in their 10K reports. I have taken this data and put it on an accident year basis and so that the top part of the table starts with the reserves as of the end of the initial year. This is not classic development data because I don't have the paid losses for the initial years. If you just look at the top of that table you can see that the patterns fall into three separate time periods. For 1976 and before, the reserve record of the industry has just been absolutely atrocious. I don't think companies did this deliberately, instead I think that things like asbestos and everything jumped and caught people by surprise. But if you look at that numbers you can see that those 18 companies, in which in total probably represent about 30 percent of the industry, alone strengthened reserves by $5 billion over an eight year period. I find that staggering. Just think of the magnitude of the problem since this data is 10 years old. This is an important difference between this cycle and other cycles, because the last time around we didn't have any lingering 10 year old problems hanging over everyone's head.

True to form the years 1977-81 were very good years, although we may not know for another 10 or 15 years, As' and G Table shows companies overcharged reserves and have tended to release them over the last five or six years. In many ways this shows how companies of the -- not funded but is trying to equalized the earnings on 1976 and prior strengthening; they were releasing to the over-reserves from 1977-81. 1982 was the start of the recognition of how bad things were going to be in this cycle. That was really the year that everyone said "Oh my God" this really is going to be a tough cycle. And what do we find looking at the table; that companies have underreserved in 1982 and 1983 and got to believe that this will also be the pattern for 1984.

To recap, when you look at the industry, you can put it into three separate timeframes 1976 and prior, 1977 and 1981 period and 1981-85. If you look down on the bottom part of the chart, I've taken the same data and put it on an annual basis to show the impact on earnings. What you see is pretty much the pattern you would expect; as risks got bad companies had a tendency not to add to reserves as much as they did in the earlier years.

Classic earnings management on the part of companies, but it really did catch up with everybody until 1984.

My philosophy on much of this has always been that underreserving and overreserving process works itself out over long periods of time and that companies are never really that far off, even if at any single point they are never quite right. I think that the two things that have caught the industry by surprise 1) the degree of problems for the older accident years and 2) the fact that the cycle stretched out a lot longer and usual time to start building reserves came at a time when earnings were terrible. The $1.2 billion of reserve strengthening in 1984 is significant since it compared to pretax income for these companies of just over one billion dollars. So you can see that really had an impact on reported numbers.

In terms of where the industry is now, I continue to like the I.S.O. number of a 10% deficiency. Within that I tend to think that the stock companies are probably a little worse reserved than the industry as a whole. Importantly the 10% deficiency exists even with the 3 or 4 points that companies have added in the last two years since ISO did those numbers. In other words, the industry really hasn't made any headway. Puting the 10% in the context of these 18 companies, which had 50 billion dollars of reserves, I would say there is probably another %2-2-1/2 billion of underreserving for the 1976 and prior accident year. I would think that the 1977-81 reserve development will probably be flat

now; you won't see any more releases but I don't expect a whole lot of strengthening. I would also say that there is another $2-2-1/2 billion to come in 82-84.

Now, the question becomes how do you go about increasing the reserves. On this question I am also a believer that there is nothing to be gained by one-time charges to reserves at this point. Not only would it have a negative impact on your stock, but there is no tax incentive right now. Also most companies don't have any deferred taxes for GAAP purposes so any increase in reserves has to fall right to the bottom line.

If you look at the unusual reserving patterns in 1985 anyway, the two most prominent companies among the stock companies that have added to reserves significantly have been Home Insurance and Fireman's Fund both of which had unusual events going on. Home was getting spunoff by City Investing. In the case of Fireman's Fund there was inital public offering and in both cases management felt that they just wanted to have the best reserves you could going into their new lives.

In terms of a wrapup I have an unusual view of this reserving in that I happen to think it is probably one of the best things that can happen to the industry. Let me tell you why. You can't look at reserves in just isolation, and say "gee reserves are terrible." What you also have to look is what kind of response is this forcing people to do. What I think it is doing is to ensure that the commercial premium rates stay high for a long period to make up the deficiencies. If companies reported results for accident years 1985 and 1986 alone, they would be fairly comfortable with their results given the magnitude of the price increases that they have had over the last year or so. But the fact that there is a huge reserve deficiency out there has managements sufficiently scared that they are going to keep pushing the commercial prices a lot longer than the would otherwise do.

Do you suport the issue allocated that there was a run-off of the industry that they can easily beat the requirement ----- to maintain their surplus deficiency?

The question is do I think that if we discounted reserves that they would prove to be more than enough cash to pay them off? Yes, this to me is the beauty to me of a property/casualty insurance company. Full value accounting may have made sense in 1950 when the prime rate was a 2% but it sure doesn't make sense now.

Well I guess I can agree with Allan but we should be careful. I have difficulty in making strong conclusions on the subject because of the fact that the data that we all have to work with is pretty lousy. When we're talking about industry opinions, clearly when you look at a particular company you may or may not have really good data, you may have a good understanding of what a company has been doing and how it has been pricing and how it's been operating and that's precisely what the loss experience has been so far. I see Shelly Rosenberg in the audience and you know Shelly the author of the Iso Report on Reserve Adequacy might be good at some point. Shelly, if we got some responses from you. But I guess that at the risk of making some of my remarks sound like a rehash of what Allan said, I'd like to just slightly shade my assessment as being a little different. I think that, of course it is reassuring if you were trying to persuade the public or somebody that by discounting reserves we have enough money to pay off all of the claims. Of course it does lead to problems we have to deal with. One is if we use up a significant amount of surplus where we have the capacity to have the insurance industry continue operating, it reasonably fulfills essential function in our society. Secondly, how do we deal with the issue of risks -- stockholders and company management presumably want to feel that the capital is being sheparded so that if we are kind of blase and just say thanks to investment income we can cover the deficiency. Well sure, it's nice to know that the claims can be paid but I'm not sure that that is really good enough. The

risks would suggest that just as the industry turns out now to have confessed to a massive shortfall on reserve on accident years prior to 76, that we had better look at these inaccurate numbers a little bit more. I could probably add that several other things in the area of other toxic torts and professional liability have told us in hindsight that for accident years prior to 76 that there were some risks that were absolutely not contemplated or toward the magnitude of which was far from understood and I view these numbers taken from the SEC disclosure requirements as really telling us that there are two problems. There is obviously the technical problem and I would tend to agree with Allan that that's not such a bad problem and stockholders deserve to know on a timely basis what the earnings of the company are and management results by managing reserves certainly defeats that purpose. But in terms of the long run with the help of theindustry it is hard to argue that it causes any kind of permanent damage. There is the typical problem and then there is that one time pre-76 problem. If you analyze what factors went into that pre-76 problem, I think it is awfully difficult to prove that we don't have the same sort of problems in today's exposures that we won't know about for another 10 years. You can say that the court system is absolutely gone to hell and it can't get any worse, or that the legislatures have done everything that they can do and that underwriters now can have no more surprises because they have heard all of the bad news that can come at them, but you know that sounds like the old light at the end of the tunnel to me and I am sure that we can't be that complacent. Perhaps it is only the difference in accenting in sort of saying the same words that Allen did but managing to be a little bit more somber about it. There is, however, I think a different cause for some optimism. When we look at the cycle and the fact that possibly the industry just kind of ran out of money to put up in reserves along about 82 and 83 ran out of tax breaks and needed earnings and so on, that wasn't the only thing that was happening. We did obviously have some pretty severe changes in the economy and the change in investment rates was certainly something that sparked the problem of all of this cashflow underwriting. What nobody, in my opinion, figured out how to do yet is to deal with the change in the inflation rate. We have had a couple of papers presented over the last five or six years on how to incorporate inflationary effects on Wallstreeters, but I am not sure that any of us can really feel comfortable or that we have seen enough and worked enough with the data to know how to make those inflation adjustments. If you postulate that an additional problem that the industry had to face was the horrendous affect of inflation on losses in the course of time between when the coverage was provided and when the claim was paid, the extremely high general price index growth, and also some of the specific areas such as medical costs which contribute heavily to casualty loss reserves, then you have to deal with the fact that even at long last the medical inflation rate has dropped substantially and that if you make some adjustment, perhaps in accordance with papers written by people like BILL RICHARDS, the affect would be something like discounting loss reserves which produces a pretty big savings. So, discounting for discounting sake leaves me not very impressed. Coming up with something that is equivalent to the discounting if its a realistic estimate, and I'm not sure that it is, of the benefit of a reduction inflation, that seems to me to have some merit. There is one other thing that I find difficult to deal with in trying to figure where we are and that is the collectibility of reinsurance. This is something that has very little concern for some companies and immense concern for other companies. Just one more example of why making statements on the overall industry reserve adequacy can lead to some pretty incorrect conclusions for a particular company. If you are a company who is reinsured by one of those household names in the U.S. today, you are going to think very differently about collectibility of reinsurance than if you have reinsurance placed in some pretty far flown corners of the world with some companies whose names you can't pronounce. You have one additional concern in addition to the solvency of those companies which is potential and if you've done something unusual and you are not a particularly influential player in the market, you may have to actually argue with

somebody whose got the cash over whether or not he is going to give it to you. Because if you have read about reactional reinsurance litigation ___, stories of reinsurers refusing to pay on some grounds which they assert are valid grounds, then obviously this place isn't the cloud of uncertainty on some land transactions. The bottom line I would say, yes, there is a kind of a very large problem from 10 years ago. Much larger than everyone expected, and yes there is a reciprical phenomenon and yes, the commercial rates will be sufficient so that the insurers can keep adding to reserves for several more years. But I don't know whether that means that we are in good shape or not. Thank you Jim.

I'm going to put you on the spot though. If the data suggests that there is in a runoff position $16 billion of excess assets for a prior activities that where the rates have returned and the policyholder surplus have already been accumulated so that you do not have to hit policyholder surplus, but rather just put a runoff, do you believe that the commitments of the industry in the aggregate -- not in company, but in aggregate, i.e., ____ consultants and guarantee funds except for those being funded by the healthy companies would in fact meet the claims obligation in the future, for 84 and 85.
Well, I think it depends on how you count. Obviously, surplus in some size that's adequate to support the needs of the industry going forward ideally should be maintained. Secondly, you want to make sure you are not counting only a part of the losses and when you look at reinsurance pools both voluntary and involuntary, I'm not sure that the statistics show you all of the losses. There are fewer reinsurance plans today than I think there were 5 years ago. But those that remain and their mostly statutory residual market type programs are pretty expensive so that you might need to make a pretty huge profit on your current business just to be able to pay some of those. My "seat-of-the-pants" reaction is, the margin of reserve deficiency when compared against the future investment income is going to be adequate. I am basing that more on a hope that we can maintain the current inflation levels rather than just saying that discounting per se will do it. Everyone who spends anytime looking at triangles and seeing huge loss development factors coming out of years in the middle and late 70's could fantasize about some dreamworld in which he didn't have those diagonals. If he said that the effect of lower inflation would be that you didn't have to put up with that size loss development factor in the future, everyone could really be considerably more sanguine about the future. Thankyou.

Let's move from the industry discussion to a particular company situation. I think that all of us at the table feel it is important to say before we start that first, nobody's in this room's company is going to be presented. The second is that if you see anything to remind you of home it is purely coincidental. The prescriptions for one may not even come close to fitting the problems of another company. With that caution I would like to present just a base point for us to lead the discussion into 1) what takes place in the exchange of views within the company between stock analysts, accounting auditor, consultant actuary viewpoint, the regultor, and 2) what in fact can be done to this company to attempt to bring this company back to better financial health. So let's begin by taking a look at the general casualty insurance company, which probably tells you what is going to happen just by the definition.

Just a quick base point for this company. In 1979 the company was doing, it was writing $4500 average premiums, it had a high frequency rate - one in four policies. Severity with movement at about 5% of modest investment income' that parallels the industry over that period beginning with the best of the last base in 79 of 165. The company was formed in 1976 by a managing general agent who saw lots of profits coming out of the Property Casualty Insurance industry. Essentially, it has $105 million of loss reserves and it is under the generalized already paid loss distribution tail. Its beginning surplus

position is $30 million. During 1979 the company wrote $101 millions incurred $72 million of losses, expenses $27 million, combined at about $99 million. It's writing capacity rate showed down on line 11 of $2.2 and surpluses growing, cashflow was wonderful, primarily of course because of the delay of the payment schedule. As the company begins to move into the competitive market place it begins to bring its price down to maintain its market share. The client seeks to protect my market share position. The 1980 premium is up, but the price is slightly down, the underwriting income goes negative but with a massive investment income being created off the flows in the stock and investments, the company produces a 100.6 combined, 21.6 million dollars in investment income as surplus continues to grow, cashflow still is wonderful. They begin to get more price competitive it is harder and harder to hold that premium volume up, i.e., hold market share, and you can keep aggressively on the loss ratio that the company is beginning to experience adverse development. Added with a rise in their expense ratio due to an increase in transactions count because they are doing so much more business to maintain their premium volume, this company begins to climb in its combined although its surplus is growing phenonomally and their capacity to take business is continuing to increase. The only indication that you have in looking at this page that there is an imminent problem beginning to appear in cashflow, though 1984 was still positive and therefore had not created any concerns in the company. The picture you are looking at is a company who has a reserve problem. They have not recognized a change in their basic business and they have not recognized a reserve problem. If you look at the indicators that would begin to tell them that there is a problem being generated in their book of business, you would see that their average premium dropped from 1979. That manual has dropped to $2,700 over that period, stabilized in '83 when they began to get suspicious that there was a problem in their books. Their policy in force count was growing dramatically to maintain their premium volume. Therefore their frequency had not ever changed so they haven't slipped in the quality of their mix of business, and a slight change in the severity. If you look at this company in a perfect reserve position, the company's performance changes dramatically. A combined ratio is rising like some _____ we've seen in the industry. It is up to 177, they are beginning to post losses, beginning in the period 1982. Their surplus begins to disappear and by 1983 has gone negative. 1984 is massively negative. Their net cashflow, of course, is the same as the previous company since both are made on the paid loss distribution. This company essentially runs into trouble in 1981 in that it has violated at least a 3-1 benchmark rule and is writing about 4.2-1 and is in deep trouble the following year. Which brings forth the issue as it was first reported as to what is remaining out there that is going to have to be recognized by this company in their financial statements in the coming years. Through 1985 and 1986, assuming that Allen's prescription is used, the reserve deficiency is not recognized immediately but rather is spread out over income statements, in 85 and 86. In 1987, however, they are going to find that the amount of money still in reserve is not adequate to meet the pay and therefore the company has to hit current cashflow significantly to make up for those losses. You can see that there is a minus $16 million in the '83 reserve. A minus 12 in '82 and a minus 5. If you hit 1988 you will see that there is a minus 16, a minus 30, a minus 21, a minus 10, a minus 2. There is about $200 million of cash outflow without a corresponding inflow that are going to be faced by this company to prompt its income statement. I think about close to double at that point what the current surplus position is. This is not a unusual position. Particular middle size small companies in the property casualty industry today. I would like to address the first question to Jim as to what takes place in the discussion with management and exchange of viewpoints as to whether or not this is a real picture of what is going to happen to this company. And to Allen and then talk about what can in fact be done by this company to maintain its finacial life. Jim.

Well I guess what takes place depends to a great deal both on how bad the problem is, who is doing the talking and a number of other relationships. If the problem is as bad as it seems here and there is no deep pocket, there is no rich parent, you can probably make several predictions -- the mirror of the bad news will be promptly dispatched. The president of the company will be a little worried. He will presumably tell his underwriter he's got to do a little better. Tell his marketing guys to get him some more business. Tell his claims people to get a little tighter on the claims and figure if they all work hard they can get out of this tough spot, not realizing at all the magnitude of the problem. The variations would include first of all some recognition of regulatory realities. If the bear of the bad news was the auditor who is fired and has to report something to the SEC, or to be more precise the SEC Registrar has to report to the SEC why they got rid of the auditor and the auditor is then asked by the SEC whether or not that is correct, then of course, you have the possibility that there will be a Round 2 which will involve, undoubtedly, some pointed questions by the SEC and certainly the appointment of a reauditor who will have the right, and exercise it, to review work papers and discuss things with the auditor. Presumably you can bully one guy but you can't bully everyone. If the regulator is a state like New York, where the insurance department requires domiciled companies to contract with their auditing firm, the auditing firm will advise the insurance department within 30 days if the filed statement is materially incorrect. Then once again you have a Round 2. However, there are a number of other variations. If it is a small company, and there is a rich parent to fix the problem then you can get to some more creative discussion points. Then you can talk about the shadings of differences of opinion. Obviously when you hear very bad news you also usually have a large amount of uncertainty about how bad the news is. It is rather ironic that dramatic messages have first of all a greater amount of uncertainty and secondly a greater need for being very precise and very careful in how they are stated. Whereas the message is things look a couple of percent worst than they did previously, you may tend to be somewhat casual and people may not recognize that large dollar amounts are involved. How do you try to carefully state what you have to say? In the case that you presented, you can't obviously say to the company management that you know exactly what the answer is. For one thing they have doubled the number of polices in force and they have the average premium. There is some kind of change there. They undoubtedly are going to assert that their mix of business has changed. Their underwriting is different. These neighbors are going to require more than just a mechanical treatment and in fact any of us who recognize all of the factors which influence large reserves have to be very humble about stating these could have a significant affect on the projection. Now, at the same time we have to be forceful and say that no one whose being realistic could argue with the conclusion that your slides present is a real big problem. All we are saying is that these changes in a company make it very difficult to say precisely how big the problem is and it suggests the need for considerable additional digging into what's been going on. Whether it is looking very carefully into all of the details of the classes of business underwritten and how they were underwritten and what's been going on in the claims area. What you end up with is not at all something that is coming in and saying "bang your dead" because your reserves are short by X billion dollars. Neither is it something that should be cavalierly described as king of horse trading. You got to put up a lot of money, well -- how much do you think we need to put up. We only have X billion in surplus, and the decision is then reached on the basis of how much the company can afford to put up. The truth really can't be that there is a black and white answer, or that there is a certain amount of horse trading. The process I would describe is, first of all, an exchange of information rather than negotiation and then, secondly, a refinement of opinions.

The room for discussion/negotiation seems to have closed dramatically in which case there is a distinct possibility that this company would be forced to disclose rather dramatic numbers which management felt was at least unreasonable disclosure. Do you have any comment about whether you think that is going to be a trend -- that these troubled companies would have to come to grips with in 1985 and 86.
I think it is a dramatic change and I agree with you that the situation can be seen is somewhat more black and white terms. If the company has reached a position of true desperation -- they're running out of cash and so on. Things do tend to sort of build over a 2 or 3 year period with a company initially displaying warning signs. Having presumably some note of concern raised and if the process of exchange of views and digging into the numbers doesn't take place early enough and certainly did not take place in a number of companies -- then yes, you run into a situation where you can say to your client very humbly, we don't know what the right answer is but it is definitely a lot more than you can afford to report and still remain solvent.

Alan, do you have comments about the exchange? Do you run into any situations you are attempting to establish your statement about where you think the company's performance is going.

I think it is fair to say that security analysts are the last people that anybody wants involved in this negotiation process. In fact, if it were a major publicly held company itwould go out of their way to sure I didn't find out what was going on. So for the answer to the question in a word is, No, I don't get involved in the negotiation process and there is no exchange of views.

Before the fact there are occasionally situations where you get some inkling that something may be going on. The best securities analyst's work is not going to talk through their companies but is done by keeping an eye on agents and customers and trying to get a feel for what a company is doing. That is very hard to do though. For one, people we are all reluctant to talk about bad things, and two it is very time consuming and also very difficult because you have to be careful about generalizing what is going on in one city or one line may not be indicative of what is going on nationwide. When investors start to get inclinations that something is going wrong with a company, you will start to notice performance in its stock. The stock market it speaks to you and gives you messages. This is an important indicator because it is one of the few areas around where you have to put up your money to express your thoughts. So if the stock starts to go down you can generally believe that there is somebody out there has something bad that they are on to. In that regard there is some influence of the stock market on the negotiation process. I will give you a good example. In mid-1984 the commercial premium rates started to go up and, stock prices of property-casualty stocks started to really outperform the market. It has been a great year for insurance stocks mainly because the premium rate environment was getting better. It was obvious that even though earnings were still poor that factors were in place to drive earnings up. Frankly, it became so compelling that nothing was going to derail, the stock momentum. So in the fourth quarter of 1984 company management started to say "gee, maybe I will make some big reserve increases." They could do it because the market was really moving and investors believed that things were going to get a lot better. So in some ways there is really negotiation with companies which is transmitted through their stock prices. Thanks Alan.

Let's just outline quickly some of things a company like this would probably begin to do because you know that for the next 12 months their president is going to be out searching for capital sources. Their executive vice president is probably going to be dealing extensively with outside agencies, the state and others from the reserve standpoint. The

company is probably going to undertake some of what we say are the classical actions that happen when a company gets into this difficulty. The very first of those is changing their line of business orientation. They will look for cashflow growth to offset the negative cashflow position so that they do not have to reverse _____ their investment portfolio. So they will enter a new line of business and show a very good growth because the new kid on the block in the insurance industry always has a very good growth rate. They don't always get an access to the cross-section of the book and they'll generate cashflows. One of the favorite places for that today seems to be the financial guarantee business because that doesn't have losses today. The second thing the company is probably going to begin to do is reshuffle it's balance sheet. It is going to restore its automated assets by sale and move to an upstream company with automated assets. They are probably going to sell their forward rights and salvage and subrogation to get their liability to offset on the opposite side. Chances are they are going to remove their accounts receivable balances out. As their last resort they may even sell their building, although after a year of being a tenant you remember why you bought your building in the first place. The classic way to generate income this year. Assuming that the market value of the building, of course, exceeds the value that is currently being carried on the balance sheet. I think in addition to that they are going to have serious discussions with reinsurers about the things that we don't talk about, loss portfolio transfers, which in retrospect is talking about prospective loss portfolio transfers. I think that the reinsurer whose professional reinsurer will take one look at what's there and there will be a very tough negotiation for this company to get through to find any kind of surplus relief out of the insurance company. It is actually my belief is this company which had the real advantage over a lot of the other problems in the industry today is that its timing has arrived when there is a rapid increase in price. Had this arrived on January 1, 1983, this company would not have made it much longer than 36 months. But the fact that it happened in January of 1984, this company as bad as it looks can probably make with very little capital infusion unless it makes the mistake of a new line of business entry where it doesn't know what it is doing. It is going to have lousy performance, it won't be able to maintain its employment and come out of it. I would like to put that scenario to Jim and see what he has to add to it from the standpoint of what he thinks this company might do to pull itself out. Assuming that it is not a stock company that needs a qualified opinion and that the regulators are not on a triangle audit. There is something significantly greater than that.

Well, for those of us who have seen enough of wounded soldiers, I think it is clear that sometime the regulators do extend a little cooperation and it is clear that there are successful strategies and there are very unsuccessful strategies. I think that you summarize them very well. The person who says that we are going to go out and write a lot of business in the attractive area has to have asked himself if it is so attractive now why weren't we doing it before. The other side of the coin is because it really wasn't that attractive until it was seen as a last resort. The case studies of recent failures when examined often feel that in the last year or two of a companies existence when they realized that they were doing kind of poorly, they went out and they found some new sources of business and boy did they get the business. So, that's not the right way to do it. On the other hand, there are some fairly prestigous companies, who may be recognized with some degree of pity in today's market as being pretty severely wounded, but companies with reasonably long histories and fairly large, and respected as having a lot confidence whose reaction to bad times -- and I'm not just talking about this underwriting cycle but prior underwriting cycles as well -- their reaction to bad times was to retrench back to their basic line of business which presumably they did know and to concentrate on those areas where they really did have some strength. Even if they had been taking losses in those lines the fact was that they had already made the investment in learning the business and they already had the distribution system and the

client base and so on. So, if you take these flies and you run them out and you can easily come up with two scenarios. One scenario you discover is that no matter how much additional premium you put on the books you can't keep up with losses. The other scenario is a lot less dramatic but your premium growth is coming from rate increases and not from writing new business and you find that you can make some recovery. Of course in a competitive market there is a limit to how much recovery you can make but the nice thing about today's competitive market is that you can charge someone enough money that you can be sure they take their business somewhere else, and darnit, they stay with. That's when you really get worried is when you charge too much and they stay with you.

Alan, since everybody is reunderwriting their books, lowering their limits and doubling their prices when they are in this situation, when they speak to you. How do you clear through that process?

Before I answer that let me just sort of add one thing on the what this troubled company can do. Interestingly the property/casualty industry is the only industry I know of where you can be a company's savior by taking money out of it. Now think about that for a second. Figure out how many situations you've seen where someone came in and said they are going to bail out this company and what they do is, the way they bail them out is to take $75 million in assets from the company in return for assuming $150 million of liabilities. I like that kind of business and I would argue to that if anybody has a company they would like me to do that for I would gladly do that right here. I like the idea of having cash and being a savior at the same time. Anytime you improve yourself by giving up cash you are not really improving yourself, although you can certainly argue that statutorily you are. Now the question on the floor is how does a security analyst get a feel if people are telling you the truth. The answer is that most people don't tell the whole truth. It is not that people out right lie, that is a strong word. Instead answers all Disingeniuous which is a better word since it means not quite the truth. But if you want to put it in your own context, the situation is no different than you or I going on a job interview. When someone asks you something that is probably a little bit negative, you don't lie but what you do is sort of reposture things to put it in its best light so that it appears to be a little bit less negative than it really is -- that's the way analyst deals with the world. You take that and you sort of factor it into your thought process that's all.

Thanks Alan. Since we have already passed the time we anticipated, I would like to stop and go to questions and any comments that anybody has that we can address relative to how can you keep yourself from getting in this position in the first place. Because I think there is an agreement up here at the panel that one of the problems is that too many of the management that come in not watching the right information on a timely basis to determine the fact that their companies are in trouble, because the problem is not underreserving the problem -- it's pricing. And if you are not watching what is going on on the booking of business then the reserves will not be able to take care of themselves. I would like to open up the discussion to any questions or comments that anybody would like to make. Who is going to be first. _inaudible

One important point that is emerging very positively in this industry is that managements are doing a lot of thinking on how did they get themselves into this mess. How did they allow themselves to cut rates so badly in response. There are two points that people have hit up on that intrigued me. One is the buzz word -- operational flexibility. One of the real culprits in this last cycle was that people did not know how to stop writing business even though they knew the rates were going down. Our sample company knew that it was used to getting $4500 nd now it was only getting $2700 for the same risk. But

they have a lot of fixed expenses and if they'd stopped writing business they couldn't to cover those expenses and were going to get hurt and potentially even worst. Second point is that managements have realized they have an extremely long bond portfolio that the asset maturities are much longer the liabilities in the last cycle. Companies didn't have the cash coming in on a day-to-day basis and what that did in the last sycle was forced companies to stay in there and and keep bringing in new business even though the companies were too low. Now making some very real changes in their operations. Now there is going to be a real attempt on a part of companies to switch fixed costs to variable costs. To make operations a lot less permanent. For example, there is going to be a lot less ownership of buildings and companies are going to be willing to close down branch offices or claims offices overnight if they have to. Now when they see prices going down the good companies are going to get rid of these expenses quickly and boy that doesn't argue very well for anybody working in an insurance company. Second, there is going to be a tremendous shortening of the length of bond portfolios. Companies have just realized that you can't be out with 20 year bonds when the average duration of reserves is 3 or 4 years. It gives you a cashflow problem. Now, if you start to shorten your asset portfolio you are going to give up an lot of investment income because the shape of the yield curve. If you give up some investment income, you are going to have to make it up in underwriting and premium rates.

One of the sifnificant results will be a lot more emphasis on the underwriting again. So I think the answer to the question of how the companies avoid getting into trouble is really being studied in the industry right now. I think the answer is operational flexibility.

I think that the steps that Alan has taken are reasonable and sound. I suspect, however, that in the area of price monitoring we still have more improvements to be made than in any other area. For a number of years I've been preaching the idea that every company should have its own price monitoring system. The companies that seem to do it very well are the companies that have done very well at personal lines and you all know who they are. They know not only how their prices have changed in minute detail from class to class and from territory to territory over time. They also know how their prices have compared to their competitors prices in pretty much the same detail. The general assumption on the commercial side which is, of course, where most of the problem has come in the last few years was that commercial pricing is much too vague and too complex. Everytime the underwriter issues a quote he filled out a little form -- really used a little form that compared the manual and standard premium of the renewal to what it would have been if he renewed on the former basis. And you can say it works ok on medium sized commercial policies and in doesn't work on jumbo lists and I would guess that that's kind of an easy shot and its not very farsighted, because after all you can just as easily say what were the loss ratings indicate last year and what will they indicate this year and how much above or below that did we write the risks this year versus last year. There are ways to solve the price monitoring issue no matter what kind of business you write. It's just that people resist this because it is extra work and because they didn't realize how important it was. I think that it is one of the prospective tools that we have. You can look at price reserves and lost triangles all you we want but only by knowing how our current business is priced relative to the price level can you really know how good a job you can do in other management decisions going forward.

We might as well complete the panels remarks. I wish I could be as optimistic. I recently came from a closed forum of chief executives on the insurance industry of where it's going vis a viz pricing distribution which is similar to one I attended in 1976. I heard in 1976 what I heard in the session in 1985 which left me a little bit skeptical as to whether or not in fact that a few will make the transition to better managed insurance companies. Being the better managed insurance companys having to compete price wise

with the rational prices, doesn't leave you in a very good position unless you want to find an industry to write in because you can't get your price if somebody else who doesn't know what they are doing is going to take 40% off your price and issue the contract. So that unless there is a major overhaul of the management of property/casualty companies there still is this competive fees which is going to cause that well-managed company significant problems with market share and the market is driven by price in the property/casualy industry. Second, there is a clear indication in our minds, that we haven't attempted to look carefully at -- that we are losing economies scale. As your production rises your expense curve does not drop. Your expense curve rises upward or linearally with the change in your production rate and this is primarily driven by the system initiatives and the change in the product life cycle because the products have been tied in the system at the highest programs. The money centered banks that disappeared 10 years ago. When you begin to add up that expense pressure on the side of the companies at the same time we get the competitive pressure being driven by the personal lines companies will come under significant pressure from themselves as well as the stock companies rediscovery of personal lines since 1976 and the commercial bank interest in the personal lines market place. If you are going to have two or three things hitting management simultaneously -- the point of that is is when you put two or three pieces of difficulty in front of management of even a well managed company, they tend to focus on that particular problem rather than maintaining the strategy they thought they were going to maintain coming out of the last cycle. And I think we are going to find some very rocky times in the property/casualty industry over the next 4-5 years while we try to make our way through this transition to some type of new distribution channels and use of systems, management programs and new competition sources. I would venture to say that describing the number that less than 10% of the property/casualty companies out there are probably no more than 50% of the volume I would even classify in the area of a well managed property/casualty company and that may even be stretching it with those numbers.

I would like to ask Alan how to go about evaluating a company that relies heavily on reinsurance, particularly foreign markets have these names that you can't pronounce or financial statements that are difficult to read or are several years old before you even get them.

What happens in the stock market is that the price dictates how people assess companies. If you look at certain valuation measures, like a price-earning ratio you will find that there is pretty wide range. Why should two companies who are seemingly doing the same things but the evaluated differently in the marketplace. Usually it comes down to a lot of different subjective things. One of those thingsa is reinsurance.

How much benefit can a well managed company expect to see from perhaps a change in the attitude of the obstensibly commercial insurance buyer where surety may become more important than ____ price.

The question is how much benefit will a particularly large property/casualty companies have with an increase in price and the flight to security which was the question Jim raised about not collecting the funds that you thought you were going to collect. I think that clearly is going to have a positive impact for the secure companies. We had the same flight to security in 1976 if you remember and 1977 -- very short memories before new entries. We are having new formations everyday out there and new capitalized companies who see a rise in price and a rise to security is the time to enter. And now is the time to form a property/casualty insurance company and I think that you are going to find that they are very short lived advantages and that some of the carriers will be saved. I also think the whole security issue seems to not embrace a lot of the companies

any more than they use to embrace. Temporary, very temporary. I also believe the price rise which can be very temporary. Any other questions.

I would like to ask Jim from an auditing respective can you have any rules of thumb that are used in determining materiality. What do you do, I know you said it isn't horsetrading but what to do when you owe money.

The question had to do with rules of materiality. There are volumes of literature for financial reporting issues that have been written by and for the accounting profession. Some in the form AICPA pronoucements and some in the form of FASB and some handed down by the SEC and so on. Bear in mind that this little white book that was in your registration package represents about the only single authoritative source for actuaries working in loss reserves. And if you are familiar with it you will know that it's a statement of principles, not of standards, it does not state which techniques are better than others and under what circumstances and so on. I get very uncomfortable when I have to compare the sheer weight of authoritative literature that exists in the accounting area with the small amount that exists in actuarial literature. I get some comfort from the fact that there are many many papers in the proceedings as in casualty/actuarial society on specific reserving topics and that if one does a careful job using those techniques as best he can to follow the principles in this little white booklet, that at least he has lived up to the standards that exist, or let's say the literature that exists. Frankly, I don't think it is possible yet, I don't think technically the state of the art permits anything like the depth and detail of authoritative literature that exists on the accounting side. I will go a step further and say I am not sure it is desirable because I am not sure that the art of analyzing loss reserves should be put into a mold of standards that dictate that certain procedures should be applied at certain times. I would fear at least that in terms of what we know today, or what I'm afraid we don't know enough about today, that we would saddle ourselves with requirements to use techniques that would then turn out to be inappropriate under certain circumstances, then we would have the comfort of knowing that we found the procedures but the dissatisfaction of knowing that we got the wrong answers. That's sort of a long preamble to saying that I am not satisfied, but I'm not about to promote or propose any immediate solution because I'm not sure there is a solution. In terms of the application of actuarial techniques to the financial reporting problems that we all face, I think there will always be a sort of dynamic tension between the need of management to report a particular number in their financial statements. They cannot, obviously, report a range, but our goal as loss reserve specialists, I think has to be to communicate to managers not just numbers but an understanding of why there is uncertainty, what the consequences of the uncertainty are, provide the very best analysis that we can of all the little indicators that help management to understand why the number is more likely to be somewhere in one general area than in some other area. Or in those rare cases where we really feel very strongly that the number lies in an extremely narrow range, why we believe that to be the case. I don't believe that the actuary, whether he is assisting the management of the company or the insurance regulator, or the SEC or a public auditor can keep on his actuaries' hat and say that this definitely is the number. At least not in the kind of company that we are looking at today.

I've heard in two large companies recently, discussions about marketshare and new market entry. To believe that anybody who discusses marketshare is talking about pricing. Rather not cutting but just stop raising it how you flatten out. I think there are a couple of companies that are going to have to get an increase in volume to keep the cashflow up which is going to force them to meet that response and keep their prices flattened. In other words, not continue to increase their price. In addition to that I still believe that there is a sizeable pinup demand just by the number of inquiries we are

getting in the purchase of propety casualty companies. And with the belief that now is the time to start a new entry of capital which would have very good success in raising capital for existing pc companies is going to put pressure on the business. I do not believe there is a capacity shortfall in this industry. You can't be sitting there with 68 or 69 billion dollars, whatever the latest number is, of surplus relative to what we talked about as real surplus in 1974 and 75 and say we have a capacity problem.

Aggregate Reserve Analysis Data
(Dollars in Millions)

	1976 & Before	1977	1978	1979	1980	1981	1982	1983	1984
Balance at end of initial year	21110	11402	12575	14062	15685	16711	17366	19261	21984
Subsequent year development									
One	21805	10970	12159	13790	15455	16446	17423	19555	
Two	22888	11097	12384	14119	15528	16367	17807		
Three	23651	11116	12288	13908	15276	16319			
Four	24451	11173	12284	13808	15221				
Five	24932	11172	12176	13782					
Six	25396	11159	12185						
Seven	25971	11163							
Eight	26619								
Cumulative change($)	5509	-239	-390	-280	-464	-392	441	294	0
Change as a % of initial-year balance	26	-2	-3	-2	-3	-2	3	2	0

Reserve Changes by Accident Year

Calendar year	1976 & Before	1977	1978	1979	1980	1981	1982	1983	1984	Total
1977	695	—	—	—	—	—	—	—	—	695
1978	1083	-433	—	—	—	—	—	—	—	650
1979	764	127	-416	—	—	—	—	—	—	476
1980	799	19	225	-272	—	—	—	—	—	771
1981	481	57	-96	328	-230	—	—	—	—	541
1982	465	-1	-4	-211	72	-265	—	—	—	56
1983	574	-13	-108	-100	-252	-80	57	—	—	79
1984	649	4	9	-27	-55	-47	384	294	—	1211
Cumulative change	5509	-239	-390	-280	-464	-392	441	294	0	4479

Source: Company data; Kidder, Peabody & Co. Incorporated calculations.
Note: Aggregate composed of the following property-casualty companies:

Aetna	Continental	SAFECO
Allstate	Fireman's Fund	St. Paul Co.
American General	General Re	Travelers
American International	Hartford	USF&G
CIGNA	Home Insurance	
CNA Financial	Kemper	
Chubb	Ohio Casualty	

Reserving Workers' Compensation Individual Pension Case Reserves

- Facts
- Assumptions
- Calculation
  - -Gross
  - -Net
  - -Excess
- Mortality Tables

Pension Cases

Fatalities in which there is at least one qualified survivor entitled to continuing benefits for life or until remarriage.

Any injury case in which the catastrophic nature of the injury is such that the claimant will receive weekly indemnity benefits for life and/or life-time medical benefits.

Facts

Date of Loss:	**2/13/82**
Age at Date of Loss:	**41 years**
Type of Injury:	**Multiple Skull Fractures, etc.**
State:	**California**

Facts

Wage at Date of Loss:	**$134.00 per week**
Medical Paid to Date:	**$211,563**
Indemnity Paid to Date:	**$13,355**
Future Indemnity:	**$4,654 per year for life**

Assumptions

Future Life Expectancy:	**30.87 years**
Future Medical Costs:	**$2,500 per year**
	8.0% increase per year

Reinsurance Coverage

Retention	$400,000
1st Layer	$600,000
2nd Layer	$4,000,000

Incurred Loss Calculation

Paid to Date:		**$224,918**
Future Indemnity	**$4,654 × 30.87 =**	**$143,669**
Future Medical	**$2,500 × 193.29 =**	**$483,225**
Total Incurred Loss:		**$851,812**
Reinsurance Retention:		**$400,000**
Total NET Incurred Loss:		**$393,052**

Incurred Loss Calculation

Reinsurance Retention:	$400,000
Paid to Date:	$224,918
Remaining Net Loss	$175,082
Number of Years Required to Reach 1st Layer of Reinsurance:	18 years
Number of Years Required to Reach 2nd Layer of Reinsurance:	39 years

Incurred Loss Calculation Net Of Reinsurance

Indemnity Payments	$\frac{N_{43} - N_{61}}{D_{43}}$	× $4,654		
	16.89	× $4,654	=	$ 78,606
Medical Payments	$\frac{N_{43} - N_{61}}{D_{43}}$	× $2,500		
	35.81	× $2,500	=	$ 89,525
Paid to Date				$224,918
Expected **Net** Incurred Loss				$393,052

Expected Reinsurance Loss

(Excess of $400,000)

Indemnity

$$\frac{N_{61}}{D_{43}} \times \$4{,}654$$

$$13.99 \times \$4{,}654 = \$\ 65{,}109$$

Medical

$$\frac{N_{61}}{D_{43}} \times \$2{,}500$$

$$157.48 \times \$2{,}500 = \$393{,}700$$

Total $458,809

Expected Reinsurance Loss

(Excess of $1,000,000)

Indemnity

$$\frac{N_{82}}{D_{43}} \times \$4{,}654$$

$$1.67 \times \$4{,}654 = \$\ 7{,}772$$

Medical

$$\frac{N_{82}}{D_{43}} \times \$2{,}500$$

$$50.40 \times \$2{,}500 = \$126{,}012$$

Total $133,784

Range of Possible Payments

Claimant is Alive For:	Gross Loss Payments	Net Loss Payments
1 Year	$ 232,072	$232,072
10 Years	$ 307,676	$307,676
30 Years	$ 647,738	$400,000
50 Years	$1,892,043	$400,000
Expected Value	$ 851,812	$393,052

Range of Possible Payments

Claimant is Alive For:	Gross Loss Payments	Excess Loss Payments 1st Layer
1 Year	$ 232,072	$ 0
10 Years	$ 307,676	$ 0
30 Years	$ 647,738	$247,738
50 Years	$1,892,043	$600,000
Expected Value	$ 851,812	$325,025

Range of Possible Payments

Claimant is Alive For:	Gross Loss Payments	Excess Loss Payments 2nd Layer
1 Year	$ 232,072	$ 0
10 Years	$ 307,676	$ 0
30 Years	$ 647,738	$ 0
50 Years	$1,892,043	$892,043
Expected Value	$ 851,812	$133,784

Future Medical Payments With Inflation

Age	Payment Amount					
44	$2,500	×	(1.08)	×	Probability of Living	1 Year
45	$2,500	×	$(1.08)^2$	×	Probability of Living	2 Years
46	$2,500	×	$(1.08)^3$	×	Probability of Living	3 Years
—					—	
—					—	
—					—	
75	$2,500	×	$(1.08)^{32}$	×	Probability of Living	32 Years

Future Medical Payments Without Inflation

Age	Payment Amount
44	$\$2{,}500 \times \frac{D_{44}}{D_{43}}$
45	$\$2{,}500 \times \frac{D_{45}}{D_{43}}$
46	$\$2{,}500 \times \frac{D_{46}}{D_{43}}$
—	—
—	—
—	—
75	$\$2{,}500 \times \frac{D_{75}}{D_{43}}$

Future Medical Payments With Inflation

Age	Payment Amount				
44	$2,500	×	(1.08)	×	$\frac{D_{44}}{D_{43}}$
45	$2,500	×	$(1.08)^2$	×	$\frac{D_{45}}{D_{43}}$
46	$2,500	×	$(1.08)^3$	×	$\frac{D_{46}}{D_{43}}$
—			—		
—			—		
—			—		
75	$2,500	×	$(1.08)^{32}$	×	$\frac{D_{75}}{D_{43}}$

Future Medical Payments

Without Inflation

$$\$2{,}500\ \frac{(D_{44} + D_{45} + D_{46} + \text{— — —})}{D_{43}}$$

With Inflation

$$\$2{,}500\ \left[\frac{(1.08)\ D_{44} + (1.08)^2\ D_{45} + (1.08)^3\ D_{46} + \text{— — —})}{D_{43}}\right]$$

— Or —

$$\$2{,}500\ \left[\frac{(1.08)^{44}\ D_{44} + (1.08)^{45}\ D_{45} + (1.08)^{46}\ D_{46} + \text{— — —})}{(1.08)^{43}\ D_{43}}\right]$$

Normal Life Table

Age	Number of People Alive	Number of Years Lived	Life Expectancy
0	100,000	6,998,252	69.98
43	92,335	2,850,507	30.87
61	77,358	1,291,683	16.70
99	594	642	1.08
X	Dx	Nx	Ax

Adjusted Life Table
(Includes 8% Inflation)

Age	Number of Dollars "Alive"	Number of Additional Dollars to be Paid	Dollar Expectancy
0	$ 100,000	$520,929,643	$5,209.30
43	2,526,879	488,421,886	193.29
61	8,459,599	397,932,148	47.04
99	1,209,847	1,363,828	1.13

Summary

Gross Incurred Loss	$851,812
Net Incurred Loss	$393,052
Excess Incurred Loss	$458,809

Panel Session 1D

WORKERS' COMPENSATION RESERVING

Moderator: Richard W. Palczynski, Second Vice President & Actuary
Travelers Insurance Company

Panel: Russell S. Fisher, Second Vice President
General Reinsurance Corporation
Gary G. Venter, Actuary
National Council on Compensation Insurance

1985 Casualty Loss Reserve Seminar

Kansas City, Missouri

Welcome to the first panel of the seminar. My name is Dick Palczynski. I have the privilege of serving as moderator and first panelist for this morning's panel on Workers' Compensation Reserving. We have an interesting session for you this morning, but before we begin the panel discussion I have a few logistical items to cover especially since we're the first panel. Let me ask that you please use the microphones on the floor to ask questions--speak clearly and begin with your name and your company affiliation. This session is being taped, as most of you know that have been to these session before. Each panelist will take questions at the end of his presentation. There are handouts, as I'm sure you've noticed at the beginning of each row. There are three sets of handouts. Each one of the three panelists will use different handouts. If you haven't already passed them down, please do so. There are a few extras up here in the front, if there isn't enough to go around. If there aren't enough handouts, I'm sure if you'll leave your name and card with anyone of the speakers we can get you handouts. There are slides to cover most of the handouts so you should be able to follow this presentation. The last logistical item is for the reporters in the room; a reminder that the views expressed here are those of the panelists and not necessarily those of the Casualty Actuarial Society.

We have three discussions this morning. I will begin with a discussion of loss payout patterns by state for workers' compensation based on National Council information and I'll conclude with a brief review of Travelers claim frequencies. Russ Fisher will follow with a discussion of life pension cases. Russ will focus on key variables that impact pension claim payout and on reserving such cases. Finally, Gary Venter will close with a discussion of life pension triangles and present two reserving techniques.

Let's get started. Let's talk about loss payout patterns for workers' compensation. As most of you know, there has been a great deal of interest in loss reserve discounting with the Reagan tax bill and QRA. There is a panel at this seminar that will address loss discounting but on a country-wide basis. As you will shortly see, worker's compensation payout patterns do vary a lot by state so I'd like to spend the next few minutes discussing those differences. The first page of my handout shows National Council on Compensation Insurance policy year payout patterns by state for 39 states--the National Council states, by year of payment and for each of the first eight years after the beginning of the policy year. The ninth column on that exhibit really represents the losses unpaid as of the eighth year. The data comes from the National Council policy or aggregate ratemaking calls and is used primarily to quantify the impact of investment income in rates by the National Council. The years at the top of each column represent the number of years from the beginning of the policy year. For those of you that are unfamiliar with the term policy year, a policy year consist of all of the experience of all policies effective in a given 12 month period normally taken as January to December. The average policy in the policy year is effective on 7/1/85 for example for the 1985 policy year. So the average accident date is 1/1/86. Using Indiana, the fastest paying state on the top of that exhibit for example, 20.6% of total losses for a policy would be paid within 12 months. The second column shows that 51.2% would be paid between 12 and 24 months and if we add 206 and 512 we find that 71.8% of losses would be paid by 24 months. That's not a cumulative exhibit, it's a paid in the interval exhibit. Note that the policy isn't complete until the second column--that is not all of the policies have expired until the end of year two so we wouldn't expect to see a large percentage paid at 12 months. The remainder of the columns are read in the same way. The average length column is intended to allow us to compare states. The average length is the accumulated sum of the percentage paid in the interval multiplied by the midpoint of the interval. In Indiana the average length of 1.928 is mathematically .206 x .5 + .512 x 1.5 years + .513 x $2\frac{1}{2}$years etc. The last term being .023 x $8\frac{1}{2}$years.

Here are a few observations about the data. There is a lot of variance by state, as you can see in the average length column. The actual variance is even greater than that shown in that average length column because of the lumping of the nine and over years in the ninth column. In the interval, Indiana could be fully paid in year nine or year ten but Minnesota is likely to payout over a 20 year period. So the average length difference by state is quite dramatic. This slide and your next exhibit shows the variance graphically for the fastest paying state, Indiana, on the top, the slowest state Minnesota in red there, the bottom graph, and the typical state which I've picked as Virginia in blue, right in the center. Here you can see that the percents paid at the end of the eighth year are about 98% for Indiana, 86% for Virginia, and 64% for Minnesota. Quite a lot of variance even at that late point in the development pattern. The differnces at the end of year two are 70% for Indiana, 43% for Virginia, and only about 20% for Minnesota. So if you're discounting ultimate accident year reserves or pricing using rate-of-return analysis, you'd better account for that difference. One thing that's obvious is that any change in your mix of business by state can very easily affect your company's cash flow. So this is a way to watch the change in the cash flow that results from a changing mix.

Another observation is that, not surprisingly, relative benefit levels have a lot to do with payout differences. Maine, Minnesota, D.C. are among the highest benefit level states in the country and they are obviously long-payout on that first exhibit. Connecticut isn't far from the longest and has escalation, and it's one of the highest benefit level states. On the other hand, we find many of the lower benefit level states at the beginning of that first exhibit with Texas being the most noteworthy. So obviously benefit level differences are a key reason for payout differences. This is particularly true where the benefit differences are caused by or result in a greater frequency of life pension cases as is the case in Minnesota. Russ and Gary will both talk about life pension cases in more detail.

The third observation is that not all of the states are on the exhibit. The National Council has 39 states for which it collects data. The Council does not have the larger independent states in its data base; but based on Travelers' data, using a fast, medium, and slow payout criteria, I would assign the missing states as follows. You may want to write them down. California I would put in the medium or average payout, Delaware medium, Massachussets medium, New Jersey is somewhere in the middle. I'd label it about medium or average. New York seems to be a fast payout state not as fast as Texas, but somewhere in between Texas and Virginia. Pennsylvania based on our data is a slow payout state, maybe in between Virginia and Connecticut. The rest of the states are monopolistic state fund states.

The fourth observation is that the data is on a policy year basis and that's good for policy year ratemaking or rate-of-return pricing; but for loss reserving accident year payout patterns would be better. The National Council is now collecting accident year data so accident year payout patterns would be available soon. But for now you might just try to adjust the policy year data to an accident year basis. I did this for a few states on this next slide and on your next exhibit. A policy valued at 18 months is roughly equivalent to an accident year valued at 12. So using the data on the first exhibit for Indiana, for example, we could estimate accident year paid at 12 months by adding .206 and about half of .512 (.512 is the payout between the first and the second year on a policy year basis). That would give us 46% for Indiana paid in the first 12 months. The rest of the points could be calculated in a similar manner, accident year paid at 24 months for Indiana would be .206 + .512 + $\frac{1}{2}$of the next year .153. You can try fancier techniques, but just using this simple assumption produces the graphs shown on this slide. At 12 months we see that Indiana, Virginia, Minnesota are 45%, 35% and about 25% paid respectively. As we get toward the later evaluation points, the policy year and the

accident year graphs become very close since there's only a six month average age difference between a policy year and an accident year valued at the same point and time.

One final observation. This information is really useful even if, God willing, QRA doesn't pass. No company has enough credibility to rely on its own information to get payout patterns by state. Even some of the smaller companies can't rely on their own information for payout patterns country-wide. Most companies are heavily into rate-of-return pricing by state. This stuff is dynamite for rate-of-return pricing by state. Large account pricing these days largely depends on good payout pattern analysis. This information can be used to set the cash flow pattern for a large account based on the large accounts' state mix. Cash flow planning could also really benefit from this information so I urge you to take the information home with you, analyze it and at least use it to justify the cost of sending you to Kansas City.

Just a few minutes to change subjects and discuss compensation claim frequencies. Many of us already faced the task of forecasting a loss ratio for the 1985 accident year. Some of us tried to do that by separately analyzing frequency and severity trends. For the severity trend you might have looked at wage inflation, medical inflation, and maybe you looked at average benefit changes forecasted by the National Council. For the frequency forecast you might have tried to fit a line to historical claim counts or perhaps you fit a line to historical claim counts divided by some risk count information or exposure. At the Travelers I happen to be fortunate enough to have payroll on an accident year basis and I've calculated historical frequencies where frequencies are defined as claim count divided by on level inflation adjusted payroll. I'd like to share that information with you.

This slide, your fourth exhibit, graphically shows historical workers' compensation lost time claim frequencies for the Travelers by fiscal accident year. A fiscal accident year is a 12 month average accident year. The frequency is defined as the number of lost time claims per unit of inflation adjusted payroll. The horizontal axis represents the fiscal accident year 12 months ending. The vertical axis is claim count per unit of inflation adjusted payroll. We adjusted payroll to a common inflation level using the private sector salaries and wage disbursements index. This adjustment essentially makes the frequency a proxy for the number of claims per employee. That is, mathematically, payroll is the number of employees times an average weekly wage. So if you hold the average weekly wage constant, any fluctuation in the frequency is really due to fluctuation in employee count. In workers' compensation that is, in my opinion, a better estimate of the claim frequency than using than using claim count itself. A quick review of the graph shows a reasonably constant frequency until about 9/81 when the frequency increased for about nine months and then plummented pretty dramatically until 1983. The rise thereafter was just as dramatic but the latest data show the levelling off. I've looked at that point through July of 1985 and that frequency for the Travelers anyway has leveled off. I showed these results about six months ago to other company actuaries and most of the actuaries confirmed the pattern, although maybe the magnitude here was a little more severe than most companies. A lot of companies couldn't really look at data this way.

In searching for a causal explanation, we thought to plot unemployment rates on this same graph. The next slide shows both the frequency graph that we just looked at and the national unemployment rate pattern for civilian workers. I think you'll agree that the correlation is pretty obvious. Let me caution you that this is one company's data, but I thought it was pretty interesting. Frequency seems to rise initially as unemployment rises but is inversely proportional thereafter. The unemployment data here is lagged six months to match the average accident date of the fiscal accident year. A causal explanation might go something like this. As we enter a period of unemployment, claims

increase since being out of work on disability is better than being out of work without disability. But in the long unemployment cycle like the one we went through in the 1981 to 1983 period, the workers remaining on the job were the most skilled workers. They did not file workers compensation claims and as the economy picked up the less skilled workers came back into the work force and started filing claims. We could expand this theory by using words like relative capacity utilization and overtime wages, etc., but I think the concept of the theory is pretty clear. Whatever the explanation the moral is that you shouldn't set reserves or rates for that matter without considering economic changes. How many reserve actuaries forecasted that frequency reduction in accident years 1982 and 1983? How many pricing actuaries in 1984 put in the double digit frequency trend? Not very many and by the way the Travelers didn't either, but I think we'll learn the next time. I have a few minutes to take questions on either frequency or payout patterns by state.

Question: These payout patterns are all weekly indemnity. No medical?

Answer: The payout patterns are total lost time and medical only indemnity plus medical. They're incurred loss payout patterns. The frequency is, of course, just lost time cases.

Question: What are the characteristics for that drive state differences?

Answer: Quite often the kinds of things that cause court delays are not written in the law itself. If you look at the Pennsylvania law you will find a little higher than average benefit level, but no where near the magnitude that these payout patterns might suggest. The real difference is the court interpretation of the law and the amount of time that it takes to get the claims through the courts. If you look at life pension claims by state, you see a reasonable correlation with benefit patterns. But there are quite a few states that seem to have more than their share of life pension cases based on what you might forecast looking at just the benefit level.

Question: I guess I was asking the question in order to look for a reading indicator if you were aware of the given changes in the state, that might be a clue to the payout patterns currently existing either accelerating or decelerating which could come into play in pricing or any other kind of exercise.

Answer: The best leading indicator is benefit level change. When a state in workers compensation adopts a wage loss benefit, you will see a marked decrease in the length of payout. Major escalation would, of course, go the other way. Any major benefit changes will most certainly change the payout pattern. I don't have a leading indicator in mind that is obvious that might suggest a change in the payout patterns other than benefit levels.

Question: Do you feel then that the workers compensation high trade ratios are almost totally due to the frequency rather than competitive causes?

Answer: Let me put that graph back up. I think I've got them mixed up here. Okay, here we go. Based on the work that I've done at the Travelers, I did not see anything unusual throughout that period in severity. If you go back as far as 1977, there was something unusual back then. We did see double digit inflation in the late 70's but in the 80's inflation and severity has moved pretty much in line with the CPI medical cost index and average wage inflation. On the indemnity side and on the medical side we have not seen anything unusual. For the Travelers the loss ratio deterioration was most definitely driven by frequency changes.

Question: Rather than by price cut?

Answer: There certainly was a good deal of price cut. I guess my comment was relative to National Council rate levels which are calculated before schedule rating, but schedule rating very definitely had an impact on the loss ratios. It is unfortunate that that impact came at the same time as the frequency increase.

Question: Bud Meyers. Do you have any idea what the present value of the dollar of worker's compensation losses would be for your high, low and medium states?

Answer: No, I really don't. It's not to difficult to calculate given these numbers.

Question: Well after nine years perhaps it might be?

Answer: Yes, very definitely. I really can't hazard a guess. If I had to hazard a guess, I'd say Minnesota has a payout pattern beyond nine years that's five times as long as Indiana. The rest of the states are somewhere in between, but I really have no way here to answer your question.

Any other questions. Okay, if you think of any , we may have some time at the end of our session.

Our next speaker is Russ Fisher, Second Vice President at General Re. Russ is a fellow of the CAS. He has eight years of experience in the actuarial division of General Re with principal responsibilities in financial reserving. Russ is also a panelist on the reinsurance panel of this seminar.

Russ Fisher: I'd like to look at this sessions next ten or fifteen minutes or so as a walk through of indivdual case -- what facts we need to gather and how we might evaluate it.

Now as an outline of how I might structure this, I want to emphasize the indivdual facts about a single case that one needs to work with the model. The important part is the assumptions that need to be made, such as mortality, how long is this claimant going to live. If there are medical costs involved, what are the expected medical benefit? The calculation itself--gross net of reinsurance and excess of reinsurance--I won't spend too much time at this session talking about the excess implication. The calculation itself is that temporary annuity and deferred annuity approach I think most of us are familiar with. I had lunch the other day with one of our senior claim attorneys and he, of course, is very close to what the primary industry is doing and the methods the different companies use to set these reserves are many. This particular approach is probably more correct than what most companies do, but the error in the specific calculation is probably not very significant. For an excess reinsurer it is, but for a primary company the techniques of the temporary annuity and this approach isn't creating much of an error. The most important part of being comfortable with the reserves for a pension case are the assumptions. I get to that in a second. And then finally I'll go through the mortality tables that are used in this example with a thought about how to manipulate them to impose inflation or discounting or escalation of benefit assumptions on the answer. I have a few handouts but it's not important that you look at them.

Pension cases. They could be fatalities in which there is at least one qualified survivor entitled to continuing benefits for life or until remarriage. It's interesting that in bulletin 222-A the annuity table used for fatality cases has in its reductions to mortality, reductions in the table for deaths or remarriage. So evidently they view death or marriage in a similar way. Any injury case in which the catastrophic nature of the injury

is such that the claimant will receive weekly indemnity benefits for life and/or lifetime medical benefits. The key thing is there are periodic payments for the lifetime of the claimant. Some of these numbers are real, in a few places I have oversimplified the process, and in another few places I have overcomplicated it for the illustration. But here we have some of the facts that the claim attorney or the claim adjustor has to determine in order to set the proper reserve. Date of loss, age of the victim, age of the claimant, the date, what type of injury it was. The type of injury is an important element. Here I have that its multiple skull fractures, etc. The key thing is how serious is this person injured because you're looking to determine how long he's going to live, how long the benefits will be. You also need an estimate of what the on-going medical cost might be. You need to know what jurisdiction it is in order to determine what the level of benfits will be. Continuing with the facts that you need, this claimant was earning $134 a week. There has been $212,000 of medical already paid and $13,000 of indemnity benefits already paid. And the future indemnity benefits, of course, is a fact that is known, you know that this person will received $4,600 per year for life. That is based on the statute--it is two-thirds of the pre-injury wage of $134 per week, subject to the minimum and maxium in the state at the time of the accident. For our calculations we know that 225,000 or so dollars have already been paid and we know that the future indemnity benefits will be somewhat less than $5,000 a year for as long as he lives. We also know what the reinsurance coverage is. Here this particular company retains the first $400,000 net and there's a layer of $600,000 excess of $400,000 and there's another $4 million coverage on that. We're just concerned with determining what the net retention and the net incurred loss is and therefore the net reserve for this individual claim.

This is the most important part of the process--the key assumptions are what is the future life expectancy, and what are the future medical costs. Of course, if we are talking about a fatality and there's a widow receiving benefits, medical isn't involved, we know what the future benefits are we just don't know how long she'll live. So the best we can do is reference a life table which hopefully is based on a sample of people not unlike our population of claimants.

In this case we have a male injury victim. Based on the analysis of the extent of the injuries we think he'll live 30.87 years. Based on our evaluation of his future medical needs we think it'll cost $2,500 a year in medical cost and we also think that number will increase 8% per year. There is an awful lot of consideration going into these numbers--all of the medical records have to be examined, etc., the rehabilitation prospects have to be determined. Now just let me make another comment here before I get into this. When I'm done and I get to the calculated expected value of this case and the incurred loss you'll find that even if I was absolutely right on the assumptions, if this claimant lived 30.87 years and if the medical costs were $2,500 a year and if they increased exactly 8% a year, even if all that happened -- the ultimate payouts won't be the same as the reserve. So even if your assumptions were absolutely correct, you didn't have the right reserve up. Think about that as we go through, but I'll get into why that's so later. It was disturbing at first and I think if there weren't medical costs inflating that wouldn't happen.

Here's what might happen. If the claimant only lives one year, the gross loss payments--if you'll remember, there was $225,000 already paid--the total payments on this case will be $232,000 gross. Since that's below the retention--gross and net are the same. But he might live as long as 50 years, in which case the gross payments, allowing for the medical inflation, could almost reach $2,000,000 and, of course, the net loss payments there would have stopped at $400,000 long before that.

What I have at the bottom there is the expected value which is the result of the calculations using the annuity factors. On a gross basis the expected incurred losses are $852,000 and you can look at that as a weighted average of the whole array of numbers before. This case could cost $232,000 it could cost $2,000,000 and based on the average probability of surviving as long as we think he will the expected value is $852,000. On a net of reinsurance basis the expected value is $393,000. Now one might think that since the gross expected incurred loss is $852,000 and that is above the retention, why shouldn't this claim be reserved at a net $400,000? The point is, $400,000 will be the payment made by the primary company only if this claimant lives 18 years or more. But, of course, he might not live 18 years.

Here's the calculation, paid to date so far is $225,000. The future indemnity benefits; we said they'd be $4,600 a year and we think he'll live 30.87 years. So that's $144,000. The future medical is a little different. Twenty-five hundred dollars ($2,500) a year and we think he'll live 30.87 years, but I don't have 30.87, there I have a factor of 193.29. I got that not from the normal life table that I use but an adjusted table that has inflation built into that. I'll come back to that. I think the future medical cost for this claim will be $483,000. That gives me the total incurred loss of $852,000. The net retention is $400,000; but on a net basis the incurred loss is $393,000.

Now let me jump to this exhibit. Here's a claim where after another $175,000 is paid in either indemnity or medical the excess reinsurer starts to pay. So we're the primary company now, we're only concerned about payments that will be made in the next 18 years becuase after that some reinsurer will have to worry about it. The key number here is 18. The number of years required to reach the first layer of reinsurance--18 years. So, to reserve this on a net basis, I only have to concern myself with payments that will be made during the next 18 years and the probability that this claimant will survive through these 18 years.

Here's a few lines from the life table that I used and you can see the 45 seconds here of life insurance mathematics which is all I know. The second column, number of people, starts with 100,000 people. Presumably, this is a population of people that have similar mortality characteristics as our claimant, so it's not a population of annuity purchasers or something like that that might be a more select group. Out of those 100,000 people there are only 92,000 still alive at age 43, going down to age 99 there's only 594 left. So the population is declining for mortality. The third column of the exhibit is the number of years that these people live. So these 100,000 people lived a total of seven million years; a life expectancy of 69.98. The line we're interested in for this calculation is age 43. For this claimant, at the time of this evaluation, he's 43 years old. From our table, 43 year old's live 2.8 million years for an average of 30.87. So on average of 43 years old will live 30.87 years. I'll back up a second because in spite of the seriousness of this claimant's injuries we really think he's going to live a normal life so there's no impairment. That's why for this particular claim I'm using a normal life table. These are real numbers that come from 1980 census bureau data. If the injuries were severe such that we felt that this claimant had a chronological age somewhat higher, we might reference the tables somewhere higher or you might build an impaired table of some sort. I also want to look at the next line, which is age 61. You can see on age 61, 61 year olds by the way have life expectancy of 16.7 more years in this table, but the key thing is if you remember we're talking about payments that will be made during the next 18 years of this fellow's life which is until he's 61.

I think this is one of the handouts. These in the end come from the table, but these are the number of people alive at age 43. N_{43} are the number of years 43 year olds live. N61 are the number of years that 61 year olds live. The difference is the number of

that 43 year olds live until they get to be 61--that's 16.89. They all don't live 18 years, some of them die. On average they live 16.89 years. So for this claimant the future indemnity payments will be $4654 x 16.89--$78,000. Medical payments are done exactly the same way, but its not 16.89 because I'm building in inflation. I'm pretty confident about this. I'm not so sure about the medical cost which is are really just an informed guess and the inflation of 8% is even less of a certainity.

When this claimant is 44 years old we think we're going to pay him $2,500 inflated by 8%, but he might die so I need to know what's the probability he lives that year to collect that payment, and so on. When he gets to be 75 years old, on the bottom here, we think we might pay him 2,500 x 8% increased over 32 years, but that payment will only be made with the probability that he lives that many years. If I sum all of these payments up from the life table, the probability that he lives one year is D44 over D43. It's the number of people alive at age 44 divided by the number of people alive at age 43. So I can convert these probability statements here into those life company symbols and it looks something like this. Of course, this is without the 8% built in.

The future medical payments will be the sum of all these D's over D43. That's at no inflation; and, if I didn't think there was inflation, I could use that normal table and I would have gotten 16.89. Because I think there's 8% inflation the payment was $2,500 inflated 8% times the probability that he lived that year, plus $2,500 inflated 8% twice times the probability he lives two years and so on. When I'm done, I've got a statement like this and I'm just restating all I'm doing down here. When you get to this line is multiplying everthing here by 1.08 to the 43rd power. These two are exactly equivalent. The reason that I'm doing that is just for the convenience so that I have the exponent of my inflation factors the same as the age. I can take every D in the first column and multiply it by 1.08 to the power. Here is my normal life table. D is the number of people alive. D43 is 92,335. D61 is 77,358. If I just take that 92,335, that's D43, and I multiply it by 1.08 to the 43, I'll get 2.5 million. This is an adjusted life table. All I've done, I've taken a column of declining number of people alive and I've multiplied it by a factor of 1.08 to that year. So I'm starting with 100,000 and I'd like to not look at this as the number of people alive but number of dollars alive--think of a dollar as a person. So I'm staring with $100,000. That $100,000 is declining at the same rate as the people are dying, but at the same time the dollars that are left are inflating at 8%. So there are two things going on. As I get to age 99, I still have $1.2 million where I think I only had 600 people alive, but those 600 people have been collecting dollars inflated over many times.

The important things is for a claimant age 43 to receive a dollar for life and that dollar is subject to 8% inflation per year. He's going to get $193.29. My dollar expectancy is not a life expectancy anymore, its a life expectancy. That's where I got the future medical its $2,500 times 193.29. I'm allowing for the decline, the probability that they won't survive all those years to collect it, but I'm also allowing for if he does survive he's going to get an inflated dollar amount.

Let me take just a few minutes to run through these here. I'm going back to the range of possible payments, but I'm looking at what the reinsurer in the first layer might see. He pays nothing until the claimant lives 18 years. His expected value is $325,000, that's the bottom number, but his uncertainty is more. The range of possible payments for him is a lot greater in percentage terms. It stops at $600,000 because, if you'll remember, his layer was 600 excess 400. The last column is excess loss payments, second layer. So the reinsurer who is $4 million excess $1 million, he won't pay anything in this claim until the claimant lives 39 years. So he's looking at a range of payments anywhere from zero to up to a million. If the claimant lives 50 years he's paying $892,000 and his expected value

was $133,000. I have no further exhibits, if anyone has any comments or wants to discuss some of this further. Feel free.

Question: Ann Lee, Flint Industries. I would like you to give further explanation as to how you would evaluate the mortality and future medical payments of a specific claimant given his injuries; might you get a specific medical evaluation.

Answer: That's difficult. What you really need is an experienced professional injury person. You need to determine what the rehabilitation prospects are. What the senior claim attorney was telling me is he has seen cases where the companies were sending a claimant to a certain rehabilitation institute, which in this attorney's mind was not the best. The company's prognosis was that he would be there about a year and the cost would be whatever they were for a year. Our attorney felt that if they sent him to another institute that is more proficient in that particular type of injury they could do the same job and get him back home in eight weeks. So the range of possible costs on some of these very serious cases could be monumental. The best answer is to understand and know as much about the types of injuries that show up in the work place that you can and the rehabilitation services that are available. Short of that you could be probably making serious errors and your're going to see some large surprises in your costs. It's a tough call when there are medical payments involved. It's very difficult to determine what the costs will be and certainly less easy to figure out what they might be in ten years. Many cases seem to stabilize and you feel more confident in estimating the future costs, but they could take a turn for the worse in ten to fifteen years that there's no way that anyone could have anticipated. You do the best you can. Any other comments? Thank you much.

Palczynski: Russ. The last speaker is Gary Venter. Gary is a Fellow of the CAS and has the title of actuary with the National Council on Compensation Insurance. Before joining the Council four years ago, Gary worked for Prudential Reinsurance in pricing reinsurance and at Fireman's Fund. Gary.

Gary Venter: Thank you Dick. The topic I'm talking on today is "Estimating Ultimate Claim Counts from Incomplete Development Triangles," and the example taken will be non-fatal excess workers compensation claims. If you're estimating ultimate claim counts and you only have incomplete data, you have claim counts as of a certain time. In practice, one of the main things you'll do is look at the ultimate claim counts you expected originally when you priced the coverage. We're not going to look at that today. We're going to look at a couple of techniques that you could use just looking at the data itself. I don't mean to suggest by doing this that this is where you would stop in actual application.

What we're looking at here is something similar to what Russ was showing you except with non-fatal we're excluding fatal cases. We're just looking at injured cases that are coming in for the injured worker, and, in excesses, we're looking at claims above $150,000. Russ showed an example where he was looking at an excess of $400,000 but it could take 18 years before the reinsurer knows whether or not he has a claim. It could be zero to the reinsurer for the first 18 years. If he thinks that guy with the multiple skull fracture isn't going to live 18 years, he might not even reserve that claim or the primary company might not even report it to the reinsurer. In excess workers' compensation, you can get claims of merging even after 18 years that you've never heard of before because your primary company never mentioned them to you. The data we're looking at was providing by the Minnesota Reinsurance Association for their emergence pattern of non-fatal excess workers compensation claims. What we have are the claims that they currently have a reserve up for and the accident periods are in six month intervals--the

first six months of 1980, the second six months of 1980, and the same for 1981. There are a number of subsequent six month periods. For instance, for the accidents that happened in the first six months of 1980, by the end of two periods late, there were 24 claims reserved by the association; six months after that there were no additional, there were still 24. The last number shown on the right in each row is the number of claims known by July 1, 1985. July 1, 1985, is 11 periods for the first six months of 1980, and it's only ten periods for the second six months of 1980.

One thing to note about this data is that it seems to take a while before your claims come in because, if you look at the fourth to the last period for the first six months of 1980, the fourth to last period is period 8. There were 95 claims. Four periods later that had more than doubled. That same thing happens all the way down. There are a lot of claims coming in late. What we're going to try to do is use a couple of different methods to project these development patterns out beyond the data we've seen. However, some of the standard techniques that we're going to illustrate have difficulty with this type of data because you usually would expect to see, by five or six years later, a declining pattern coming in and most of the techniques are designed to reflect that. Just to warn you in advance, the techniques we're illustrating might not work as well for this data as for some other data.

The first technique we're going to look at is one popularized by Rick Sherman in a paper he gave last May at the Casualty Actuarial Society to fit an inverse power curve to the development factor at each time period. We'll define the development factor in the next slide if you're not familiar with what it is. The definition of the development factor is the ratio of the claims in one period to the claims in the previous period. In the inverse power development factor you're modeling, the increase in your number of claims we're calling Y_t. The Y_t is the function of three parameters: a, b, and c; a sort of identifies the origin, it shifts things back and forth; b is sort of a scale parameter, which more or less changs the scale on the axis; and c determine the heaviness of the tail. If c is one or less, your development is infinite. That's a mathmetical problem when dealing with this: you want to end up with a c that's greater than one. We fit this curve by the method of Lee squares. We'll show you the data on the next slide that we fit it to and describe the Lee squares and we've got the parameters shown for a, b, and c. You know c here is just barely greater than one.

This slide shows the development factors. It shows t=3. Because the other slide starts at t=2, you loose one column. This is the ratio of column to column. In the first exhibit I showed you the actual number of claims. For instance, for the first quarter of 1980, t=4, you had a 33% increase in your number of claims. T=5, you had a $37\frac{1}{2}$% increase. The funny thing about this data is that it doesn't go down very much. It keeps going 34, etc. maybe at the very end it started to go down. The inverse power curve mathmetically has to go down from one period to the next. If you look at the fitted values, the last row is the values that come out from the fitted curve fitted by Lee squares. I think in every case they're in the range of the observed values and they're going down slightly. The way we're using this inverse power model, we're assuming that there's one development pattern that all the years follow with random fluctuation. We're trying to estimate just three parameters--a, b, and c that we showed in the preivous slide-- and we're assuming that every year has the same a, b, and c, that every year has the same inverse power relation of declining development factors, but that each separate year has random deviations from that. The Lee squares procedure is to calculate the sum of the square of difference between the actual development factors shown and the theoretical factors given by the inverse power curve. Given any three numbers--a, b, and c--you have an inverse power curve and you can calculate the sum of squared errors of the inverse power curve from each one of those observation. In Lee squares, what you're doing is

minimizing, you're finding the a, b, and c, and minimizing the sum of the squared errors. I think it fits very well. It also declines very slowly, which the data does. By the end, your factor is 1.2, your factor of 10 to 11.

The object of this exercise is to project out how many claims you ultimately have. So you take the product of your factor at 12, 13, 14, etc. We arbitrarily stopped at 50, which would be 25 years. The development factor from period 11 to period 50 was over 30. Even people who have worked with excess reinsurance can believe that number. It's a problem: we have a technique that seems to fit the data quite well and gives an absurd answer at the end. Charley Hackmeister always told me that if you have a model that fits well, don't reject it just because it gives answers that you can't believe because reality is usually stranger than anything you would believe anyway. In this case I think we're going to pass up his advise and look for at some other type of modeling.

This is a quite a bit different approach to the same problem. I've called it log logistic distributed report lags. The report lag is the amount of time between the accident and the time the reserve is set up. It's the reserve date minus the accident date which gives you the amount of time between the accident and the reserve. We're going to assume a mathematical distribution of those report lags. In the distribution I've chosen is one labeled the "log logistic". It's the log transform of the logistic distribution. I'll show you what it is in a minute. It's a heavy tailed distribution which seems appropriate in this case. Non-zero mode, the mode of the distribution, is the point where it's highest, where there's the most claims coming in. A lot of distributions start at zero and trail off. Some of them, like the log logistics, start low, go high, and then come back down.

Thirdly, even though the name is a mouthful, the mathematical form is very convenient. Under the log logistic model what we're trying to fit, and what's the relevant thing given this data, is the proportion of claims known by period t that are already known by period k. What we're thinking of here is that period t is that last diagonal. So for the first six months of 1980 t is going to be 11; for the next six months t is going to be 10; etc.; T is the point at which we know everything so far and x is any point before t. This distribution log logistic has a very convenient form for the portion of claims already known by period x that you will ultimately know by period t and I've labelled that F^t of x as that function. That's the function we're going to match to the data we have. If you let t go to infinity, this gives the proportion of ultimate claims already known by x and this form is a very simple form. It's one over one plus b over x to the a. That is the log logistic cumulative distributon function. You can go the other way, too, given that is the cumulative distribution function that Ft of x comes out as the conditional distribution function.

This is our original triangle put in a somewhat different form. The last diagonal now is one and the number of claims at each period has been divided by the number that was shown in the last diagonal. This is the numerical Ft of x that we have as our data. In other words, for the first six months of 1980, t is 11 by period two. You have 12.2 % of the claims that will be known by period 11. For the second six months of 1981, t is 8 and Ft of two is 11.6 %. We put the data in this form so that we can fit that Ft of x function we had in our previous slide. This shows several things, we do the fit, we've come up with some paramaters and we'll tell you how we got them in a minute. Next, we get a percent of ultimate at each period 8 through 11. At each period 3 through 11 we have our fitted percent of ultimate as the final row of this slide. For period 11, 52.7 % of ultimate claims are known according to the fitted model. The other rows in this exhibit are the previous exhibit just multiplied by the last diagonal. The previous exhibit was the percent of claims known by period t. In this exhibit, you take those numbers and multiple them by that last diagonal. If you divide it by that last diagonal here, you would get the

previous exhibit. This gives us a combination of what the model says and what the data says and you can see a comparison of the goodness of fit. The comparison is a little false. In the last diagonal shown, the last number shown in each row is the fitted number, not the actual. Other than that, relative to that last fitted number, you can compare the actual data with the fitted numbers at the bottom. I think it shows a fairly good fit. It's a little low in the first two period, but after that its seems to be right in the ball park for each one of the periods. Using the log logistic distribution, this gives a model of when we expect the claims to be reported or reserved by the reinsurance association. Here 52.7 % of the claims by period 11 is still a low number by what a lot of people close to the reinsurance association would like to believe. There are a lot of claims and a lot of reserves there. If that's only half the claims that you're ultimately going to see, there might be a financial problem. At this point I don't think you can just hang your hat on the model and say that's tough, you got those claims coming, because it's pretty mature to just use this model by itself. What it does say is that if claims keep coming in the way they have in the past, there's every reason to believe that there's a lot more still to come.

Now the parameters, there are two parameters here, so, where we had three before, we can't expect the fit to be quite as good as with the inverse power curve. Eyeballing it, it looks like it's not quite as good. Again, to repeat the first equation is the cumulative distribution function for the log logistic. The second equation for this distribution shows how you calculate the moments. Moments only exist up to a. After that the moments are infinite. The median of the distribution is b to the one over a. A more or less determines the heaviness of the tail. In other words, the number of moments that exist can be thought of as equivalent to heaviness of the tail, and, the lower a is, the heavier the tail. The median is b to the one over a and the mode is just a function of a there times the median.

There are several ways you could fit the distribution. One of them you could probably use is Lee squares just like you did for the inverse power curve. Use Lee squares with the conditonal distribution percent of claims, known by t, that F t of x could be fit just by Lee squares. There's a method called "maximum likelihood estimation" that has been suggested in the Casualty Actuarial literature by Ed Wisner in the 1978 proceedings. I didn't do either one of those in this case. The nice thing about working with a distribution like this is it allows you to get some of your judgment into the process and at the same time use a somewhat scientific process. Just looking at the data I made, the judgment that the mode was 7.5, that by 7.5 period that's where the peak of the number of claims per period was coming in, and, just doing maximum likelihood estimation, the periods after that fluctuated enough that the technique of maximum likelihood estimation would never give you that result. But using some informed judgment and maybe a little wishful thinking, I could imagine a mode at 7.5. Once you establish the mode that fixes the parameter b, all you have to do is find the parameter a. It fixes b subject to a. The technique initially was to use maximum likelihood estimation to find the parameter a. I looked at the fit and it fit a little bit better than the one I showed you in the exhibit, but it fit better in the initial periods and maybe not as good in later period. So just by judgment I tried 2.5 and did all the calculation, did the comparison, and it looked like a more reasonable fit and so those are the parameters I selected. I think that's an advantage. A disadvantage to this sort of technique is that you can use informed judgment along with the mathmetics to get a fit that looks like what you would like it to look like. It looks appropriate from a judgmental point of view. That's been a criticism of some of these type of techniques in the past: you just rely on the maximum likelihood estimation. The maximum likelihood routine does not know as much as you do about the process and will often come up with some obsurd conclusions.

In summary then these are two techniques you can use to project incomplete development triangles. Neither one of them worked as well as we would we would have liked, but I think the logs of logistic distribution is promising, and I intend over the next year or two to look at further emergence of claims from the Minnesota Reassurance Association to see if they still continue to fit this pattern. If so, I think this technique will be more useful as time goes on.

Are there any questions?

What measure of goodness effect did you use to determine your goodness effect, index of determination?

For the inverse power curve, goodness effect was determined by minimizing the sum of squared errors. It was the parameter that gave us the lowest sum of squared errors. For the log logistic distribution, the maximum likelihood technique was used to find the optium parameters. It was judgment after that to change that to something that looked more reasonable from a judgmental point of view.

The index of determination compares the error around the curve with the error around the main and the closer to one that you get with this measure, presumably the better the fit you have.

The sum of the squares could be a minimum, but it could be a large minimum and you could have a large error there.

That's right. Then you would look for different model. Given that you're going to stick with this model, then you know that's all you're left with, that's your error.

But you don't really know how good the model fits unless you use something like the index of determination.

Yes, in a way, that's true. I think it would be useful if you're using these techniques to compare them to each other using goodness of fit as a criteria. I'd think you'd want to look at something like that. The one problem with that is that of these two methods the one that fits better gave a less believable answer.

What specifically were the least squares techniques that you used? Were they iterate of techniques, or derivative effect techniques?

That's a very good question. I wanted to get into that if we had time. To fit an inverse power curve by least squares requires a computer, I would say. There are three parameters there and you try to minimize the sum of squared errors between the theoretical curve and the actual data. You're minimizing a function of three variables. I'm sure there are computer packages around that are good at that, but we didn't happen to have one we used a package written up in Byte Magazine in an article that's in the handout that's referred to: "Fitting Curves to Data." It's a very good technique based on the simplex algorithm to minimize a function of any number of variables. It's slow, but it gets there. Anyone who's involved in minimizing anything I would advise looking at that article. We took the function, the actual data minus the fitted curved squares, sum over all the observations. We're looking for the parameters a, b, and c, that minimize that. This simplex of search procedure proved to be very good at getting that.

Gary, it strikes me that some of the stuff that Russ was putting up when he talked before might be very relevant to the problem that you're working on. Have you ever considered

using mortality tables or anything like that?
Yes. If you're working on this problem, you'll want to look at what you would have expected without looking at this data. In setting the reserves, the Minnesota Reassurance Association looks at that. They have a simulation model for excess claims with mortality tables built in. I think you'd have to do that in practice if you're working on an problem like this. I think you'd want to use it as a part of what you would expect without this data.Let me follow that up then in asking why you couldn't take mortality tables, do some simulations yourself, and find out which model, log logistic, or inverse power, you could come up with to get an idea what the best model is?

I think that's an interesting idea. I have a feeling that you need more than the mortality table. A lot of the claims are reported to the reinsurer well before the person has reached the age where they know he is going to penetrate the retention.

Your model basically assumes that each year has a costed development pattern, but don't the shifts in the size of loss distribution, and having a fixed threshold of $150,000, really negate that and change the basic definition of what a claim is?

Yes, I was being sort of impercise when I said $150,000. Actually, in the Minnesota Reassurance Association the retentions inflate each year and they've been around $150,000 lately. But they go up each year by inflation. Thank you.

Palczynski: We have just a couple of minutes for one or two questions of Russ or I or of course Gary. Are there any other questions. Okay well if there aren't any further questions. Oh I'm sorry I saw one hand.

Thomas D. Falcon, New Jersey Manufacturers, for Russ. How does your plan fit into the required discounting of long term claims in most states? The discounted pension tables.

Let me go back a half dozen slides or so. If you recall what I did with the normal life table I took, I wanted to include inflation so I included every d x by, I multiplied by 1.08 to the x. If I wanted to also inlcude (besides inflation I wanted to include a dicounted rate of say 3/2%) I could have gone to that normal table and also divided each number by 1.035 to the x. So having done that what I'll end up with is a factor times the annual amount which will include mortality, include inflation element and a discount rate too. And you could use any discount rate you want. You'd have to do indemity and medical separately. So what you need is a whole laundry list of tables to reference.

Palczynski: Any other questions. Yes.

Question: Andy Mavison. Dick, you mentioned, at least your handout indicates that Minnesota is at the lower end of the longer payout. What do you feel the effects of 1983 reform act would be on reserving?

Palczynski: It's really to early to tell. Minnesota is for those of you who are really not familar with the state of Minnesota and there may not be too many that aren't, Minnesota is an extremely unusual state as you can see by the payout patterns and the unusual data that we see here. In Gary's first model, he said if c is less than 1 we have a infinite development pattern. One might be right for Minnesota. I really can't answer your question.

We've just about run out of time. I'd like to thank Russ and Gary and thank all of you for selecting our panel this morning.

1985 CAS LOSS RESERVE SEMINAR

WORKERS' COMPENSATION RESERVING PANEL

EXHIBITS USED BY:

RICHARD W. PALCZYNSKI, FCAS, MAAA
SECOND VICE PRESIDENT & ACTUARY
TRAVELERS INSURANCE COMPANIES

SEPTEMBER 19, 1985

NATIONAL COUNCIL ON COMPENSATION INSURANCE

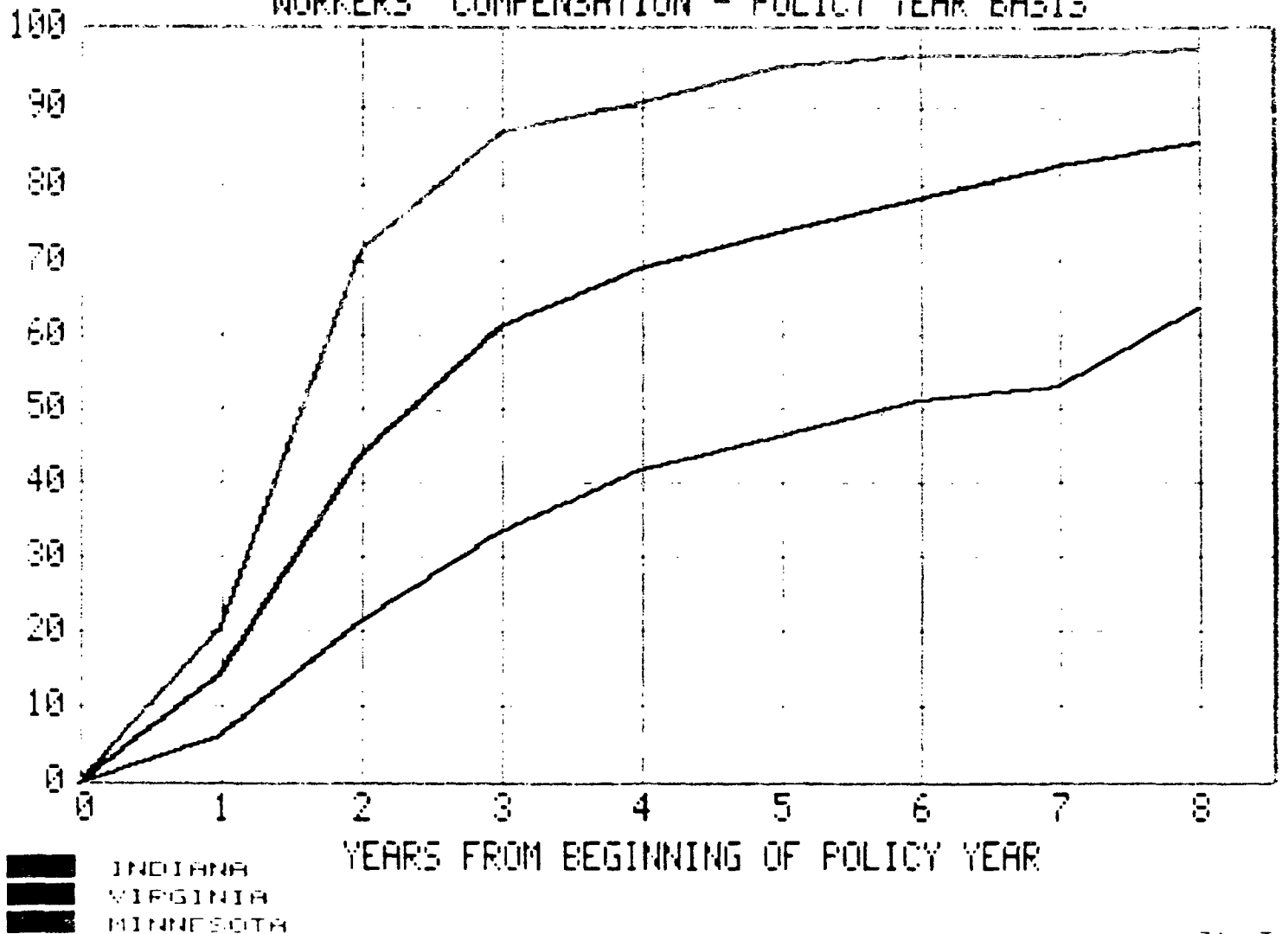
SHORT, AVERAGE, AND LONG STATE PAYOUT PATTERNS FOR WORKERS COMPENSATION INSURANCE CLAIMS
(JULY 31, 1985)

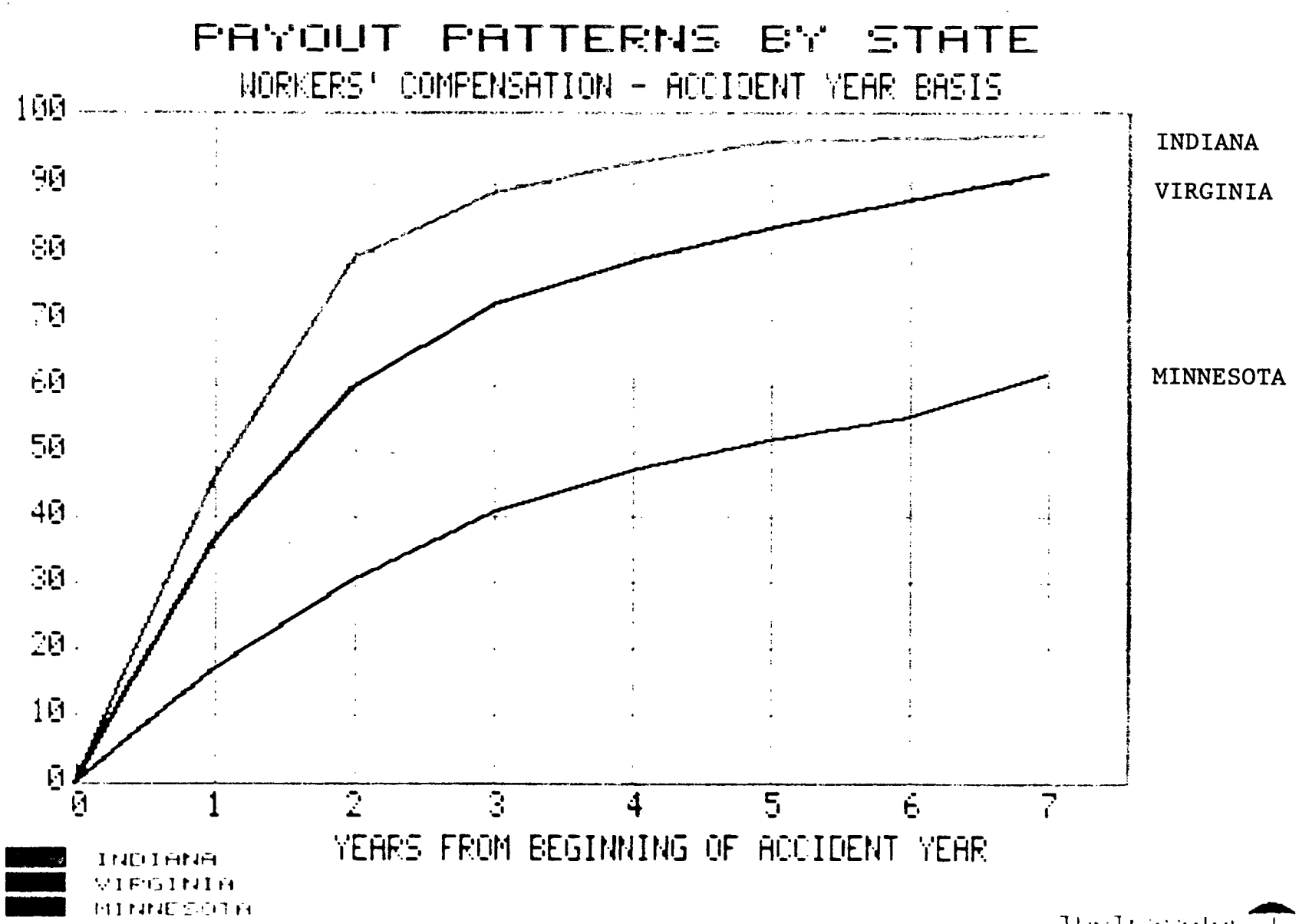
	INITIAL	PROPORTION OF LOSSES PAID DURING POLICY									AVERAGE LENGTH
		1	2	3	4	5	6	7	8	9≠	
*	IN	0.206	0.512	0.153	0.038	0.046	0.015	-0.004	0.011	0.023	1.928
*	TN	0.210	0.450	0.170	0.065	0.038	0.032	0.017	0.002	0.016	2.041
*	KS	0.159	0.416	0.175	0.091	0.038	0.031	0.011	0.032	0.047	2.512
	SC	0.141	0.392	0.210	0.078	0.072	0.047	0.015	0.003	0.042	2.516
	OK	0.200	0.369	0.211	0.048	0.014	0.034	0.012	0.033	0.079	2.596
	TX	0.153	0.408	0.200	0.070	0.029	0.025	0.003	0.015	0.097	2.658
	WI	0.180	0.378	0.146	0.096	0.037	0.036	0.010	0.013	0.104	2.769
	AL	0.186	0.382	0.132	0.075	0.055	0.030	0.003	0.075	0.062	2.780
	GA	0.162	0.375	0.181	0.084	0.047	0.019	0.012	0.002	0.118	2.802
	MO	0.145	0.375	0.199	0.104	0.018	0.035	0.006	0.008	0.110	2.804
	NC	0.173	0.393	0.150	0.073	0.034	0.023	0.029	0.017	0.108	2.820
	IA	0.187	0.338	0.171	0.097	0.044	0.042	-0.010	0.010	0.121	2.835
	MS	0.165	0.389	0.146	0.094	0.035	0.011	0.020	0.019	0.121	2.879
	AR	0.158	0.353	0.198	0.061	0.051	0.038	0.033	0.007	0.101	2.881
	IL	0.140	0.334	0.200	0.097	0.072	0.036	0.020	0.017	0.084	2.904
	NM	0.137	0.321	0.192	0.128	0.044	0.048	0.053	0.008	0.069	2.931
	ID	0.194	0.312	0.194	0.039	0.031	0.025	0.038	0.023	0.144	3.107
	VT	0.128	0.308	0.197	0.105	0.051	0.028	0.047	0.024	0.112	3.207
*	SD	0.160	0.318	0.178	0.023	0.107	0.009	0.046	0.055	0.104	3.209
*	UT	0.191	0.324	0.151	0.047	0.040	0.052	0.004	0.009	0.182	3.230
*	NB	0.156	0.323	0.148	0.087	0.060	0.002	0.020	0.011	0.193	3.371
	VA	0.145	0.294	0.176	0.078	0.050	0.043	0.042	0.030	0.142	3.393
	LA	0.129	0.281	0.177	0.103	0.078	0.035	0.022	0.019	0.156	3.444
	FL	0.125	0.292	0.140	0.092	0.069	0.101	0.031	0.025	0.125	3.490
	KY	0.181	0.307	0.151	0.022	0.019	0.055	0.008	0.028	0.229	3.602
	CO	0.122	0.283	0.166	0.094	0.066	0.026	0.047	0.017	0.179	3.624
	AK	0.154	0.220	0.218	0.095	0.023	0.048	0.005	0.058	0.179	3.641
	NH	0.125	0.283	0.125	0.136	0.063	0.030	0.037	0.020	0.181	3.653
	AZ	0.157	0.321	0.127	0.047	0.029	0.026	0.007	0.006	0.280	3.786
	OR	0.146	0.316	0.121	0.040	0.028	0.034	0.015	0.027	0.273	3.923
	MI	0.145	0.203	0.135	0.110	0.084	0.038	0.043	0.017	0.225	4.006
	CT	0.115	0.243	0.160	0.080	0.068	0.044	0.032	0.012	0.246	4.039
	MD	0.109	0.227	0.152	0.089	0.075	0.046	0.026	0.046	0.230	4.146
	MT	0.081	0.199	0.178	0.061	0.169	0.016	0.062	0.013	0.221	4.225
	RI	0.062	0.204	0.148	0.114	0.067	0.081	0.059	0.041	0.224	4.448
	HI	0.049	0.182	0.179	0.128	0.072	0.078	0.063	0.023	0.226	4.449
*	ME	0.057	0.177	0.145	0.108	0.130	0.053	0.063	0.013	0.254	4.577
*	DC	0.059	0.180	0.183	0.038	0.109	0.070	0.007	0.007	0.347	4.813
*	MN	0.063	0.153	0.120	0.085	0.044	0.049	0.020	0.105	0.361	5.312

≠ Represents paid nine years and over.

PAYOUT PATTERNS BY STATE

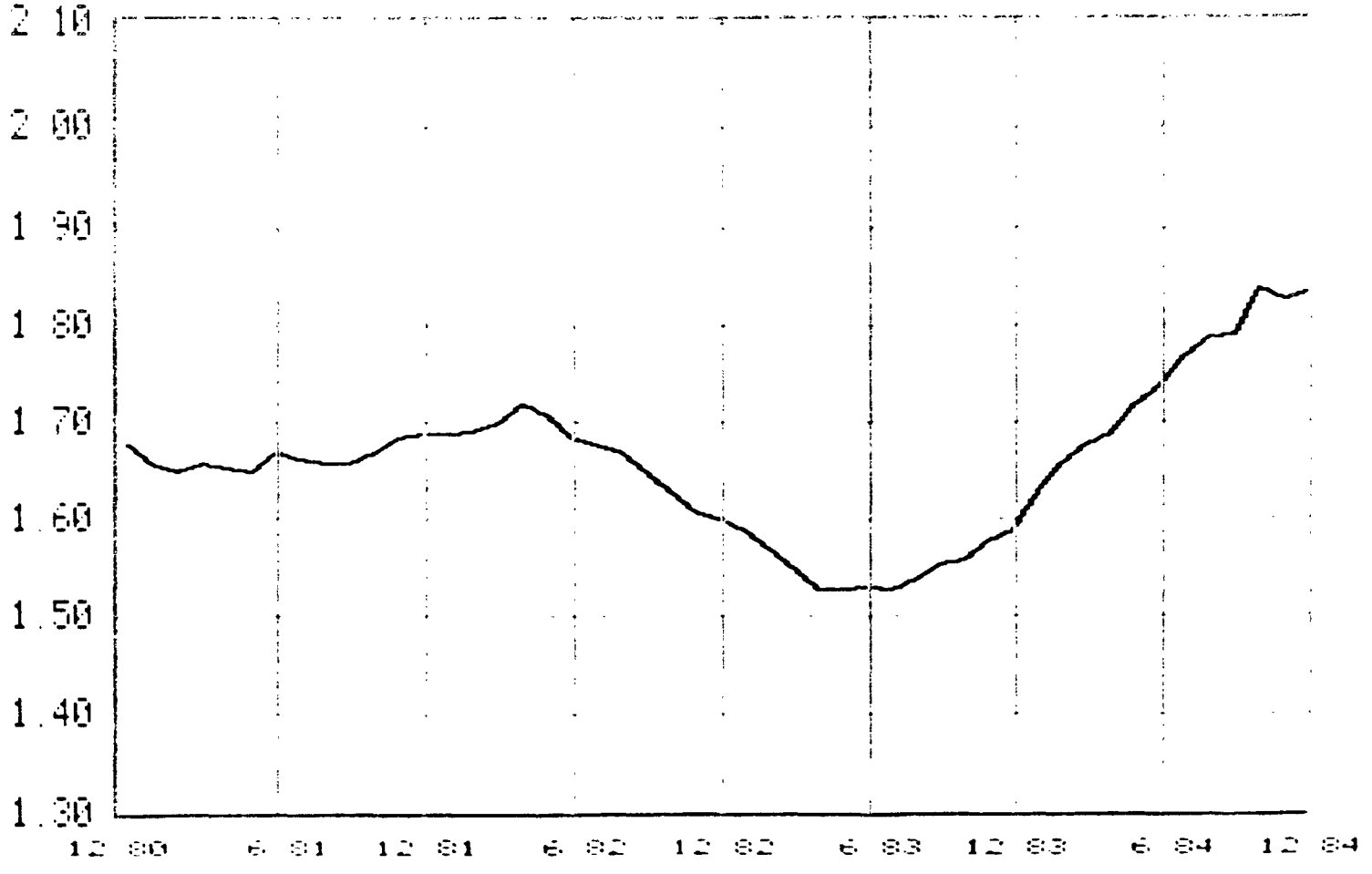
WORKERS' COMPENSATION - POLICY YEAR BASIS




PAYOUT PATTERNS BY STATE
WORKERS' COMPENSATION - ACCIDENT YEAR BASIS
CUMULATIVE PERCENT PAID
100
90
80
70
60
50
40
30
20
10
0
0
1
2
3
4
5
6
7
YEARS FROM BEGINNING OF ACCIDENT YEAR
INDIANA
VIRGINIA
MINNESOTA
INDIANA
VIRGINIA
MINNESOTA

WORKERS COMPENSATION

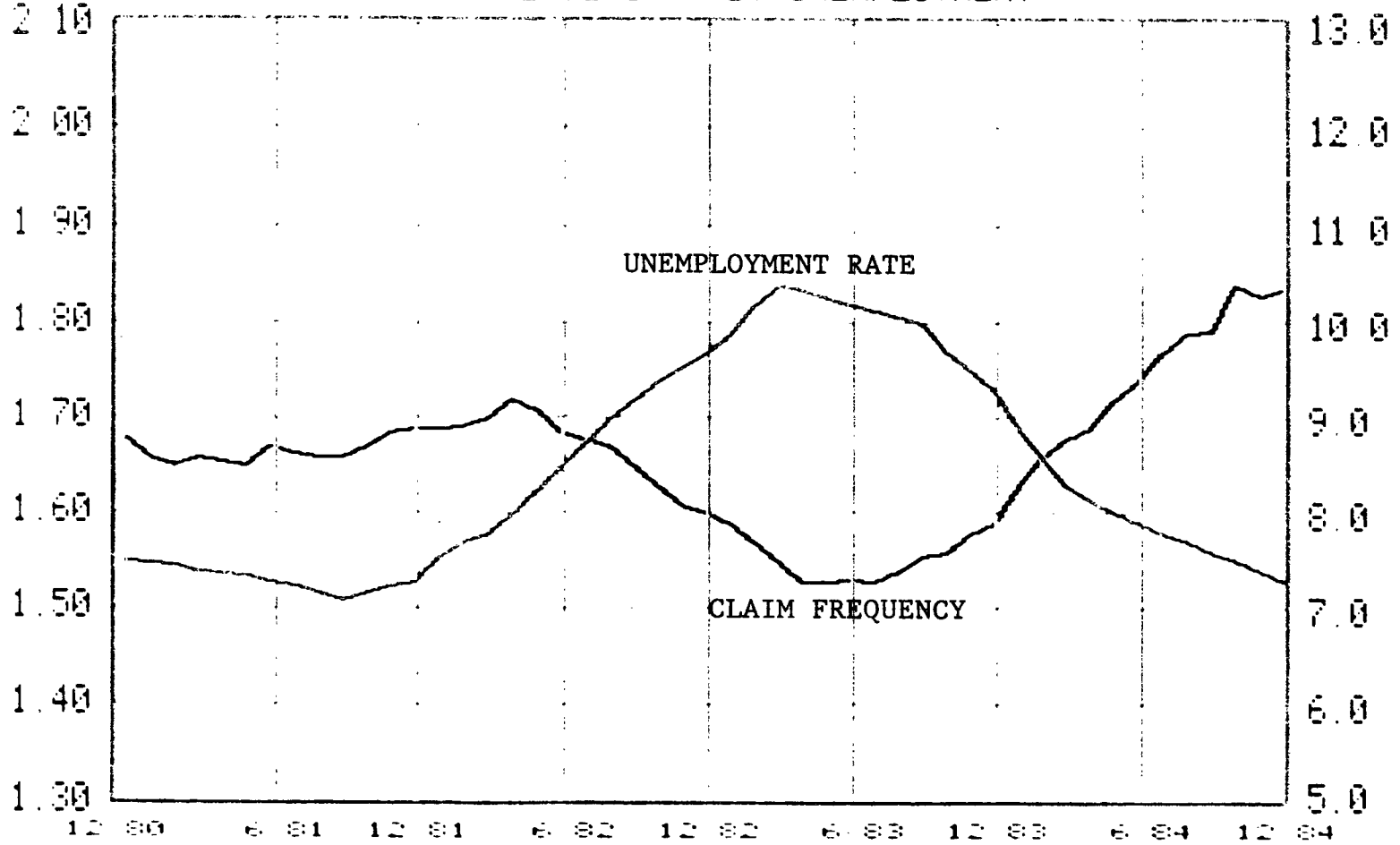
CLAIM FREQUENCY



NOTE PREMIUM ADJUSTED FOR INFLATION

WORKERS COMPENSATION

CLAIM FREQUENCY VS. UNEMPLOYMENT



ESTIMATING ULTIMATE CLAIM COUNTS

FROM INCOMPLETE DEVELOPMENT TRIANGLES

NON-FATAL EXCESS WORKERS COMPENSATION CLAIMS

ACCIDENT PERIOD	CLAIMS AS OF DEVELOPMENT PERIOD									
t =	2	3	4	5	6	7	8	9	10	11
1 '80	24	24	32	44	53	71	95	128	173	196
2 '80	24	27	41	64	80	100	134	177	202	
1 '81	7	21	33	49	74	102	123	147		
2 '81	20	26	47	69	95	142	173			

LOGLOGISTIC DISTRIBUTED REPORT LAGS

REPORT LAG = RESERVE DATE - ACCIDENT DATE

LOGLOGISTIC {
- HEAVY TAILED DISTRIBUTION
- NON ZERO MODE
- CONVENIENT MATHEMATICAL FORM

LOGLOGISTIC MODEL

PROPORTION OF CLAIMS KNOWN BY PERIOD t ALREADY KNOWN BY PERIOD x

$$F_t(x) = \frac{1 + b/t^a}{1 + b/x^a}$$

$t \to \infty$ gives proportion of ultimate claims known already by x

$$F(x) = \frac{1}{1 + b/x^a}$$

INVERSE POWER DEVELOPMENT FACTORS

$$\text{DEVELOPMENT FACTOR}_t = 1 + Y_t$$

$$Y_t = (a + t/b)^{-c}$$

$a = .22820$
$b = 2.6440$
$c = 1.0494$ by least squares

DEVELOPMENT FACTORS

$$(1 + Y_t)$$

ACCIDENT PERIOD	t =	3	4	5	6	7	8	9	10	11
1 '80		1.000	1.333	1.375	1.205	1.340	1.338	1.347	1.352	1.133
2 '80		1.125	1.519	1.560	1.250	1.250	1.340	1.320	1.141	
1 '81		3.000	1.571	1.485	1.510	1.378	1.206	1.195		
2 '81		1.300	1.807	1.468	1.377	1.495	1.218			
Fitted		1.723	1.559	1.455	1.383	1.330	1.290	1.258	1.233	1.212

ACCIDENT PERIOD	PROPORTION OF CURRENTLY KNOWN CLAIMS AS OF DEVELOPMENT PERIOD									
	2	3	4	5	6	7	8	9	10	11
1 '80	.122	.122	.163	.224	.270	.362	.485	.653	.883	1.000
2 '80	.119	.134	.203	.317	.396	.495	.663	.876	1.000	
1 '81	.047	.142	.224	.333	.503	.694	.837	1.000		
2 '81	.116	.150	.272	.399	.549	.821	1.000			

PROPORTION OF ESTIMATED ULTIMATE CLAIMS AS OF DEVELOPMENT PERIOD

ACCIDENT PERIOD	3	4	5	6	7	8	9	10	11
1 '80	.065	.085	.118	.143	.191	.255	.344	.465	.527
2 '80	.063	.095	.148	.185	.232	.310	.410	.468	
1 '81	.058	.090	.134	.203	.280	.337	.403		
2 '81	.050	.091	.133	.184	.275	.335			
Fitted	.042	.082	.134	.197	.265	.335	.403	.468	.527

a = 2.5 b = 360 mode = 7.5

FITTING THE LOGLOGISTIC

$$F(x) = \frac{1}{1 + b/x^{a}}$$

$$E(X^{n}) = b^{n/a} \Gamma(1 - n/a) \Gamma(1 + n/a) \quad n < a$$

$$\text{Median} = b^{1/a}$$

$$\text{Mode} = 0,\ a \leq 1; \qquad b^{1/a}\,[(a-1)/(a+1)]^{1/a},\ a > 1$$

Suggested Background

Caceci, M.S. and Cacheris, W.P., "Fitting Curves to Data," BYTE, May 1984

Patrik, G.S. "An Actuarial Procedure for Estimating a Reinsurance Company's IBNR." Proceedings of Insurance Accounting and Statistical Association 1978

Sherman, R.E. "Extrapolating, Smoothing and Interpolating Development Factors," PCAS LXXII 1985

Weissner, E.W. "Estimation of the Distribution of Report Lags by the Method of Maximum Likelihood," PCAS LXV 1978

Panel Sessions 1E/4D

LOSS RESERVE STANDARDS

Moderator: David G. Hartman, Vice President & Actuary
Chubb Group of Insurance Companies

Panel: David P. Flynn, Senior Vice President
Crum & Forster Underwriters Group
Norman Koefoed, Supervisor of Financial Analysis
Illinois Department of Insurance
Allerton Cushman, Jr., Principal
Morgan Stanley & Company, Inc.

1985 Casualty Loss Reserve Seminar

Kansas City, Missouri

Welcome! I'm Dave Hartman and will serve as moderator of the session. We are glad that so many of you are here. We hope that we're not going to disappoint your expectations and since I'm not a panelist I can tell you that I believe you're in for a real treat in the presentations today.

As noted in the program there are various possible standards applicable to loss reserves and our panelists will touch on many of those alternatives. Some of these standards conflict, which can present quite a dilemma to a loss reserve specialist. Our format for this session will be to have the three presentations first with time for questions and answers at the end. And for the record, the views expressed are the views of the individuals and not necessarily the views of the American Academy of Actuaries or the Casualty Actuarial Society or the employers of the speakers.

Our first speaker this morning is from the state regulatory world; specifically, the Illinois Department of Insurance. He is not, however, Jim Schacht, as the program indicates, but he's just as good since he contributed to the speech for Jim in the first place. Our first speaker is Norm Koefoed who is a CPA who has had almost ten years experience with the Illinois Insurance Department, with prior experience in public accounting and private business. Norm is currently the Supervisor of Financial Analysis and as such has two groups of people working for him--one is an in-house analytical staff and the other is a field actuarial examination staff. The Illinois Insurance Department has a good reputation for early identification of troubled companies and it has rehabilitated or liquidated more than its share of property-casualty companies. Norm has personally been involved with many of these and has seen first hand what kinds of troubles underreserving can lead to. Let's welcome Norm Koefoed.

Norm Koefoed: Thank you David. You do have to forgive me to some extent. Although I did give Jim some thoughts, I did not learn until late yesterday afternoon that I was going to be a speaker today, so it may be a little rougher than what you might expect. I'm also going to pretty much read it, which I would not normally try to do.

I have been directed by our moderator to cover several areas to begin the discussion on loss reserve standards. These include the various possible standards applicable to loss reserves, the relationships between the standards, and the analytical techniques for reserve evaluation, the implication of subjects such as conservatism and present value discounting, tools available to the regulators to evaluate loss reserve against the standard set, and some comments on the loss reserve opinion. These are to be from a regulatory perspective and accomplished within 15 minutes. Let me begin by just mentioning that you will see that I will take some liberties in my presentation by making some general observations and suggestions even though they were not requested.

First, talking about loss reserve standards this is a very easy thing to do since there are not many standards. Illinois law provides the following standards for loss reserves and I quote, "Every company shall at all times maintain reserves in an amount estimated in the aggregate to provide for the payment of all losses and claims incurred, whether reported or unreported, which are unpaid and for which such company may be liable and to provide for the expenses of adjustment or settlement of such lossses and claims." While I have not examined the laws of all of the other states I suspect that most of the jurisdictions have a similar standard. Beyond this general standard very little else exists in law, regulation, or elsewhere that establishes a standard for loss reserving. I think that this is a major problem which needs to be dealt with by the insurance industry, the actuarial profession, and the regulators. We need more specific standards for loss reserving if we are to expect to have accurate reserving.

Currently, we see companies using a variety of methods to attempt to meet this statutory standard. Most of these methods fit into two broad categories. The first category would be a method which estimates the future ultimate cost of losses and the second being a method which estimates the cost today to settle the losses. Of course, in the latter method a bulk or management reserve is required to reflect the fact that the actual cost in the future will likely be higher as a result of monetary and social inflation. Either of these two methods is acceptable from a regulatory standpoint so long, of course, as the result is something called an "adequate reserve". As a famous actuary once noted, "Setting loss reserves is like putting in golf. Any method that gets the ball in the cup quickly is very good and so in estimating loss liabilities it is not the method but the accuracy of the results that counts", which brings me to the subject of loss reserve discounting.

In either of the two methods that I described earlier one can intentionally or unintentionally arrive at discounting. If one attempts to estimate future costs at today's costs without sufficient management or bulk reserves, they are essentially saying or assuming that future interest earnings will equal or offset monetary and social inflation. In this case discounting is unintentional. If one attempts to estimate future ultimate costs, it implies that these costs will be reflected at present values. This is intentional discounting. Regulators, with an exception for loss payments which are fixed and determinable, such as work. comp., do not condone or favor discounting and require loss reserves to be reserved at ultimate value. The reason is not a theoretical one but rather a practical one. That being that reserves have been historically inadequate. Nonetheless, because of surplus needs, some insurers have received permission to discount one or more long-tailed liability lines. Such permission usually results from a "private ruling" or similar agreement with the company's domestic regulator. Unfortunately, the statutory financial statements contain little provision for disclosure of and explanation of any such discounting. In the 1984 and prior annual statements the only question was asked in Interrogatory 28 and that was, "Are any of the liabilities for unpaid losses and unpaid loss adjustment expenses, other than workers' compensation liabilities, discounted to present value at a rate of interest greater than zero?" Schedule P also contains a footnote asking a similar question in respect to workers' compensation.

Before I leave the subject of discounting, I would like to mention some rather significant changes in the annual statement which will be effective for year-end 1985 which you should be aware of. At the spring Blanks meetings the NAIC adopted changes to the blank which will provide regulators far more information about a company's discounting practices. Specifically, instructions to the fire and casualty blank now will require full disclosure of discounting practices. A distinction is made between tabular and nontabular reserves. An example is worker's compensation survivor's benefits in which the amount of reserve is determined by the age of the survivor and the benefits received. In the case of non-tabular reserves the company must disclose the amount of discounted liability and the amount of the discount. In the case of tabular reserves the company need not identify the amount of the discount but must disclose the table used. The annual statement interrogatories have, of course, been amended to recognize the new footnote requirements in the instructions.

Another important change in the annual statement is in Schedule P. Companies which discount loss reserves naturally show an apparent Schedule P historical deficiency in Parts 1 and 2. In the future, Schedule P Parts 1 (and Part 2 which simply restates reserves derived from prior annual statements) will be computed on a non-discounted basis. The only exception is workers' compensation tabular reserves which may, although need not be, continue to be carried at appropriate tabular discounts. This change will

permit the regulators to evaluate company loss reserve estimates absent the effect of discounting. We believe that there is significant difference between a company which demonstrates an eight percent loss reserve deficiency because of an intentional eight percent discount assumed in the prior year's reserves and a similar deficiency displayed in the statements of a company which intends to reserve an ultimate value but is simply unable to do so.

Lastly, companies which discount on a non-tabular basis must complete a supplementary Schedule P which displays, by line of business, the amount of discount and assumed interest rate by accident year. This schedule will allow a regulator to evaluate the interest and loss payment timing assumptions used in the discount calculations.

Next I would like to review the tools which are available to the regulators to evaluate loss reserves and to determine if the standards are being met. These can be categorized into two different types of regulatory tools. First, internal tools such as the annual statement, the IRIS or early warning tests, and the NAIC examiner team reports. Second are the external tools such as full scale examinations, target examinatons, including the actuarial examinations, and loss reserve opinions. While the internal tools are important and crucial to see that the regulatory resources are directed to the appropriate company at the appropriate time, they have limited value in knowing if current reserve levels are appropriate and adequate. They are, however, useful in raising issues and questions about a company's reserving practices. A case in point is the IRIS or early warning tests which review historical loss reserve deficiencies or redundancies and project such deficiencies or redundancies as a percent of policyholder surplus. Implicit in these tests is an assumption that if an insurer were underreserved in the past, they are likely to still be so currently, and that they have made no effort to increase open reserves in recognition of historical deficiencies. This may or may not be true but will require the regulator to discuss his analysis with the company or, if need be, conduct a review of the company's reserves. These examinations permit the department through either claim file review, actuarial analysis, or a combination of both to form its own conclusions about the appropriate level of the loss reserves for a company.

It is appropriate to observe that the current annual statement is seriously deficient in providing information about reinsurance loss reserves. Reinsurance reserves can be included in Line 31 of Schedule O which affords only two years of development. The annual statement instructions require that Line 31 be used only if the reinsurance premium and losses cannot otherwise be allocated to specific lines of business. However, many insurers appear to include all reinsurance reserves in Schedule O. To correct this deficiency, the NAIC accounting for reinsurance study group is developing a reinsurance loss reserve report along the lines of the new SEC requirement for inclusion in the annual statement. Initially it will require eight years of data but will be expanded to require ten years of development. This new schedule will greatly improve the data and information on this important segment of a company's operations.

Lastly, the loss reserve opinion is an important tool for the regulator since it gives a professional view on a company's loss reserves. Naturally, if this opinion is given by a member of the Academy or the Casualty Actuarial Society it is given greater weight in the regulatory process. Particularly if it is rendered by someone who is unaffiliated with the company. In this connection, it is my belief that if the loss reserve opinions are to continue to have credibility, it is incumbent upon the Academy and the Society to see that its members are properly and diligently abiding by existing professional standards. In this regard, it would seem appropriate for the applicable professional society to periodically review the opinions that have been rendered, particularly for those

companies which have later become troubled or encountered greater problems than the industry norms to see if the actuary had done an appropriate job.

As a closing thought I think that the new claims-made policy for general liability business presents the actuarial profession with a unique opportunity to be in the forefront of the loss reserve standards setting process. The appropriate method for earning premium and other such issues as reserving for future tail coverages are matters which deserve professional attention as these news forms are being finalized. A closer link between the regulators and the casualty actuarial profession similar to that which exists on the life and health side will, I think, be mutually beneficial. Thank you.

Dave Hartman: Thank you very much Norm. We especially appreciate your filling in on such short notice. At breakfast this morning Glenn Meyers recalled a comment that he had heard from a previous Illinois Director of Insurance, Mathias, that the real way to tell if a company is troubled is when the statutory blank has been delivered late. Secondly, you can tell when a company is really troubled when the chief executive officer hand delivers it late explaining that he come in to talk about it to avoid mail fraud.

Generally speaking, the standards applied by insurance department regulators are to carry adequate reserves tending towards the high side. The opposite view is held by the Internal Revenue Service. They prefer reserves that are lower in any area of doubt so that the deduction from income can be smaller and the amount of tax paid can be higher. We do not have a representaive on the panel today from the IRS but I do want to mention that there is that additional perspective. The topic of taxation is being covered in another session.

We do have with us today, however, Jay Cushman to speak from the perspective of the investment analyst. Jay is Principal and Senior Insurance Analyst at Morgan Stanley & Co., Inc. He is, in my opinion, the dean of investment analysts who really evalute loss reserves. Almost ten years ago Jay issued this report on the Government Employees Insurance Company (GEICO) in December of 1975. Jay has a reputation of being a numbers cruncher and this report was in many respects a numbers crunching type of a report. It led Jay to conclude that a review of the numbers including a review of loss reserves and including a review of an average reserve--total reserves divided by policy count--indicated to Jay that operating earnings for the future would be low, if not negative. Three weeks after Jay issued his report the company announced a $35 million strengthening and six weeks after that they revised the estimate from $35 million to $85 million--in other words, added another 50 million dollars to the reserve for strenthening. Jay was a person who spotted that potential kind of a problem from the kind of analysis that he did.

In the back of the room are some handouts from Jay. I want to apologize to Jay and the rest of you this morning about the handouts being on Morgan Stanley letterhead. The guidelines for the Casualty Loss Reserve Seminar are that they be on blank paper. This afternoon, if Federal Express does its job, we'll have some on blank paper. But one key point to note is the disclaimer at the bottom of each page. In other words, I am defending the value of having this since it is coming from an investment analyst and the disclaimer is a fairly key item. We are especially glad to have Jay with us this morning. Let's welcome him.

Jay Cushman: Thank you David. For a moment last night I thought I had never been banned in Boston but I've had visions of being banned in Kansas City and I'm glad to say that we're going to have a compromise between plain white and dark blue. David's

generous remarks about my GEICO report actually reminded me of the fact that there is not a whole lot of loss reserve analysis in it. In a sense, it's more of an analysis of here's a company that's making widgits and it's charging x for the widgits and the costs are y and the frequency of claims attached to the cost is rising. In retrospect, I guess it is interesting to me that I came to the right conclusion without having a lot of the tools at hand that we all have today to analyze reserves and to determine standards for reserves. David's remarks also remind me that I've been following the fortunes and mishaps of this industry for 20 years and I've been particularly interested in insurers loss reserves for the last ten years. In 1981 it was a pleasure to present a paper at the first CLRS in St. Louis about a technique for measuring loss reserve adequacy which I called "Squaring the Triangle".

Certainly interest in loss reserve standards and loss reserve adequacy hasn't declined one whit on Wall Street. There are many portfolio managers on Wall Street today who are concerned that the need to strengthen loss reserves is going to derail this magnificent profit upturn, as people like Cushman and others have described so enthusiastically and lucidly. The second point I would make is that for me the word "standard" has some very definitive and proscriptive enormity of charactersistics and qualities. When I see the world in which most of you represent property casualty insurers operate I think of volatility and a lot of instability and change and rapid movement. In a certain sense, the notion of a standard and the notion of the real world are certainly inconsistent or at variance with each other. I want to make that clear from the beginning.

I don't think there are any uniform, and I underscore the word uniform, standards for loss reserves on Wall Street. One of the reasons for that is that most of the reserve analysis that's done, is done by five to ten persons like myself, and we are in on the so-called sell-side on Wall Street. We work for investment banking and brokerage firms in contrast to our clients who we call buy-side analysts who are working for banks and mutual funds and investment counsellors and other institutional investors. As a result you tend to have a good deal of variation between the kind of analysis done by five to ten different people. I think it's fair to say that most of us are more or less asking the same questions. Number one, what's the relative or absolute degree of adequacy or inadequacy in a particular insurer's loss reserves? Number two, if it's inadequate, is the reserve shortage large enough to impair the firm's financial stability or even its very existence? Number three, I think we want to know what the probabilities are that the management will respond to an inadequacy, and if it does, how long will it take to cure it, and by how much will it depress operating profits? I could add some more questions in search of answers, but I think certainly those are among the most important.

So basically we're doing a reserve analysis much as a chemist or someone in a lab performing a litmus test. We want to validate the financial health of the company and we want to use the company's reserve position as a rough guide to the quality of its earnings, its net operating income, and its stockholders equity. I should remind you that there is no uniform way to accomplish the task of analyzing reserves, any more than there is a consistently successful way of managing an investment portfolio to get above-average returns on both a short and long term basis. I have to say to you that I'm becoming to a certain extent skeptical, increasingly skeptical, about the validity of the data bases. Let me back up and say that those of you who do peer company analysis using the Schedule P data base from the consolidated annual statement, will recognize that it is my principal data base and the principal data base of those who are loss reserve investigators on Wall Street.

Notwithstanding everything that the microcomputer and Lotus 1-2-3 has done in terms of increasing our effectiveness as number crunchers, I still have some problems with the

data bases and I have cited three examples briefly in my prepared remarks about what I call three tales of before and after. The first example has to do with an insurance company that, in order to remedy what it considered some critiques of its loss reserves, held a series of meetings for analysts during July of 1983. They basically demonstrated why Schedule P shouldn't be relied upon to test their loss reserves. My own reaction to the presentation was a combination of enlightenment and confusion because they gave us an extraordinarily elegent presentation that would have been worthy of CLRS and they didn't leave anything on the table when they were over. They told us what was wrong but not what was right and you should have the sense of the proverbial glass being half full before and now it was half empty.

I think the second example that I can think of is a prominent commercial insurer that I follow as a matter of routine and did my usual squaring the triangle using Schedule P in March of 1984 on the year-end 1983. Their numbers came up under-reserved by roughly half a million dollars and I think a number of other analysts came to conclusions in that rough range. The company was kind enough to produce additional data which enabled us to go back to our computers to crunch the numbers. I was able to transform this shortage into a positive development of about 150 million dollars. I suppose the final irony of the story is that about 15 months later the company proceeded to strengthen its reserves by a $150 million for 1983 and prior deficiencies.

Finally, we have the example of one of my competitors, who shall remain unnamed, who produced what I described as an encyclopedic study of loss reserves a very, very elegent study on 34 companies last year. Our protagonist in example one is shown to have loss reserve shortages ranging up to a billion dollars. Within the passage of a month additional data was forthcoming and the apparent shortage was converted into a redundancy of $65 to $90 million. So you understand why I call 1984 the year of before and after, and believe me there are other examples. I'm not trying to suggest that this process of before and after is unethical, depict as evil, immoral or fattening, but I think it's significant that the end result of that process is always usually to portray the company's results in a better light. And I would simply say to you that I know of no instances when additional data has produced a less favorable portrayal of a company's loss reserves.

I'm going to suggest to you that you reconsider a standard that says, "Honor thy data base." Some of you I suspect are already saying well, Cushman, Schedule P was never designed for prospective reserve analysis and what's all the fuss and try something different. My sense is that despite its shortcomings it's probably the best data base that we have. Believe me, the popularity of this data base from my perspective is increasing-not diminishing. I would cite January 1984, Dan McNamara, the President of ISO, who makes a pronouncement on the adequacy or the inadequacy, in this case, of the industry's loss reserves, concluding that they're understated by at least ten percent. It's quite evident that the statistical basis for those conclusions came from a Schedule P type data base which I believe is compiled by A.M. Best Company. Aetna Life and Casualty has produced for a number of years, and in the last two years has made the general conclusions of the study known to investors, a very elegant study which is based on consolidated annual statement Schedule P data. Finally, I would point out to you that the Best's Advanced Rating Report Service, or Barrs' reports, certainly rely on the numbers that come from our ubiquitous but increasingly unreliable Schedule P.

Let me turn to the SEC loss reserve disclosure standard. I'm not going to define what is in it, I'm going to assume a certain level of knowledge on your part. What kind of impresssion has the new disclosure standard made on the investment community? As best I can judge, the impact has been minimal, at least in the first six months of the

standard's life. I have been working systematically, albeit sporadically, whenever I can find the time to understand this analysis better. I have tried to understand it better by talking to a number of the practitioners, if you will, chief financial officers, actuaries, and others who have been involved in this work. The reaction that I had from one CFO the other day when I called him on the telephone was that he treated me like the prodigal son. He said, "Cushman, where have you been? You're the first person whose asked me a question about this? I've seen 15 analysts in the past six months and nobody seems to care". Chatting with one of your colleagues in the lobby last night I got very much the same kind of suggestion. I think that the reaction of these two persons is interesting because it suggests that analysts don't care about the SEC disclosures. I really don't think that's the case. I hope the very fact that I'm here dispels that notion and I think the real answer is is that analysts have had some very important things to do in the past six months and arguably more important than coming to grips with a new loss reserving standard in the 10-K.

I would suggest to you that what I describe as investor apathy may also reflect some other factors. When you've got a standard that's new, you've got a standard whose meaning and interpretation is far from being obvious or self-evident. Personally, I'm still a lot more at home with the notation that's implicit to calendar/accident year notation, intrinsic in squaring the triangle. I'd say the SEC disclosure is historical and retrospective rather than prospective and you're already seeing a lot of what I call boiler plate disclaimers. Try this one on for size--"no meaningful extrapolation of estimated future redundancies or deficiencies can be developed from the data". There are variations on that sentence in a whole bunch of these 10-Ks. You can ask yourself what kind of confidence the investor should take from a standard which has a hedge clause of that specificity in it. I guess at the risk of further offending the creators of the standard, I'm going to tell you that I don't think it improves my chances materially of forecasting whether a particular company will have to strengthen its reserves.

Let me give you a quick run through of how I have used the data. I'm going to turn to the tables that begin on Table 1 (found after the question and answer section for this panel). We have built a 24 company composite. Most of the companies in here are followed by Morgan Stanley research, some are not. They range in size from the very largest to some of the smallest companies in the industry. You have 24 companies, 14 of which between the 1976 reserve year and the 1983 reserve year reduced their so called cumulative deficiencies. You have one company that actually went from a cumulative deficiency to a larger cumulative deficiency. You have two that went from a cumulative redundancy to a smaller cumulative redundancy, one that went from a cumulative redundancy to a cumulative deficiency, four that went from cumulative deficiencies to cumulative redundancies and two that are unchanged. The largest portion of this group show large cumulative deficiencies in 1976 and some substantial improvements. In Table 1 what I tried to do in the far right hand column is simply to calculate the net change in each company's cumulative deficiency and I'm going to refer to that as a CD. Conversely, a cumulative redundancy is a CR just for shorthand. Please note that in this calculation, the positive values denote improvement while negative values show deterioration. One of the problems I think that people steeped in the insurance industry are likely to have with the notation in the 10-K data base is that the signs are reversed, if you will. The cumulative deficiency is expressed in terms of minus signs and the redundancy is positive. I think of the insurance industry's typical notation being just the reverse.

In the second table we've gone from alphabetical order to ranking in order of magnitude of each company's CD reduction. Another way to look at the data is to transform the actual dollar amounts of CD or CR to percentages of the original reserve and evaluate the magnitude of the change of the percentages rather than the actual dollars. This is

done in Table 3 where you see that essentially the three most improved companies are the same as in those in Table 2 - GEICO, AIG and Hartford. Then you get a change in the pecking order and you finally end up with the same four companies on the bottom. On Table 4 we continue our percentage based analysis from Table 3. The next tables show us the average cumulative deficiency as a percentage of the original reserve over a variety of time periods. I've arbitrarily picked eight, five, and three years. I guess the point I would make here is that in Tables 5 and 6 you've got the data sorted based on the latest five and eight year average. You'll find that the top quartile of companies is populated by many of those with large redundancies in the early years of the study.

Finally, in Tables 7 through 9, we pulled some additional data out of the 10-Ks and we show the increase or decrease in prior years reserves during calendar years 1982 and 1984 as well as the discount, if any, deducted from such reserves in 1984. Parenthetically I would simply suggest that you note the correlation in Table 8 between what I call the discounters and the magnitude of the loss reserve strengthening that top quartile of companies. Yet all six of the discounters lead the way in terms of reserve strengthening over the last three years. If you look at the bottom quartile, you'll see that only two companies do that.

Very briefly I will say that you can do prospective analysis with the SEC data base. This isn't the time or the place to talk about methodology, but there is essentially enough data in the SEC data base that you can perform a very elaborate "subtraction exercise" and create roughly the equivalent of a Schedule P data base. In table 10 I give you the finished product of such examination which I performed on Aetna Life and Casualty. There is a little bit of additional data which is very helpful to get from the companies and so far all the companies that I've spoken to, with one or two exceptions, have been very forthright and willing to provide this. The main caveat I guess I would make about doing prospective analysis with the SEC data base is that all of the problems that we've heard about and will hear about later today with using the Schedule P data base are in this SEC data base. Things like acquisitions, divestitures, and structured settlements will affect the results.

David Hartman has a lot of personal experience with the impact of discontinued operations (akin to a divestiture) because his employer now has a closed book of medical liability business. I would certainly suggest to you that you take a look at the Chubb 10-K disclosures because they are extremely well presented and I would also suggest, I reread all 24 of the 10-Ks a couple of days ago to refresh my memory--to you that you read the Safeco and USF&G disclosure statements if you are looking for an example of full disclosure.

A couple of rhetorical questions: Will full disclosure mean less disclosure? You can certainly appreciate that now that we've got a standard that's been mandated by the SEC that there may be no further requirement to dislcose anything. I am delighted to hear the previous speaker's comments about additional disclosure for reinsurers. General Reinsurance as a matter of fact, in 1979 started publishing voluntarily in its 10-K a very useful loss development statement which bit the dust with the advent of the 1984 10-K. Similarly, the companies that I cited anonymously in examples two and three, does the SEC standard mean that they should stop producing additional data? And I'm sure that some of you can appreciate that mutual fire and casualty insurers, as well as reciprocal exchanges, aren't subject to the SEC standard, and I leave it to the lawyers to decide whether the SEC has created a double standard which perversely doesn't affect companies that have no shareholders.

I'm going to close by telling you that I think you should be tolerant about some of these new standards. My sense is to paraphrase Marshall McLuhan when he said "the medium is the message". I think "the data base is the standard" or possibly "the method is the standard". I think we have to be charitable and open-minded and patient about the advent about new standards and methodologies. It obviously makes more work for you. You've got to cope with everything that's come before and you've got this new kid on the block walking around and you've got to try and understand what that's all about. No doubt it will require time and experience to judge the relevance of all of this.

I think in the end that the scope of interest in reserve analysis and reserve standards is really broadening. We've mentioned some of the company's and institutions that have an interst in this. Without meaning any disrespect, I think the world is telling us that loss reserves and standards are too important to be left simply to actuaries or loss reserve specialists or analysts, much as war is too important a topic to be left in the care of generals. You've seen ISO get the act, the SEC, and the A.M. Best Company. I've been doing a lot of work recently in examining Best's so called BARRS reports and I view this as a new and fertile data base with which to analyze loss reserves.

I will close by telling you that I hope you will ask me back in five years to tell you how some of these new initiatives have fared and I promise to bring my handout in a plain brown wrapper. Thank you very much.

Dave Hartman: Thank you very much Jay. Our final speaker is Dave Flynn who's going to be speaking from the perspective of the company. Dave is a Fellow of the Casualty Actuarial Society and a member of the American Academy of Actuaries. He is Senior Vice President at C & F Underwriters which is part of the Crum & Forster Group which is part of Xerox. Dave has been with Crum & Forster for 11 years and prior to that was with Fireman's Fund for nearly nine years. Let's welcome Dave Flynn.

Dave Flynn: Thank you Dave. As the representative of the insurer's interest on this panel, I thought it might be fun and important to just list some of the reserve standards that I've seen published or expressed by indivduals in the insurance industry. I want to emphasize that this is a completely non-scientific and highly biased effort, but I will certify to you that I have seen these standards expressed personally or these standards have been expressed personally to me either in personal conversation or in some pubic forum.

In terms of the actual standards that have been expressed, they seem to break down into two categories. In the first category, and by far the largest number of standards fall into it, are those that express a desired condition and in the second category are those that express a desired effect.

It was fun trying to find these standards. The first one is from the CAS Committee on Reserves in their Statement of Principles issued several years ago. They expressed it as it is important to have reliable reserve estimates. The next are best estimate of final value, sufficient to discharge policy obligations, reasonable estimates, present value of expected loss payout, and shall be based on the estimated ultimate cost of settling the claim (that's in the SEC material).

The next part of this list is not so replete with the statutory type standards and it's more of the ones used in actual practice. The first one is a fixed percentage above our best estimate of the required reserve. The next one is reserve sufficient to pay final obligations, with some pessimism. The third one is the one expressed by the Progressive Insurance Companies. If you're interested in this material, Progressive publishes a fairly

extensive analysis of their own reserves every year. You can see that their standard is to set total loss reserves at a level where we approach 100% certainty that they're adequate. That's really a neat one. The next one has been expressed to me personally several times. I don't want any surprises. And the last is a mechanical generation based on the pricing assumptions. Now for those of you who are a member of the Casualty Actuarial Society, there's going to be a quiz afterwards as to which of these standards was given to us by the President of our Society, Stan Khury.

The next type of standards are those that seem to express a desired effect. The first one was a good one. Reserves should have the same ratios to premiums earned as our competitors. That was expressed to me by the former chief executive officer of a major property casualty insurer. Second, such a level as to keep their trade ratio at one hundred percent. That's one of my favorites. I've used that myself for something where you don't really what's going on but you want to set a reserve and you don't want it to impact earnings one way or the other. It's useful on a short-term basis but very dangerous over a longer term. The last one here is maintain our earnings at a steady rate of growth from quarter to quarter. That's a fun one, but has actually been used.

In recalling these standards you'll agree that most express the notion that reserves should be set by some function of their estimated ultimate value. The main point that really distinguishes the various standards is the propriety of discounting reserves to reflect their net present value. On this point I'd just like to relate a study done several years ago by Ernst & Whinney on the practices of insurance company's with respect to discounting reserves. I have to admit that it has been several years ago because back then it was called Ernst & Ernst, but nevertheless it represented the reserving practices of 39 major property casualty insurers, both mutual and stock of commercial lines writers, direct writers, a pretty good range of insurers. Of the 39 companies, 24 or nearly two-thirds, said that they did not discount any reserves. Some of those companies might discount a case reserve in actual practice but then have an offset somewhere else so that in effect there is no discount. Of the remaining 15 companies you can see 14 discount workers' compensation life pensions and the missing company is the one that some of you will recognize that develops a separate asset for the effect of discount, that's the Sentry Group. The remaining seem to discount in fairly specialized types of situations.

The point I'd like to make here is that although the data is old, and I think the data Jay gave to you is more recent data, the companies that discount seem to be doing it in rather specialized types of situations and the fact that it's being done doesn't indicate to me that there's any insurmountable obstacle to establishing some mandatory reserve standard because of the controversy associated with discounting.

On the other hand, one might question the propriety or usefulness of establishing standards at all. I think most of you will recall the existence of a standard for pricing that exists and has existed for decades. That standard is that rates shall not be inadequate, excessive, or unfairly discriminatory. Despite the existence of that standard and all of the statutory authority behind it, it hasn't been much use to us in the last several years in preventing excessive price discounting.

I think one other point is that you have to be fairly careful in trying to draw too close a parallel between pricing standards and reserving standards. The pricing standards occur early on in the process in what I think of as the optimism of youth, and the reserving standards are coming later on in the process with the cynicism of old age and wisdom of old age. I think the articulation of a universal reserve standard, if we do it, will be no

more a panacea for reserving problems than the codification of a pricing standard was in the pricing area because it's simply more complex than all that.

The major point of controversy from the point of view of regulator, tax collectors and owners in this area seems to be more concerned with the safety margins that exist with respect to reserve standards. There are several different ways that companies seem to express these margins. I think they are roughly categorized into three groups: 1) margins that reflect estimated maximum statistical error, 2) margins that reflect the maximum statistical error plus something else, and 3) reserves based on ranges of expected values. Since I'm an actuary I thought I'd show something that said x plus or minus. The point estimate is plus or minus, the statistical error associated with the point estimate of a reserve. How you get that plus or minus x percent is a subject of a panel at this seminar on the confidence intervals associated with loss reserving and how you actually can calculate those confidence intervals even though some underlying statistical distribution might not exist.

The second category of safety margins in reserves could be characterized as maximum statistical error plus. That plus amount is sometimes referred to as a cookie jar or something of that nature, it's the safety cushion. I think in some companies what seems to happen is that you have the point estimate with some statistical error associated with it and there is a margin expressed and management is allowed to move reserves anywhere between that point estimate and the expected ultimate plus a maximum reasonable margin.

The final category is the practice of modifying the underlying assumptions that are associated with the reserving techniques. What you do is you generate both low and high estimates or you can generate a continum of estimates in between. I have chosen to categorize the margin in that case as the difference between the actual reserve and the low estimate.

There are really only three points I'd like you to take away from my presentation. First, I think even if we have the wisdom to articulate the verbiage associated with a reserve standard, it is unlikely that the standard will have much practical effect on the behavior of insurers, regulators, and tax collectors, or policyholders. The reason is that these standards are ultimately comprised of words, and words will mean no more or less than what one wants them to. The second point is that the matter of the justification for a margin in reserves above or below the value of the "estimated ultimate costs" is a matter of public policy. It's not solely one for actuaries or other loss reserve specialists. It can't be answered solely in our area because its consequences extend well beyond us. However, I believe that it is important that loss reserve specialist identify and perhaps even quantify the decision options available to the wider public. Finally, I think it's most important that insurers set out in the reserving process a standard of some sort for at least the starting point of their reserving process. To me the most likely ultimate cost is probably the best one I've heard of yet. Thank you.

David Hartman: Thank you very much, Dave. We do have time for questions. We would appreciate it if you would come to the microphone and identify yourself since the session is being recorded and that will help get a good transcript of the question and answer session.

Question: Marty Adler, GEICO. Question for Norman. What is the department's point of view toward what the adequate reserve is? Should the reserve be set at the best estimate or at something which allows a margin for adverse development?

Answer: I think that we would be happy with the best estimate, truthfully. The margin for adverse development theoretically is built in to the best estimate due to the concept of inflation, be it social or monetary. We sometimes are just as upset about seeing redundancies, large redundancies, as we are deficiencies. So I think the best estimate has got to be the best answer.

Question: Jim Wilson. Question for Dave Flynn. Your closing statement suggested your best estimate would be the ultimate value as a standard. If we compare an automobile physical damage company with a medical malpractice company, we don't have such a standard in that statement. Could you make that a little broader and tell us something more about it.

Answer: You're saying that when you have a short tail property line you don't have a need to estimate an ultimate cost as you would under a more longer tailed line of business?

Question: The ultimate value for a short term line can be a standard, but if you apply that same standard to a long tail line, it would not an equitable standard at all because if one anticipates immediate payment and the other one anticipates a distant future payment and we're talking ultimate value in each case, then you're obviously imposing different standards on two different companies.

Answer: Are you articulating the position that you should be able to discount the reserves to recognize the time value of money?

Question: I guess I was really asking for your position. I was interested in your statement of a standard and I don't think that the ultimate value standard would apply equally to the short line and the long line and I wondered if in your mind there is a difference that would justify discounting. I just wondered what your thinking on it is.

Answer: In my own mind what we're talking about here in terms of discounting isn't really a question of reserve margins, it goes more to fundamental accounting practices. If we choose to express the worth of our companies in terms of net present values, as you might when you are involved in an exchange situation, then I think the concept and the usefulness of discounting becomes very strong. My own view is that I like the Sentry approach, I like Ruth Salzmann's approach to this area by setting up an asset account. Discounting the reserves has all sorts of negative implications with respect to the future adverse development on your Scheule P runoff and you're essentially getting to the same place as you are when you discount the loss reserves directly.

2nd Answer (Koefoed): From a regulator's prospective the answer is we want the ultimate on the long tail lines also. It's interesting I think that social values have changed over time what regulators have done. Everyone, I think, knows why bonds are carried in the annual statement at amortized cost versus market values. The answer is to prevent insolvencies. I don't really know why workers' compensation was originally permitted to be discounted. Yet, theoretically, structured settlements ordered by courts in the areas of medical malpractice and this kind of thing are not. But theoretically we don't allow long tail or medical malpractice to be discounted either. If you recall, I said there are some private rulings in effect like the Treasury or the IRS does at times. One of them is domiciled in Illinois, a medical malpractice writer that does discount its loss reserves. It's known to the world we make them footnote it on the balance sheet and the income statement and elsewhere the amount of the discount, the rate used, and I think in that case it's a social value. Without the discounting the company's insolvent; but the regulator says in the back of his mind says you know it ought to be gross.

Dave Hartman: I'd like to reiterate a point that Norm made in his presentation and that's that the statutory annual statement blank is going to be revised for the current year. The 1985 blank is going to require that Schedule P be done on a gross of discount basis. Effectively what we're going to have is the kind of approach that Ruth Salzmann had, but instead of an asset item equal to the amount of the discount, I believe the recommendation is that there be a negative liability so that reserves will show at their ultimate value and there'll be a negative liability reflecting the present value of future anticipated investment income. Are there other questions?

Question: Dale Ogden, Kramer Capital Consultants. Question for Norm, about the new schedule for reinsurance companies. Is that schedule going to be on an underwriting year basis or will it remain on an accident year basis?

Answer: I don't know the answer. It's being developed and I have not personally been involved in the task force developing it and I dont' know.

Question: Dave Hartman. Question for Norm. In our welcome this morning Director Ainsworth indicated that there were two concerns that his chief examiner had about making Rule 12, (formerly Rule 9) as it's called, the requirement for a loss reserve opinion. One is that he felt that people were signing it who were not qualified to sign it, and secondly, there was no penalty for somebody signing it and having the reserves run off badly, whether because of lack of knowledge or even fradulent intent. Norm, does the Illinois department, which does require this, have an opinion on Director Ainsworth's comments?

Answer: We feel it still has validity and we passed it originally. I think we were the first state to adopt the rule requiring the loss reserve certification and we made it pretty open. We let anybody say I'm knowledgable and I certify. It can be the claim manager at the company, anyone. Our goal was that over time we would tighten the standards and weed out who can sign. We felt that at the beginning if we tried to put a limit in and they had to hire an independent actuary to certify to it that many of the companies couldn't afford it. We can bankrupt companies by examining companies. Those are the kinds of companies that aren't here. The majority of what the regulator deals with are companies that have got surplus in the range of under $2,000,000 as opposed to the people that are represented here. We still feel it has value because over time we can weed out the ones that aren't and we can suggest to the companies that they get somebody else to certify it. Secondly, one of the points that Jim had included in the presentation I made for him is that he feels that those professionals should begin weeding out their own professions. We have had that experience in Illinois with the audit rule. Illinois is one of the states that requires the insurance companies that are domiciled in Illinois to be audited by an independent CPA firm. The first few years we had a lot of them that weren't worth much, but then the committees of the Illinois CPA Society, both the Insurance Committee and then secondly the Ethics Committee began to review who was signing. That's a little bit more teeth to it when you have the Ethics Committee come down and review the audit reports and then contact the people and say you know you are unethical in your profession. I think that's where we're going with it. I think we're now at the stage where we're trying to put some teeth to it.

Dave Hartman: In the way of current events, earlier this year the Board of Directors of the Casualty Actuarial Society took a position regarding these opinions and is recommending that the American Academy of Actuaries, in its public interface role, work with the NAIC and the individual states to achieve two things. First of all, a requirement that the people who are allowed to sign the loss reserve opinions be

members of the American Academy of Actuaries or qualified by the commissioner in the various states. That's different than the current self-certification for the all other category. Secondly, the CAS Board would like to see the requirement applicable in all 50 jurisdictions, rather than the nine or ten right now. This is under consideration by the American Academy. Further to that, everyone here should realize that the American Academy does have Guides to Professional Conduct. There is a way in which anybody, including a regulator, can question the propriety of an opinion rendered, a loss reserve opinion or some other, by simply writing a letter to the American Academy raising the question. There's no indictment required; just raise the question with the Discipline Committee. The Discipline Committee will follow up by putting together a committee for investigation for this sort. Okay, any other questions? Yes, in the back.

Question: Mike Casio, Peat Marwick. I've recently come across the point of view that during the profitable years we should increase our safety margins and during lean years, only I call them unprofitable, we should decrease our safety margins. Now this would have the effect obviously of smoothing underwriting results and maybe would enhance public confidence in the insurance industry. I would like to hear comments from maybe a regulator's point of view, an actuary's point of view, and also from an analyst's point of view how this type of practice may be viewed.

Answer (Koefoed): From the regulator's standpoint, we really aren't in favor of it. We would much prefer that the actual results reflect the experience of the company. I know that's hard at times. We sometimes get down to the point where a company may not file its annual statement for a couple of months or for three of four months until it has another quarters experience to know whether or not its above the impaired level, but truthfully, we would much rather have real numbers than playing with the numbers.

Answer (Cushman): I guess I can tell you it's been tried before, the notion that you can manage your reserve structure in a way to take the peaks and valleys out of the underwriting cycle. I don't think it's any surprise to this audience that certainly commercial insurers have been through six years of hell and that attempts to smooth out the peaks and valleys have ended up in the dust as the passage of time has made it impossible to do that. If you get that cookie jar and you maintain it at a certain level of margin, you really have to keep the cookies coming in there as you take out or the cycle has to turn soon enough for you to get some real big increases in prices and rates so you can kind of try to hide the transition a little bit. When you've had a long down cycle, it's been very difficult to do that. I would certainly echo Norm's view that for the confidence of investors, everything being equal, redundancy is better than adequacy and adequacy is better than deficiency. What you really want as an investor and an analyst is to make sure that you've got an accurate picture of what is going on. I suppose the one objective would be to have an SEC statement that had zero values consistently over time for cumulative deficiency or redundancy. I suppose that is the target. I suspect that investors today are much more cynical about the ability and skeptical about the ability of companies to manage their reserves to take the peaks and the valleys out.

Answer (Flynn): Let me see if I can put on an actuary hat. I like Fred Kilbourne's definition of what an actuary is the best, and Fred said something like an actuary is that professional who is trained in evaluating the current financial implications of future contingent events. So if you'll accept that definition of an actuary for a moment, I don't think an actuary would have much actuarial to say about that issue, as long as the company had a good and reliable estimate of what that present value of those future contingent events is. Jay has just articulated another standard. He wanted an accurate picture of what the situation is. Personally, as an actuary, I like the idea of having the cookie jar available, but the issue goes I think, as to how big is that margin. There is

that second type of standard, you have the estimated cost, plus or minus the statistical error plus the margin, and the whole question is is how big is the margin. I don't know what the answer to that question is. I think it should be there. It's helpful to be there. I don't like the notion of smoothing earnings for the sake of smoothing earnings, but it's like to reinsurance "sleep at night" coverage, you like to have something there.

Question: Nolan Asch, ScorReinsurance Company. My question is addressed to the prospect of the Internal Revenue Service changing the method of taxation of insurance companies with respect to loss reserves. As most of us know, there is very serious consideration being given this right now and I think I have a slightly different tilt to the question for all three panelists. I guess I'd be curious how a state regulator would feel, given the widely held belief that companies tend now to be under-reserved today without being penalized, as a matter of fact, being by the tax code to have adequate tax reserves? Dave, as someone inside the corridors of a company management, what is the likely practical reaction of companies imagining that we do go to this situation where companies will no longer have a tax benefit from over-reserving, if anyone ever does it, instead of a penalty? Jay, what is Wall Street's opinion of the proprosal and what do they feel will be the behavior in future which may very well see the taxation of insurance companies encouraging less adequate reserving, at least in my opinion, than we've seen to date?

Answer (Koefoed): From a regulator's perspective I really don't see companies that are redundant in their loss reserves.

Question: Let me clarify my point. The thrust of my question was I agree with you, but in today's environment a company is encouraged, if anything, by the Internal Revenue Service Code, to having over-reserve from a tax perspective. Under either of the two major proposals, that benefit is going to either be lessened or maybe even completely taken away. As a regulator with a charge to protect solvency or the interest in the solvency of companies, I would be curious what would your expectations be for that sort of a measure.

Answer (Koefoed): I really don't have an answer to that. I can feel some sympathy for the insurance companies because many of them, as the company people know, are under extreme pressures from two sides and occasionally at home I get myself in trouble because I occasionally tell companies they should slow down the claim payment, but then the market conduct people (on the other side of the room here) go right through the ceiling. Insurance companies are caught in a bind between the social pressures of, you know, we don't care whether you make or lose money, you're going to insure the daycare centers at a rate so that all the mommies can take their little kids and leave them at the daycare centers and have adequate coverage, and we don't care what it costs, versus my side of it, trying to insure the solvency versus the tax issues or whatever. I guess I'm trying to say there are a whole lot of different pressures pushing everybody in a different direction, and I really don't know what the answer is, and I think only time is going to tell.

Answer (Cushman): I'm really looking forward to what Jerry Lenrow has to say in the tax panel about QRA because I think one of the things about QRA and Wall Street is that it's kind of an amorphis mass out there in the distance and I hope that I don't have to come to grips with it. I think in one way it's sort of a common reaction. I think the Wall Street reaction to QRA is that; 1) it's going to tax investment income and even "tax exempt" investment income and produce a rate that's roughly one and one-half times the corporate rate. I don't think a lot of thought has been given to the issue that QRA might sort of insidiously cause companies to be less well reserved than the reverse. I think

there's generally a sentiment that QRA isn't going to work because the industry has put enough muscle behind their objections to it that they're going to end up with something else and for many companies the magnitude of net operating loss carry forwards is such as to make up perhaps QRA without practical significance in terms of collecting any cash taxes from the industry in the early years after the passage of the legislation.

Answer (Flynn): I had two thoughts or notions come to mind when thinking about this area. I think the first thing is that the process of changing income tax code is going to be a political one and we don't know today what the structure of that new tax is or will be, but we do know that there will be one. In that sense, I'd hate to see the QRA personally, but in that sense what I think we're going to see in terms of insurance company management, is the income tax aspects of the PC business becoming part of the overall strategic planning focus to a much greater extent than has existed in the past. Today it has been my impression that the income tax implications of strategic plans are not dealt with when you are dealing with strategic plans. It gets into the financial planning area. I think there'll be more closeness in the future. The second aspect is by and large been my experience for the major PC companies that the process of establishing loss reserves and testing them is too complex and too interwoven a process, so as to tilt the process one way or another with respect to income tax implications. There may be some tendency to do that and if you're small enough I guess you can control it to some situation, but I don't think it's more easily stated as a concept than it is to carry out something like that in practice.

Dave Hartman: Our time is up. We'd like to thank you for your interest and attention. Please join me in thanking Norm, Dave, and Jay for an excellent presentation this morning.

Table 1

Loss & Loss Expense Reserve Development

Cumulative (Deficiency) Redundancy At December 31, 1984

Companies Sorted In Alphabetical Order

($-Millions)

Company	1976	1977	1978	1979	1980	1981	1982	1983	Change In Cumul. (Deficiency) Redundancy 1976-1983	Pct.Of 1976 *
Aetna Life & Casualty	(614)	(586)	(569)	(523)	(327)	(42)	61	(8)	606	99%
American General	(87)	(63)	(38)	(18)	25	28	(45)	(81)	6	7%
Amer. Intl. Group	(187)	(161)	(77)	23	78	124	87	87	274	147%
American Re-Insurance	(191)	(141)	(79)	(47)	(11)	16	(12)	(47)	144	75%
CIGNA	(642)	(475)	(264)	(172)	(116)	(84)	(223)	(235)	407	63%
CNA	(255)	(173)	(97)	(97)	(55)	(67)	(49)	(74)	181	71%
Chubb **	(292)	(246)	(198)	(207)	(222)	(213)	(153)	(96)	196	67%
Cincinnati Financial	(3)	6	13	18	19	16	1	(3)	0	0%
Continental	(411)	(345)	(441)	(466)	(321)	(214)	(244)	(136)	275	67%
Crum & Forster	(97)	(21)	67	149	189	128	(91)	(40)	57	59%
Fireman's Fund	(157)	(33)	103	165	181	137	(84)	7	164	104%
GEICO	(56)	4	40	50	59	64	67	45	101	180%
General Re	(310)	(232)	(157)	(79)	9	(17)	(119)	(119)	191	62%
Hartford	(468)	(462)	(253)	(101)	61	123	130	29	497	106%
Home	(449)	(444)	(372)	(326)	(237)	(157)	(170)	(183)	266	59%
Kemper	(109)	(71)	(40)	(40)	(57)	(58)	(59)	(36)	73	67%
Ohio Casualty	7	25	32	38	40	27	25	6	(1)	12%
Progressive	(3)	4	8	12	6	(3)	3	(3)	(0)	-5%
SAFECO	108	138	106	67	56	35	15	(21)	(130)	-120%
St. Paul	267	148	50	(21)	(112)	(149)	(82)	126	(141)	-53%
Seibels Bruce	(3)	0	0	(4)	(6)	(11)	(15)	(35)	(32)	-1067%
Transamerica	(72)	(61)	(43)	(23)	(36)	(72)	(61)	(55)	17	24%
Travelers	(1,040)	(848)	(757)	(697)	(383)	(280)	(238)	(245)	795	76%
USF&G	(146)	(193)	(235)	(257)	(294)	(264)	(174)	(127)	19	13%
Average	($217)	($176)	($133)	($106)	($61)	($39)	($60)	($52)	$165	76%
Chubb ***	(215)	(146)	(84)	(66)	(58)	(38)	(24)	(30)	185	86%

* Positive values indicate a decrease in cumulative deficiency or a change from a deficiency to a redundancy. Negative values indicate an increase in cumulative deficiency, or a decrease in cumulative redundancy, or a change from a redundancy to a deficiency.

** Includes medical malpractice

*** Excludes medical malpractice

Source: 1984 SEC Form 10-K

Table 2

Loss & Loss Expense Reserve Development

Cumulative (Deficiency) Redundancy At December 31, 1984

Companies Sorted In Order of Decreasing Change In Redundancy (Pct. of 1976)

($-Millions)

Company	1976	1977	1978	1979	1980	1981	1982	1983	Change In Cumul. (Deficiency) Redundancy 1976-1983	Pct.Of 1976 *	Rank
GEICO	(56)	4	40	50	59	64	67	45	101	180%	1
Amer. Intl. Group	(187)	(161)	(77)	23	78	124	87	87	274	147%	2
Hartford	(468)	(462)	(253)	(101)	61	123	130	29	497	106%	3
Fireman's Fund	(157)	(33)	103	165	181	137	(84)	7	164	104%	4
Aetna Life & Casualty	(614)	(586)	(569)	(523)	(327)	(42)	61	(8)	606	99%	5
Travelers	(1,040)	(848)	(757)	(697)	(383)	(280)	(238)	(245)	795	76%	6
American Re-Insurance	(191)	(141)	(79)	(47)	(11)	16	(12)	(47)	144	75%	7
CNA	(255)	(173)	(97)	(97)	(55)	(67)	(49)	(74)	181	71%	8
Chubb ***	(292)	(246)	(198)	(207)	(222)	(213)	(153)	(96)	196	67%	9
Kemper	(109)	(71)	(40)	(40)	(57)	(58)	(59)	(36)	73	67%	10
Continental	(411)	(345)	(441)	(466)	(321)	(214)	(244)	(136)	275	67%	11
CIGNA	(642)	(475)	(264)	(172)	(116)	(84)	(223)	(235)	407	63%	12
General Re	(310)	(232)	(157)	(79)	9	(17)	(119)	(119)	191	62%	13
Home	(449)	(444)	(372)	(326)	(237)	(157)	(170)	(183)	266	59%	14
Crum & Forster	(97)	(21)	67	149	189	128	(91)	(40)	57	59%	15
Transamerica	(72)	(61)	(43)	(23)	(36)	(72)	(61)	(55)	17	24%	16
USF&G	(146)	(193)	(235)	(257)	(294)	(264)	(174)	(127)	19	13%	17
American General	(87)	(63)	(38)	(18)	25	28	(45)	(81)	6	7%	18
Cincinnati Financial	(3)	6	13	18	19	16	1	(3)	0	0%	19
Progressive	(3)	4	8	12	6	(3)	3	(3)	(0)	-5%	20
Ohio Casualty	7	25	32	38	40	27	25	6	(1)	-12%	21
St. Paul	267	148	50	(21)	(112)	(149)	(82)	126	(141)	-53%	22
SAFECO	108	138	106	67	56	35	15	(21)	(130)	-120%	23
Seibels Bruce	(3)	0	0	(4)	(6)	(11)	(15)	(35)	(32)	-1067%	24
Average	($217)	($176)	($133)	($106)	($61)	($39)	($60)	($52)	$165	76%	
Chubb ****	(215)	(146)	(84)	(66)	(58)	(38)	(24)	(30)	185	86%	

* Positive values indicate a decrease in cumulative deficiency or a change from a deficiency to a redundancy. Negative values indicate an increase in cumulative deficiency, or a decrease in cumulative redundancy, or a change from a redundancy to a deficiency.

** Includes medical malpractice

*** Excludes medical malpractice

Source: 1984 SEC Form 10-K

Table 3

Loss & Loss Expense Reserve Development

Cumulative (Deficiency) Redundancy At December 31, 1984

Companies Sorted In Order of Decreasing Change In Redundancy (Pct. of 1976)

As a Percent of Original Loss & L.E. Reserves

Company	1976	1977	1978	1979	1980	1981	1982	1983	Change In Cumul. (Deficiency) Redundancy 1976-1983 *	Pct.Of 1976 **	Rank
GEICO	-13	1	8	11	12	13	13	8	22	165%	1
Amer. Intl. Group	-28	-17	-6	1	4	5	3	3	31	111%	2
Hartford	-23	-20	-9	-3	2	3	3	1	24	104%	3
Aetna L & C	-36	-27	-21	-15	-8	-1	1	0	36	100%	4
Fireman's Fund	-12	-2	5	7	7	5	-3	0	12	100%	5
CNA	-19	-12	-5	-5	-2	-2	-1	-2	17	89%	6
American Re-Insurance	-46	-28	-13	-7	-1	2	-1	-5	41	89%	7
Home	-66	-51	-34	-24	-14	-8	-8	-8	58	88%	8
General Re	-39	-24	-13	-6	1	-1	-6	-5	34	87%	9
Kemper	-24	-13	-6	-5	-7	-6	-6	-3	21	86%	10
Travelers	-42	-30	-24	-21	-11	-7	-6	-6	36	86%	11
CIGNA	-30	-19	-9	-5	-3	-2	-5	-5	25	83%	12
Chubb *	-52	-37	-27	-26	-26	-24	-15	-9	43	83%	13
Continental	-23	-16	-19	-18	-11	-7	-7	-4	19	83%	14
Crum & Forster	-11	-2	5	9	10	6	-4	-2	9	82%	15
Cincinnati Financial	-8	10	15	16	15	11	1	-2	6	79%	16
Progressive	-9	11	17	18	9	-3	3	-2	7	76%	17
Transamerica	-32	-20	-11	-5	-6	-12	-10	-8	24	74%	18
USF&G	-15	-17	-17	-16	-16	-13	-8	-5	10	67%	19
American General	-23	-14	-7	-3	4	4	-6	-10	13	58%	20
Ohio Casualty	3	9	9	9	8	5	4	1	-2	-70%	21
St. Paul	29	13	4	-1	-6	-7	-4	5	-24	-83%	22
SAFECO	27	30	21	13	11	7	3	-4	-31	-114%	23
Seibels Bruce	-11	0	0	-7	-10	-13	-13	-32	-21	-186%	24
Average	-21%	-11%	-6%	-3%	-2%	-2%	-3%	-4%	17	82%	
Chubb **	-45	-27	-14	-10	-8	-5	-3	-3	42	93%	

* Percentage points

** Positive values indicate a decrease in cumulative deficiency or a change from a deficiency to a redundancy. Negative values indicate an increase in cumulative deficiency, or a decrease in cumulative redundancy, or a change from a redundancy to a deficiency.

*** Includes medical malpractice

**** Excludes medical malpractice

Source: 1984 SEC Form 10-K

Table 4

Loss & Loss Expense Reserve Development

Cumulative (Deficiency) Redundancy At December 31, 1984

Companies Sorted In Order of Decreasing Average Redundancy, 1981-83

As a Percent of Original Loss & L.E. Reserves

Company	1976	1977	1978	1979	1980	1981	1982	1983	Average 1976-1983	Average 1979-1983	Average 1981-1983	Rank
GEICO	-13	1	8	11	12	13	13	8	7	11	12	1
Amer. Intl. Group	-28	-17	-6	1	4	5	3	3	-4	2	4	2
Ohio Casualty	3	9	9	9	8	5	4	1	6	6	4	3
Cincinnati Financial	-8	10	15	16	15	11	1	-2	7	8	3	4
Hartford	-23	-20	-9	-3	2	3	3	1	-6	0	2	5
SAFECO	27	30	21	13	11	7	3	-4	14	7	2	6
Fireman's Fund	-12	-2	5	7	7	5	-3	0	1	3	1	7
Crum & Forster	-11	-2	5	9	10	6	-4	-2	1	3	0	8
Aetna L & C	-36	-27	-21	-15	-8	-1	1	0	-13	-6	0	9
Progressive	-9	11	17	18	9	-3	0	-2	5	5	-2	10
American Re-Insurance	-46	-28	-13	-7	-1	2	-1	-5	-12	-4	-1	11
CNA	-19	-12	-5	-5	-2	-2	-1	-2	-6	-3	-2	12
St. Paul	29	13	4	-1	-6	-7	-4	5	4	-1	-2	13
American General	-23	-14	-7	-3	4	4	-6	-10	-7	-3	-4	14
General Re	-39	-24	-13	-6	1	-1	-6	-5	-12	-5	-4	15
CIGNA	-30	-19	-9	-5	-3	-2	-5	-5	-10	-5	-4	16
Kemper	-24	-13	-6	-5	-7	-6	-6	-3	-9	-6	-5	17
Continental	-23	-16	-19	-18	-11	-7	-7	-4	-13	-10	-6	18
Travelers	-42	-30	-24	-21	-11	-7	-6	-6	-18	-12	-6	19
Home	-66	-51	-34	-24	-14	-8	-8	-8	-27	-15	-8	20
USF&G	-15	-17	-17	-16	-16	-13	-8	-5	-13	-12	-9	21
Transamerica	-32	-20	-11	-5	-6	-12	-10	-8	-13	-9	-10	22
Chubb *	-52	-37	-27	-26	-26	-24	-15	-9	-27	-21	-16	23
Seibels Bruce	-11	0	0	-7	-10	-13	-13	-32	-11	-14	-19	24
	-21%	-11%	-6%	-3%	-2%	-2%	-3%	-4%	-7%	-3%	-3%	
Chubb **	-45	-27	-14	-10	-8	-5	-3	-3	-14	-7	-4	

* Includes medical malpractice

** Excludes medical malpractice

Source: 1984 SEC Form 10-K

Table 5

Loss & Loss Expense Reserve Development

Cumulative (Deficiency) Redundancy At December 31, 1984

Companies Sorted In Order of Decreasing Average Redundancy, 1979-83

As a Percent of Original Loss & L.E. Reserves

Company	1976	1977	1978	1979	1980	1981	1982	1983	Average 1976-1983	Average 1979-1983	Average 1981-1983	Rank
GEICO	-13	1	8	11	12	13	13	8	7	11	12	1
Cincinnati Financial	-8	10	15	16	15	11	1	-2	7	8	3	2
SAFECO	27	30	21	13	11	7	3	-4	14	7	2	3
Ohio Casualty	3	9	9	9	8	5	4	1	6	6	4	4
Progressive	-9	11	17	18	9	-3	3	-2	5	5	-1	5
Crum & Forster	-11	-2	5	9	10	6	-4	-2	1	3	0	6
Fireman's Fund	-12	-2	5	7	7	5	-3	0	1	3	1	7
Amer. Intl. Group	-28	-17	-6	1	4	5	3	3	-4	2	4	8
Hartford	-23	-20	-9	-3	2	3	3	1	-6	0	2	9
St. Paul	29	13	4	-1	-6	-7	-4	5	4	-1	-2	10
American General	-23	-14	-7	-3	4	4	-6	-10	-7	-3	-4	11
CNA	-19	-12	-5	-5	-2	-2	-1	-2	-6	-3	-2	12
American Re-Insurance	-46	-28	-13	-7	-1	2	-1	-5	-12	-4	-1	13
General Re	-39	-24	-13	-6	1	-1	-6	-5	-12	-5	-4	14
CIGNA	-30	-19	-9	-5	-3	-2	-5	-5	-10	-5	-4	15
Kemper	-24	-13	-6	-5	-7	-6	-6	-3	-9	-6	-5	16
Aetna L & C	-36	-27	-21	-15	-8	-1	1	0	-13	-6	0	17
Transamerica	-32	-20	-11	-5	-6	-12	-10	-8	-13	-9	-10	18
Continental	-23	-16	-19	-18	-11	-7	-7	-4	-13	-10	-6	19
Travelers	-42	-30	-24	-21	-11	-7	-6	-6	-18	-12	-6	20
USP&G	-15	-17	-17	-16	-16	-13	-8	-5	-13	-12	-9	21
Seibels Bruce	-11	0	0	-7	-10	-13	-13	-32	-11	-14	-19	22
Home	-66	-51	-34	-24	-14	-8	-8	-8	-27	-15	-8	23
Chubb *	-52	-37	-27	-26	-26	-24	-15	-9	-27	-21	-16	24
	-21%	-11%	-6%	-3%	-2%	-2%	-6%	-4%	-7%	-4%	-4%	
Chubb **	-45	-27	-14	-10	-8	-5	-3	-3	-14	-7	-4	

* Includes medical malpractice
** Excludes medical malpractice

Source: 1984 SEC Form 10-K

Table 6

Loss & Loss Expense Reserve Development

Cumulative (Deficiency) Redundancy At December 31, 1984

Companies Sorted In Order of Decreasing Average Redundancy, 1976-83

As a Percent of Original Loss & L.E. Reserves

Data Range: (A347.M370)
Prim. Sort: (J347.J371)

Company	1976	1977	1978	1979	1980	1981	1982	1983	Average 1976-1983	Average 1979-1983	Average 1981-1983	Rank
SAFECO	27	30	21	13	11	7	3	-4	14	7	2	1
Cincinnati Financial	-8	10	15	16	15	11	1	-2	7	8	3	2
GEICO	-13	1	8	11	12	13	13	8	7	11	12	3
Ohio Casualty	3	9	9	9	8	5	4	1	6	6	4	4
Progressive	-9	11	17	18	9	-3	3	-2	5	5	-1	5
St. Paul	29	13	4	-1	-6	-7	-4	5	4	-1	-2	6
Crum & Forster	-11	-2	5	9	10	6	-4	-2	1	3	0	7
Fireman's Fund	-12	-2	5	7	7	5	-3	0	1	3	1	8
Amer. Intl. Group	-28	-17	-6	1	4	5	3	3	-4	2	4	9
Hartford	-23	-20	-9	-3	2	3	3	1	-6	0	2	10
CNA	-19	-12	-5	-5	-2	-2	-1	-2	-6	-3	-2	11
American General	-23	-14	-7	-3	4	4	-6	-10	-7	-3	-4	12
Kemper	-24	-13	-6	-5	-7	-6	-6	-3	-9	-6	-5	13
CIGNA	-30	-19	-9	-5	-3	-2	-5	-5	-10	-5	-4	14
Seibels Bruce	-11	0	0	-7	-10	-13	-13	-32	-11	-14	-19	15
General Re	-39	-24	-13	-6	1	-1	-6	-5	-12	-5	-4	16
American Re-Insurance	-46	-28	-13	-7	-1	2	-1	-5	-12	-4	-1	17
Transamerica	-32	-20	-11	-5	-6	-12	-10	-8	-13	-9	-10	18
Continental	-23	-16	-19	-18	-11	-7	-7	-4	-13	-10	-6	19
Aetna L & C	-36	-27	-21	-15	-8	-1	1	0	-13	-6	0	20
USF&G	-15	-17	-17	-16	-16	-13	-8	-5	-13	-12	-9	21
Travelers	-42	-30	-24	-21	-11	-7	-6	-6	-18	-12	-6	22
Home	-66	-51	-34	-24	-14	-8	-8	-8	-27	-15	-8	23
Chubb *	-52	-37	-27	-26	-26	-24	-15	-9	-27	-21	-16	24
	-21%	-11%	-6%	-3%	-2%	-2%	-3%	-4%	-6%	-3%	-3%	
Chubb **	-45	-27	-14	-10	-8	-5	-3	-3	-14	-7	-4	

* Includes medical malpractice
** Excludes medical malpractice

Source: 1984 SEC Form 10-K

Table 7
Loss and Loss Expense Reserve Development
Companies Sorted In Alphabetical Order
($-Millions)

Company	Increase (Decrease) in Provision For Prior Years' Loss & Loss Expense Reserve 1982	1983	1984	Total	Total As % Loss & L.E. Reserves	Loss & L. Exp. Reserves 1984	Discount, If Any, Deducted From Loss & L.E. Reserves 1984
Aetna Life & Casualty	(2)	(36)	8	(30)	-0.5%	5,820	0
American Re-Insurance	3	(11)	47	39	4.1%	957	85
American Express	(61)	74	(7)	6	0.2%	3,619	168
American General	(56)	15	81	40	3.9%	1,037	NA
Amer. Intl. Group	(54)	(38)	(25)	(117)	-3.7%	3,133	17
CIGNA	224	58	3	285	4.9%	5,835	45
CNA Financial	37	(24)	74	87	2.1%	4,106	0
Chubb *	(18)	(26)	24	(20)	-1.5%	1,307	61
Cincinnati Financial	(21)	(4)	3	(22)	-10.4%	212	0
Continental	172	163	136	471	13.1%	3,597	130
Crum & Forster	(25)	(42)	44	(24)	-0.9%	2,768	0
GEICO	(30)	(48)	(45)	(123)	-21.1%	580	0
General Reinsurance	2	64	268	335	12.9%	2,596	174
Home	91	93	177	361	25.5%	1,413	20
Hartford	(33)	(101)	6	(127)	-2.7%	4,651	312
Kemper	23	42	36	101	9.3%	1,084	26
Ohio Casualty	(39)	(37)	(6)	(82)	-11.7%	699	0
Progressive	(2)	(6)	3	(6)	-3.8%	146	NA
SAFECO	(37)	(24)	21	(39)	-6.2%	629	0
St. Paul	(137)	(102)	126	(114)	-3.9%	2,917	0
Seibels Bruce	(0)	9	35	44	29.3%	152	0
Transamerica	(25)	(23)	71	23	3.0%	772	0
Travelers	29	16	245	291	6.2%	4,671	745
USF&G	135	95	127	357	12.6%	2,825	139

* Excludes development of medical malpractice reserves relating to claims which occurred prior to 1975.

NA = Not Available

Source: 1984 SEC Form 10-K

Table 8
Loss and Loss Expense Reserve Development
Companies Sorted In Order of 1982-1984 Loss Reserve Development
($-Millions)

Company	Increase (Decrease) in Provision For Prior Years' Loss & Loss Expense Reserves 1982	1983	1984	Total	Total As % Loss & L.E. Reserves	Loss & L. Exp. Reserves 1984	Discount, If Any, Deducted From Loss & L.E. Reserves 1984
Continental	172	163	136	471	13.1%	3,597	130
Home	91	93	177	361	25.5%	1,413	20
USF&G	135	95	127	357	12.6%	2,825	139
General Reinsurance	2	64	268	335	12.9%	2,596	174
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Kemper	23	42	36	101	9.3%	1,084	26
CNA Financial	37	(24)	74	87	2.1%	4,106	0
Seibels Bruce	(0)	9	35	44	29.3%	152	0
American General	(56)	15	81	40	3.9%	1,037	NA
American Re-Insurance	3	(11)	47	39	4.1%	957	85
Transamerica	(25)	(23)	71	23	3.0%	772	0
American Express	(61)	74	(7)	6	0.2%	3,619	168
Progressive	(2)	(6)	3	(6)	-3.8%	146	NA
Chubb *	(18)	(26)	24	(20)	-1.5%	1,307	61
Cincinnati Financial	(21)	(4)	3	(22)	-10.4%	212	0
Crum & Forster	(25)	(42)	44	(24)	-0.9%	2,768	0
Aetna Life & Casualty	(2)	(36)	8	(30)	-0.5%	5,820	0
SAFECO	(37)	(24)	21	(39)	-6.2%	629	0
Ohio Casualty	(39)	(37)	(6)	(82)	-11.7%	699	0
St. Paul	(137)	(102)	126	(114)	-3.9%	2,917	0
Amer. Intl. Group	(54)	(38)	(25)	(117)	-3.7%	3,133	17
GEICO	(30)	(48)	(45)	(123)	-21.1%	580	0
Hartford	(33)	(101)	6	(127)	-2.7%	4,651	312

* Excludes development of medical malpractice reserves relating to claims which occurred prior to 1975.

NA = Not Available

Source: 1984 SEC Form 10-K

Table 9

Loss and Loss Expense Reserve Development

Companies Sorted In Order of 1982-1984 Loss Reserve Development As A Percent of 1984 Loss Reserves

($-Millions)

Company	Increase (Decrease) in Provision For Prior Years' Loss & Loss Expense Reserve					Loss & L. Exp. Reserves	Discount, If Any, Deducted From Loss & L.E. Reserves
	1982	1983	1984	Total	Total As % Loss & L.E. Reserves	1984	1984
GEICO	(30)	(48)	(45)	(123)	-21.1%	580	0
Ohio Casualty	(39)	(37)	(6)	(82)	-11.7%	699	0
Cincinnati Financial	(21)	(4)	3	(22)	-10.4%	212	0
SAFECO	(37)	(24)	21	(39)	-6.2%	629	0
St. Paul	(137)	(102)	126	(114)	-3.9%	2,917	0
Progressive	(2)	(6)	3	(6)	-3.8%	146	NA
Amer. Intl. Group	(54)	(38)	(25)	(117)	-3.7%	3,133	17
Hartford	(33)	(101)	6	(127)	-2.7%	4,651	312
Chubb *	(18)	(26)	24	(20)	-1.5%	1,307	61
Crum & Forster	(25)	(42)	44	(24)	-0.9%	2,768	0
Aetna Life & Casualty	(2)	(36)	8	(30)	-0.5%	5,820	0
American Express	(61)	74	(7)	6	0.2%	3,619	168
CNA Financial	37	(24)	74	87	2.1%	4,106	0
Transamerica	(25)	(23)	71	23	3.0%	772	0
American General	(56)	15	81	40	3.9%	1,037	NA
American Re-Insurance	3	(11)	47	39	4.1%	957	85
CIGNA	224	58	3	285	4.9%	5,835	45
Travelers	29	16	245	291	6.2%	4,671	745
Kemper	23	42	36	101	9.3%	1,084	26
USF&G	135	95	127	357	12.6%	2,825	139
General Reinsurance	2	64	268	335	12.9%	2,596	174
Continental	172	163	136	471	13.1%	3,597	130
Home	91	93	177	361	25.5%	1,413	20
Seibels Bruce	(0)	9	35	44	29.3%	152	0

* Excludes development of medical malpractice reserves relating to claims which occurred prior to 1975.

NA = Not Available

Source: 1984 SEC Form 10-K

Table 10

Aetna Life & Casualty

Projection of Ultimate Paid Losses and Loss Expenses; Total Property-Casualty, Including Medical Malpractice, Calendar/Accident Years, 1978-1984

($-Millions)

Calendar Year	Net * Prems. Earned	Estimated Cumulative Paid Losses and Loss Expenses From Claims Occuring in Current and Prior Years (Table 1) And Two-Year Average Loss and Loss Expense Development Factors								Ulti-mate Paid Losses & L.Exp.	Ulti-mate Paid L. Less Paid L. Thru 12/84	Loss & L.Exp. Reserve @ 12/84	Est. $Amount (Over) Under-Reservd	Ultimate Loss & Loss Exp. Ratio Estimated By	
		First** Report	Second Report	Third Report	Fourth Report	Fifth Report	Sixth Report	Seventh Report	Eighth Report					The Company	Morgan Stanley
1977	$2,712	$709.0	$1,133	$1,297	$1,428	$1,517	$1,584	$1,637	$1,657	$1,778	*** ---	$121.0	---	65.6%	---
		---	1.5980	1.1447	1.1010	1.0623	1.0442	1.0335	1.0122 =F1						
									1.0730 =F2						
									1.0861 =FC						
1978	$3,149	$799.0	$1,284	$1,518	$1,675	$1,788	$1,864	$1,934	---	$2,101	$166.6	$179.0	($12.4)	67.1%	66.7%
		---	1.6028	1.1647	1.1023	1.0651	1.0433	1.0357 =F							
								1.1249 =FC							
1979	$3,566	$976.0	$1,591	$1,840	$2,009	$2,144	$2,238	---	---	$2,517	$279.5	$292.0	($12.5)	70.9%	70.6%
		---	1.6301	1.4858	1.0971	1.0673	1.0432 =F								
							1.1735 =FC								
1980	$3,887	$1,087	$1,775	$2,057	$2,267	$2,428	---	---	---	$2,849	$421.3	$448.0	($26.7)	74.0%	73.3%
		---	1.6329	1.4166	1.0973	1.0692 :F									
						1.2547 :FC									
1981	$3,952	$1,180	$1,889	$2,185	$2,408	---	---	---	---	$3,021	$613.4	$621.0	($7.6)	76.6%	76.4%
		---	1.6162	1.1578	1.1021 =F										
					1.3828 =FC										
1982	$3,658	$1,233	$1,864	$2,158	---	---	---	---	---	$2,984	$826.1	$784.0	$42.1	80.4%	81.6%
		---	1.5553	1.1572 =F											
				1.6002 =FC											
1983	$3,679	$1,212	$1,966	---	---	---	---	---	---	$3,146	$1,180	$1,056	$124.0	82.1%	85.5%
		---	1.5665 =F												
			2.5067 =FC												
1984	$3,975	$1,353	---	---	---	---	---	---	---	$3,392	$2,039	$2,000	$38.5	84.4%	85.3%
1978-84	$25,866									$20,010	$5,525	$5,380	$145.5	---	---
										77.4%	21.4%	20.8%	0.6%	76.8%	77.4%

Percentage of 1978-1984 Net Premiums Earned:

* From 1982-84 SEC Form 10-K, pages 8 and 11; excludes American Re-Insurance

** Data for 1977-1981 provided by the Company.

*** Cumulative paid losses and loss expenses (eighth report) plus loss and loss adjustment expense reserve at December 31, 1984 for 1977 accident year

F = Two-year average development factor

FC = Cumulative product of all preceding two-year average development factors

F1 = Quotient of cumulative paid losses and loss expenses (eighth report) divided by cumulative losses and loss expenses (seventh report)

F2 = Quotient of cumulative incurred losses and loss expenses (eighth report) divided by cumulative paid losses and loss expenses (eighth report)

Morgan Stanley Research Estimates

Panel Sessions 1F/3F

FEDERAL TAX ISSUES

Moderator: Gerald I. Lenrow, Tax Partner
Coopers & Lybrand

Panel: Philip K. Marblestone, Senior Tax Partner
Coopers & Lybrand
Phillip S. Moore, Vice President & Actuary
John Deere Insurance Company

1985 Casualty Loss Reserve Seminar

Kansas City, Missouri

Gerald Lenrow: Our panel consist of Phil Moore of John Deere & Company. Phil is a fellow of the Casualty Actuarial Society and I think that most of you, have seen Phil at the meetings over the years. Phil Marblestone is a Partner of Coopers & Lybrand in St. Louis. Phil Moore will talk about the QRA and what it intends to do and what it doesn't do and the problems that is inherit in the concept.

Phil Marblestone will talk about the problem that we have been encountering for all these many years. That is how the IRS test estimates of unpaid losses for reasonableness and trends in that area. A brief history of what they have been doing and what we might see in the future if time permits. I see that we are starting late because of the lunch run over. I'll fill in at the end with the status of where the proposed legislation is right now, and deal with the changes in the tax formula that apply to property and not casualty companies. Phil Moore would you please start off with the QRA?

Phillip Moore: As a lot of you may know, there were more things included in the Presidents tax proposal than the Qualified Reserve Account (QRA) approach. My comments, however, will be directed solely at QRA.

I am not a tax expert. My exposure to the QRA concept comes from my involvement with the Actuarial Committee of the National Association of Independent Insurers. That committee was requested late in 1984 to review and analyze papers which had been released by the Treasury Department and which included the QRA concept.

Hopefully when this presentation is over you will have an understanding of the fundamentals of the QRA idea and its implications to the P&C insurance industry.

Some of you are probably already aware of an analysis of QRA recently released by the American Academy of Actuaries Committee on Property and Liability Insurance Financial Reporting Principles. In my opinion, that report is well done and quite comprehensive. I recommend it to any of you here that may want to study this topic more thoroughly. A copy can be obtained by writing to the American Academy of Acturaries. I found the report very helpful and borrowed heavily from it when developing this presentation.

I hope all of you picked up copies of the handouts. They are identical to the slides I will be showing and there is a lot of room for note taking on them. QRA stands for Qualified Reserve Account and apparently is the brain child of some people at the Treasury Department. It would replace, at least for purposes of tax calculations, the unearned premium reserve, the reported claim reserve and the IBNR reserve. As a matter of fact, the paper put out by Treasury Departement said that the maximum initial qualified reserve account amount would be limited to the sum of the statutory amounts for these 3 items. I might mention also that, throughout all of the information from the government that I have seen, they were silent on loss adjustment expenses. I would assume, however, that they would be included here somewhere. Had they had some better knowledge of the industry they probably would have included some mention of those, but there really wasn't any mention of them in the material.

Secondly, the write up by the treasury department said the companies have to set up qualified reserve accounts by line of business and by policy year. So you'll have to visualize this whole process as being one whereby you take your premium, loss and expense information and divide it up in to a matrix by line of business and by policy year. This kind of thinking will help a little bit as we get to some of the formulas later.

Lastly, the QRA approach is to apply not only the P&C lines but the A&H lines also. So, if there's a life company that writes A&H business this qualified reserve account approach would apply to them also.

Now there is a lot of lip service given in the write ups by the Treasury to the fact that right now P&C companies don't discount reserves. So what they have suggested, or put into their papers, is that a company should discount reserves using an after tax yield rate that's calculated using the formula in slide Z. It would include both taxable and tax exempt investment income and it would include dividends on common stock. I'm told by Jerry Lenrow, however, that it would not include capital gains; either realized or unrealized. It is kind of confusing to me as to why they would do that. I thought that people usually invested in stocks thinking that they would make some capital gains. Nevertheless, as I understand it at the moment anyway, thats what they would expect you to take into consideration.

Taxes on that income would mean assuming that the full tax rate would apply to taxable investment income and no tax would apply to tax exempt investment income.

Also there were some other points. Were this proposal to pass Congress and go into operation as it is put forth, it would begin to apply only to policy year 1986 and subsequent years. What we would have is a situation where we would be using the current taxing system for older policy years and for policy years 1986 and subsequent, we would be using the QRA approach.

As I mentioned, there has been a lot written talk in the press and in the write ups by the Treasury department about discounting reserves but, actually, the QRA is a lot more and I'd like to get into it and the whole guts of this presentation right now.

Slide 3 shows some definitions for some symbols that you are going to see on subsequent slides. Notice that E is expenses paid rather than just incurred and L is losses paid. By the way, E would be correspond to statutory incurred losses, roughly speaking. R is reserve at end of year. R may have different definitions depending upon the formula we're looking at and I'll get into that when we look at the formulas. IR is investment income on reserves from the prior year. IS is investment income on surplus. Don't think that I really believe that you earn investment income on reserves. You earn investment income on investments. But, for the purposes of this presentation, it makes sense and it's necessary to think of investment income as coming from two different places. Part of it coming from money that supports the reserves and part of it coming from money that supports the surplus of the company. And, of course, T is a tax rate.

Before trying to tackle all of slide 4 at one time, lets try to concentrate first just on the first formula. This slide is assumes that all investment income is taxable. Also, I'd like for you to think of this in terms of a policy year. In other words, for a given policy year you'll have one formula that will apply in the first year and another formula that will apply in the 2nd, 3rd and subsequent years. The first formula should be very familar. Basically you are just talking about earned premium, expenses paid, which would be comparable to statutory incurred expenses, losses paid, reserves and IS, would, of course, be all of the investment income that you would earn. This is straight forward. You are familar with it and it should be no problem.

The second formula in the top row is no news to you either. Obviously, in subsequent years in addition to EP, E and L, you would be looking at reserve changes rather than the total reserve and of course IR plus IS would be the total of your investment income. So this is also nothing you haven't seen before.

Now we drop down to the tax formula that applies under the QRA approach. Obviously the first thing that you are going to notice when you compare the top to the bottom is that the premium amount is written premium rather than earned premium. As a little background to this, the initial Treasury Department write up that I looked at last fall advocated requiring P&C companies to use what I call GAAP Expenses rather than statutory expenses. In other words, taking into account those expenses that are typically deferred under GAAP accounting rather than letting the company charge off expenses as paid. When the President's proposal was made public it appeared, on the surface, that this item had been dropped. By studying the formulas, however, and finding that written premium is used in the QRA tax formula rather than earned premium we see that the QRA formula does essentially result in the reflection of deferred expenses. In other words, received income and paid expenses, having basically the same effects as if one were required to use GAAP expenses for tax purposes. One of the other things that I need to point out is that the R value in this formula probably wouldn't be identical to the one in the formula above it. The QRA replaces the unearned premium reserve, the IBNR reserve and the reported claim reserve. So those two R values would not be identical and, in fact, you might argue with me that since R in the bottom formula since that would include unearned premium then the QRA tax formula really uses earned premium too. I won't argue that point but what we are going to see when we get to the next formula is subsequently pay a penalty for reserve amounts carried.

The second formula on the bottom line is the formula that would apply after the initial year of the policy year and for all subsequent years until all the losses are paid out. Notice that here we have written premium again. Obviously on some of your subsequent years that is going to be zero because you won't be collecting any more premium on a policy year when you are several years down the road. That would likewise apply to EP in the formula above. Again, this DR, which is a change in reserves, could be a different amount than in the formula above because the reserve amounts we're talking about are different.

Supposedly the reserve amount in the QRA formula would be a discounted amount. What you see that looks strange here is the term (1-T) IR. That is what is referred to in the AAA papers as the QRA disallowance. Let's stop and think for a minute. Let's assume that you have a situatioin much like the one that the Academy used in their examples where you have a single policy, you have collected some premium and you only have one loss on it that you know is going to be paid a few years down the road. Initially, when you set your reserve for that, you are going to discount the reserve and you'll discount it for x of years. A year goes by and you still haven't paid it. When you set your reserve again for that claim you will discount it for (Z-1) years instead of x years. The difference between those two discounted reserve amounts is going to be the investment income that you earned on the reserve that you held. In that type of situation, if you are able to pick your rate of return accurately you're going to have (1-T) IR being equal to the change in reserves. So basically what you've got is a situation in which you're not able to charge off that change in reserves and subsequent years.

Also, its fairly obvious you've got the term IR showing up twice in this formula and that's the reason in some of the write ups you may have read about the QRA approach that there is mention of double taxation.

Assume, for the moment, that you have a simple case. You have one claim that's going to be paid five years down the road and you have a yield rate on your investments that, let's say, you're able to predict accurately. You would use the the formula for after tax yield rate shown on slide 2 to get the yield rate for discounting your reserve. You would calculate the discounted reserve by dividing the gross reserve by (1+c)5. When the next

year comes along the discounted reserve is calculated by dividing the gross reserve (presumably the same amount used a year earlier) by (1+c)4. The difference between those two discounted reserve amounts is the after tax investment income earned on your initial discounted reserve amount. Therefore the change in reserves is the same as (1-T) IR with the simple case I am just trying to make the fundamentals clear to you. What you will have is a situation where DR is cancelled out by the QRA disallowance.

This topic is kind of funny because one can look at it from different angles and say different things that all really boil down to the exactly the same thing. For example, by applying some algebra I have come up with the additional equation shown on slide 5. You can look at this equation as saying that if you set up a reserve then they're going to require you to calculate what your investment income is from that reserve. If R included your unearned premium reserve, you're going to have a higher reserve and more investment income from reserves than you would have otherwise and the government will collect a tax on it. Then (1-T) IR is what's left of that investment income after they have collected that initial tax and it gets thrown in to what we would otherwise call our normal income calculation for tax purposes. This is just another way of looking at it which is equivalent to the original formula. Hopefully this will help somewhat with your understanding of the topic. but hopefully to help clear up the situation a little bit. The people at the Treasury Department cooked it up and it also boils down to something else that we will get to in a minute.

I have another set of formulas on slide 6. These are the tax formulas that would apply if all the investment income is tax exempt. Obviously, in the real world a company is probably somewhere between having all taxable and all tax exempt investment income. The only difference we have for the current tax formulas from what we've shown on the previous slide is that there is no investment income included in the tax calculation because it's all tax exempt. Likewise for the year 1 QRA formula there is no investment income included. Of course you still have the differences from the current formula. Premium is written instead of earned and the reserve amount may be something other then reserve amount in the top formula. Then when we get to the QRA formula for subsequent years we find the term IR appearing which is the QRA disallowance. If we think back to the simple claim example that I used previously I think you can see that the term IR is going to be equal to DR. So, basically, once you've charge off the initial reserves you don't get any more credit for changes in reserves in subsequent years. Obviously this formula points out the other contention that you may have read in the press that the QRA proposal taxes tax exempt income.

There is a question from the floor about what happens if the ultimate claim cost changes from the initial estimate or if the estimates change. In this case the effect of the change would not exactly cancel out those amounts like it would in our simple example which assumed perfect knowledge.

Slides 4, 5 and 6 are the guts of the tax proposal. We will now get into some of the implications of the whole thing.

If you read through the papers that were put out by the Treasury you would find that some of the objectives are what I have listed on slide 7. Parity between insured and uninsured losses follows the philosophy of having a level playing field or not showing favortism to particular industries. Apparently that was one of the objectives that they had in mind.

Item number 2 on the slide is basically equivalent to item number one. It would follow logically if you have parity between insured and uninsured then you are also going to have

equal treatment for insurers and self-insures when it comes to handling of losses. The item on matching of revenues and expenses refers back to using written premium rather than earned premium in the tax formula. In other words its, it is similar to GAAPing of expenses. And the last item is one that I included for a little humor although it's probably more serious than we would like to think. I would like to believe their objectives were noble but the last one probably applies with as much, if not more, weight as the others.

Slide 8 lists qualities of the QRA. I'm going to stop and dwell on the first point for a while. It says "equal to cash basis." I didn't..., I haven't worked out any mathematical proof that this is the case but, if you study the American Academy of Actuaries paper and if you take the time to work through some examples, you will find that this is true. Now when I'm talking about equality, I'm talking about it in terms of present value and future value concepts.

Maybe some of you are not familar with those concepts. A simple example would be a situation in which there is a person who has the opportunity to receive either, one hundred dollars today or one hundred ten dollars a year from now. Let's assume he is able to make a one year investment that would yield 10% after tax. If he had no other use that he wanted to make of the money he would be just as happy to take one hundred dollars now, because it's going to give him a hundred and ten at the end of a year, as to receive one hundred ten dollars after one year. In this case there are 2 different cash flows, one hundred dollars now or one hundred ten a year from now. To this person they are equivalent. They have the same future value so this person is indifferent between the two.

What you find when looking through the examples of QRA and comparing them to current tax formulas with cash basis accounting are two different cash flows. They are both rather complex, obviously, and they are different. But, when you look at them in terms of ultimate future value (in other words, when the policy year has finally run off and all the expenses claims are paid and all the premiums are collected and the books are closed) they are equivalent.

I have over simplified somewhat because they may not be exactly equivalent if you are not able to use immediately a tax credit that you have. The QRA approach probably makes it less likely that you'll have trouble using a tax credit. If you are on cash basis accounting and you have one claim that is going to be paid in five years, you're going to have a big tax credit in the fifth year when the claim is paid. It is possible that you might be in an income situation in which you weren't able to take full credit for that. In that case, QRA and cash basis probably wouldn't be equivalent. However, in a simple situation where you're able to take your tax credit any time you have one, QRA and cash basis accounting are equivalent.

The second item listed says that reserving errors do not affect the ultimate financial position of the tax payer. That is a fact. If you work through examples you'll find that to be true. I haven't taken the time to figure out mathematically why that happens but, recalling the QRA tax formulas we have reviewed, you can see that if you set up a higher reserve then they're going to come back and get you in the subsequent year by collecting a tax on IR which is the investment income that you earned on the income that you sheltered. So it doesn't make any difference. Obviously if number two is true then number three is true. Reserve discounting is not really necessary. This was brought out in the American Academy write up. It also and leads me to wonder whether or not all of the things we have seen in the press and all of the criticism leveled against the P&C industry for not discounting reserves really have anything to do with QRA. If the

government is trying to get us on cash basis accounting, that really has nothing to do with reserve discounting. It all seems like a smoke screen to me.

Slide 9 lists results of the QRA approach. The first item is "more tax payments." This seems fairly obvious. It it's equivalent to cash basis accounting you're going to end up paying more in taxes or you're going to be paying them faster which, of course, has economic consequences. One of the obvious results of more tax payments is that we're going have to charge more for our insurance product in order to achieve our return on equity goals or whatever profit goals we might have. The next item on the list is "less incentive to insure." I'm sure that that wouldn't apply on a personal basis but a large commercial risk might have an opportunity to self insure. QRA would obviously going to make it much more likely. The price increase needed on the insurance product because of QRA might be enough to sway him to self insure rather than buy insurance. The next item is "U.S. insurers less competitive of foreign insurers." If we have a different tax scheme that collects more taxes from us than foreign insurers have to pay then that is obviously going to make us less competitive. Let's look at this in terms of reinsurance companies. I think that it's probably fairly obvious to all of us here that have some knowledge of loss pay out patterns for reinsurers that reinsurance companies would be affected much more heavily by this type of an approach than primary carriers. Also, reinsurance is probably a lot more mobile than primary insurance. In other words, a US primary carrier might find it much easier to purchase its reinsurance overseas than somebody buying their personal auto insurance. So I think the fourth item on this slide applies especially to reinsurance companies. The last item on 9 refers to an advantage for self insurers of no state premium tax. That just a little item that might help tip the scales. If the government is trying to create a level plain field then maybe self insurers ought to pay a premium tax too.

Up to now I have primarily criticized the QRA approach and talked about how terrible I think it is. Let's now stand back and take a look at our current tax situation and the way we're currently taxed. On slide 10 I've tried represent something that is not really too outlandish and might happen today. Let's say, for example, that we have a company that incurs workers' compensation a claim where we are going to have to pay $100 per month for 25 years to a widow. That amounts to $30,000 in total. We now can set that total amount up as a loss reserve on our financial statements. What happens when we set up that reserve? Basically, we have a loss to report and we cut our tax liability. Right now the tax rate is 46% so the tax savings that accrues from us being able to shelter income in this particular example would be $13,800. Let's also assume that we're able to invest our money and earn 8% after tax or 8% on tax exempt investments. Then, how much money do we really need in order to fulfil our obligation and pay $100 per month for 25 years? We really only need $12,956 in order to do that. S, what do we have here? We have a situation wherein the tax savings the company has from putting the claim on its books is greater than the money it needs in order to meet its obligation. Assuming that the company has surplus and can afford to put up the reserve then, in the long run, they're going to make money off of this situation. Therefore it is little wonder that people look at the P&C industry and think that there is something wrong not discounting reserves because the fact that we are not discounting reserves allows things like this to happen. It seems to be that, if we want to silence the critics, we should be talking about discounting reserves. That way this type of situation wouldn't arise. For example, in this situation, we would set up an initial reserve of $12,956 which means we would not be sheltering as much income.

Now what I've done is to put together some information to help quantify the effects of the various approaches. If you read the AA write up you will find 150-180 examples. I've tried to boil it down to a more manageble number. Let's assume that we have a policy

with premium equal to $100 expenses of $30 and losses of $70. The underwriting result is zero obviously, the way we currently look at things. Let's also assume it would have a loss payout would pattern as shown in slide 11. This loss payout rate fairly closely represents the industry. I took the information from the industry schedule P and schedule O that are shown in Best Aggregates and Averages. The payout rates are fairly accurate down to year 5 and I have made selections for the last several years. In reality the payout tail is lot longer than nine years the payout is slower but I wanted to have something that I could manage. If we take that situation and run it through various scenarios.., we can come up with the information shown in slide 12. I've shown two different sets. One assuming the tax rate of 46% which, obviously, is what we have now. In initial Treasury proposal that they were talking about a general corporate tax rate decreased to 33% so I've also shown some calculations here that used that tax rate rather than 46%. I have worked through the current formula, Ive the QRA approach and then I used the current approach but assume discounted reserves using the interest rates shown in the column headings. Then I also completed a tax calculation using cash accounting.

The first thing that you're going to notice is that there is a big penalty from the QRA approach. There is a significant difference between what you would accumalate in 9 years under current taxation and what you would accumulate under the QRA. Also you will notice, and this applies for all examples, that the QRA results are identical to the results for the cash basis approach.

The situation is one in which it is a no underwritting profit or loss book of business. It is going to take 9 years for it to completely pay out. The $9.87 amount represents what you would be able to accumalate and keep in your pocket by the time you've closed the books after 9 years on that particular piece of business.

Another thing to notice is this current approach with discounting. It has to be obvious that if you're going to discount reserves then you're not going to be sheltering as much income. Therefore, the government is going to be taking a little more from you. The penalty of going from the current system to the current system with discounting is obviously not nearly as substantial as the penalty resulting from the QRA. I think if the industry had to give something up, I'd be much happier going to discounting than going to the QRA. Obviously if we adopt reserve discounting we not only continue to have the same problems we have now proving to the IRS that we are reserving reasonably but we would also have added questions concerning payout rates and discount rates. This, of course, means potential for even more disagreements with the IRS so there are problems with discounting too.

Another point on these calculations. I assumed, in order to simplify things, that if there is a tax credit it can be used immediately. In real life situations that may not be the case so that the comparisons may not be as easy as shown here. If you stand back and look at the QRA approach and compare it to the cash basis, all the QRA does is spreads out the tax credits and make it less likely that you'll have a situation where you can't use them. To me that's perhaps the only benefit of the QRA approach over the cash basis approach.

A few comments before I stop. The AA paper pointed out one of the likely effects of the QRA approach would be more emphasis on tax exempt investments as opposed to taxable investments. The logic for that is that if you're discounting reserves you're going to be sheltering less income. That will result in smaller or less underwriting losses or maybe no underwriting losses. If you don't have underwriting losses you don't need taxable investment income to cover them.

Another point is that this whole issue is very similar to the issue faced by the life insurance industry. That is the internal buildup of interest problem. The government is talking about not letting that accumalate tax free. If you think about this you will realize the similarity. If the QRA is equivalent to the cash accounting then there is no benefit from setting up loss and from sheltering your income.

Just to review and recap, the way I look at it, the whole QRA approach really has nothing to do with discounting. The question really is are we going to do our accounting for tax purposes on an accrual basis or are we going to do your accounting for tax purposes on a cash basis.

Just for fun and somewhat "tongue-in-cheek," I might suggest that a move to cash accounting might be well received by many non-insurance corporations. John Deere Insurance Company's parent, Deere & Company, which makes tractors and other mobile equipment, keeps its looks on an accural basis. They have a lot of inventory out on the lots of the John Deere dealerships for which they have not collected cash. When Deere makes a delivery to a dealership they credit sales and they debit accounts receiveable. They don't usually get the cash for that sale right away. So, from an overall corporate Deere point of view, they might be real happy to have the IRS go to cash basis accounting. That would mean that they could show down their tax cash flow. From an overall IRS revenue point of view, shifting to cash basis accounting would undoubtedly result in more lost revenue from non-insurance business than they could pick up from the insurance industry.

Gerald Lenrow: Thank you Phil. Of course, we all know there is no such thing as symmetry or justice in the tax system. All these examples aside in the same provision that suggesting QRA, as Marblestone started to say, that public accounting firms, law firms and the like and service organizations report their income on an accural basis. Not on a cash basis which, of course, would be a horror for yours truly and for Marblestone. Because we are partners in a partnership that are on a cash basis for tax purpose, means that the fees we receive, we would be paying tax on before we had it to spend. That would be a horror. They're going both ways so there is really no consistency in this pot. More than that, there is little question right now, there is a lot of question as to whether QRA will really be what's going to happen . The Treasury Department happens to be using it as a club right now and so is Congress to perhaps get the industry to come in with other methods of raising revenue that they have established. We will talk about that at the end. Just a couple of comments on QRA before I turn it over to Phil Marblestone. And one is, that, in my private discussions with members of Treasury Department and and in public conversations with them, they have taken the position that QRA is not discounting categorically. Categorically not discounting as Phil Moore said. What they told me and what they told the public is that it is a proper method of calculating investments income that should be included in taxable income. So, the proper way of calculating investment income that should be included intaxable income is not discounting. The General Accounting Office, in the person of Nat Gaundy, who wrote the GAO report for casualty companies who suggested discounting, has taken issue with the QRA, both in writing in his report and publically at the hearings before House Ways and Means Committee on July 19th, saying that this is inappropriate. Why is it inappropriate, because it creates income where none exists? That's what QRA does. Secondly, what is QRA? It creates a system certainly which puts you on a cash basis, but more than that, it makes the original establishment of a reserve irrelevant for tax purposes. The cost of this, and we have five examples that we have distributed to the world, I don't know if any of you people have it, but the tax world has it, we wrote what we call a tax topic and five examples illustrate that whether your reserve is 100, 90, 80, 120, or 140, the ultimate cost of QRA is identical. Because the cost is related to the amount of loss that

you pay for the number of years that remains unpaid based on your after tax rate of return. After tax rate of return times the amount of loss you pay for the number of years that remains unpaid is the cost of QRA. Pure and simply that's what it is. It has nothing to do with what you established as a loss reserve and it changes the whole mix of investment as Phil Moore said if you have municipal bonds it may not be good to have municipal bonds. If you don't have municipal bonds, it may be good to have them. It changes a whole investment philosophy which certainly shouldn't be a purpose of determining the amount of investment income includable in taxable income or the proper establishment of loss reserves. At the end, if we have some time I'll fill you in on some of the other proposals that were in Treasury and what GAO said and what's happening in the House Ways and Means and Senate Finance Committees right now.

But more important is the testing of loss reserves for reasonableness. The subject that has been on the table for the 20 odd years that I've been in the practice. It hasn't moved to any great resolution, but it has certainly been moving along in the last few years and the service now has given us some more input and we should revisit it. That is what Phil Marblestone will do. Phil.

Good afternoon: I guess the overriding theme on the QRA and the other tax proposals is that the government feels that no matter how much money they intend to raise from the industry, that the industry will pass that cost on to the policyholders through increased rates. And that's the psychic they think about, is no matter what they do to the industry the industry will recover those dollars. Well they don't exactly think the same way when they look at unpaid loss reserves though. And I'm sure that all of you in the audience at one time or another maybe even currently, with respect to the companies that you represent or consult with, have had the issue raised by the examining agent, as to the reasonableness of the unpaid loss reserves and unpaid loss adjustment expenses. The history goes back to 1921 when we first had losses incurred in the tax formula for property and casualty companies. So if you think about that, that's 64 odd years now that we've had the concept. But it wasn't until 1944 that the regulations really prescribed what kind of reserves a company should be required to establish. Basically, the regulations provided that the reserves had to be estimated with reasonable accuracy based on that companies experience to come up to what would be deemed to be an unpaid loss reserve that was reasonable under the circumstances. The overriding concept however is that it is an estimate. It is not exact. Then came the commissioners MIMEO RA1366. In that MIMEO in 1944, the IRS outlined the historical development testing of unpaid loss reserves for Schedule O. Shortly thereafter, we had a private letter ruling come along, that provided the same kind of testing method for Schedule P. And a tolerance was established of 15%. In 1975 as you all know, revenue procedure 75-56 was enacted whereby the service effectly repealed RA1366, and in repealing it provided that only for years prior to 1976 would a 15% tolerance be allowed and it was silent with respect to a tolerance thereafter. The revenue procedure also provided for the first time the netting of redundancies and deficiencies and a line by line testing of the historical developments. Prior to that revenue procedure, the service position was that there would be of redundancies of deficiencies, no offset. Those were the official audit procedures until 1980 when the infamous or notorious, for lack of a better description, the unacceptable closed claim method was proposed. And under the closed claim method as you all know originally the entire reserve, the case reserves were tested on the basis of the machine sensible data, the computer runs of the company for whatever period of time they had the data and only dealt with closed claims through the year under examination. So if a claim was still open, it was not considered in this development. And basically, the service compares, with a use of a computer audit specialist who goes in and writes the programs to do this within the companies computer system, net payments, that is payments net of salvage and subrogation, with the gross reserves. And

when you do that, you automatically come up with a distortion in that development as we all know from seeing it, I have not seen the closed claim method applied in one instance where it didn't come up with a significant redundancy. Now part of that is because it's only testing the closed claims, and the other part of it is because the payments are being netted against salvage and subrogation, so you're comparing net payments to gross reserves. And initially the same redundancy percentage or factor that was derived at in obtaining or going through the closed claim method with respect to case reserves was applied to the IBNR reserves as well. So if you were 20% redundant on case, you were automatically 20% redundant on IBNR. The problems with the closed claim method or testing method is that it ignores open claims and as we all know in many instances, particularly in the long tailed claims, those claims that are still open could be the most significant and severe. It didn't initially test the IBNR reserves separately. It ignores claims that are closed and reopened. And it tests payments net of salvage and subrogation. Now the service has revised the use of the closed claim method to separately test IBNR. And they take the same years that were used for testing the case basis reserves and test the IBNR reserves. Line by line testing, offsetting of redundancies and deficiencies and basically the steps are that they identify the payments made on losses with an incurred date prior to the test year, and a reported date after that year. They take the case reserves remaining at the end of the test year that relate to losses incurred in a prior year to the test year; they determine that amount. They adjust for the redundancy in the case basis reserves, those reserves in the adjusted reserves are added to the lost payments to get a total development. So that they come up with a separate experience rate for the IBNR. Now its interesting to note that one of the biggest complaints the IRS has had is that in testing unpaid loss reserves it was inappropriate to use estimates of the amount of reserves still outstanding at the end of the year, because a company could adjust those to there benefit and therefore come up with a favorable development.. But its interesting to note in the IBNR testing they do take into account those estimates of the unpaid amounts. Somewhat of an inconsistency.

As you all know the industry responded to the governments closed claim method in November of 1984 and came up with an alternative method. The industry association set forth an alternative method which was basically a manual development of the 5th to the 7th years preceeding the year of audit developed to the latest year available. Line by line, with netting, an entire testing of both a combined testing of IBNR and case basis reserves. The whole premise to the industry alternative was that reserves must be resaonable but must not be exact. Remember we are looking at a statute and regulations under that statute provide that the reserve must be estimated with reasonable accuracy. So, it is not going to be exact. And they said nothing in their proposal about tolerance persay. They also stated that a supplemental test should be or could be used if the agent believes that the reserves are excessive. And this was an attempt on the part of the industry to address this issue of testing estimates with estimates. The IRS has not formally responded to the industry's alternative testing method. They have, and most recently we understand that the service is really saying we must test the reserves to determine whether they're reasonable. And the company has the burden of proving that the reserves are reasonable and our primary test will continue to be the closed claim method of testing. So we still have the closed claim method being used by the service. Their position basically is no tolerance, and their present position at the present time is netting payments by salvage and subrogation. Now there is a private letter ruling that I guess has been sitting on someones desk in Washington for 6-7 months now, that we understand will say, if ever issued, that it is improper in the testing of unpaid ost reserves to net salvage and subrogation against the payments. So this would be an industry victory. I think it's a proper determination. I think its inappropriate for the service to net salvage and subrogation against payments in developing unpaid loss

reserves. And in addition on the tolerance issue, in some cases, in some parts of the country, agents are allowing a tolerance at their examination level and their overall review of the reasonableness of the companies reserves. In other parts of the country, unfortunately in my part of the country, St. Louis, they have not specifically allowed a tolerance, not persay. And a tolerance is only achieved through a negotiation at the appeals division level within the IRS . So what we basically have right now is the primary method being the closed claim method. Where the information is not readily available to perform a computer audit closed claim testing, they go back to the manual method. There is a new method that has come out and it's called two things - I guess I heard it referred to as Age to Ultimate or the Paid Loss Extrapolation Method, which I like to call PLEM because its easier to remember what it stands for. I'm a tax expert, Phil said he wasn't but I've got to admit that I'm not an acturary so I put together a very simplified example of how the paid loss extrapolation method or age to ulitmate works. And basically, let me explain it before I go through the example. Its another method being used by both the IRS and taxpayers in lieu of the closed claim method, but its also being used by taxpayers in particular as a rebuttal against the closed claim method since it only uses paid data. Now the basic premise is that at any given testing date which is generally the calender year, historical loss payment patterns can be used to project ultimate payments that will be made with respect to the losses outstanding at that year or that test date. So what you have to do is gather all the historical paid data and you determine your exposure and development period. Exposure period, calender periods, development period, months, quarters, years, in the period of time that it takes that particular line to develop out. And then you have to segregate that historical data. You segregate the paid data from exposure periods into classifications based on those development periods. So you're still doing a line by line testing in determining separate development periods for a particular line of business. You accumulate . . . bring together then, the cummulative paid losses from all this data and then you put together projections using th historical paid data. Now let me go through this example.

Age to Ultimate: This particular example, again I probably got this very - it is very over simplified in talking to some of my actuarial associates within my firm. Well let's just say the age here, we're talking about a five year development period, the age being the 1st, 2nd, 3rd, 4th and 5th years. And you look at the amounts paid period thru the 5 year period beginning 1979 to 1983 and then you get your total paid data together on a cumulative basis so that in year 1, cumulatively $80,000 goes to $120,000 then $140,000 then $150,000 and it stays at $150,000 in the 5th year. The ratio of $80,000 - $150,000 the ultimate cummulative aggregate amount paid is 1.875 in year 1. In the 2nd year its 1.2, then it goes to 1.071 and then it stays at 1. You take these ratios. and let's say we're looking at accident years, 1983, '82, '81 & '80 and now we have the paid amounts thru '83 for the accident. '83 we got $150,000 '82, $200,000 '81 is $210,000 and $220,000 for '80. The ratios from the prior development 1.875 and so on down to the 1, the ultimate payments being $281,250 applying this 1.875 to the paid amounts through 1983 and so on, you come out with what your ultimate payments are. You compare that with what you paid and differential would be the estimated reserves so that at the end of 1983 I would have total estimated reserves of $186,160. A panacea, probably not. There are a lot of factors here that have to be evaluated in the age to ultimate calculations, and there are a lot of specifics with respect to a particular company and factors that have to be considered. This cannot be looked at in a vacumn as an offset or the method to use. Let me just tell you some of the problems with the method. It relies on averages and the law of large numbers.. Its important trends can get lost in the final age to ulitmate numbers or factors. Very, very important. Decisions regarding exposure, the exposure periods, the development periods and averaging or trending methods can be critical to the results. Variations in frequency, severity, single vs. multiple payments, legal changes, mix of business all affect payment patterns and therefore would affect the results. No inflation is taken into account here and it has an equal effect on claims closed at the end

of each development stage for a particular exposure period. And I guess in looking at the age to ultimate calculation, I think what we really have to look at is, in my opinion there will never be one method for testing unpaid loss reserves. Its going to involve using the information, the facts and circumstances of a particular company and you may have to go through with the IRS the use of the closed claim method, manual developments, and age to ultimate, and use all three of these and somewhere to be able to prove within the company's data that the reserves are resaonable. Again, we're trying to arrive at what is a reasonable estimate for an unpaid loss reserve. It is not an exact science and we will not come up with an exact number. But these are techniques that will allow us to be able to determine what in fact is reasonable for a particular company. The salvage and subrogation question I believe will be resolved favorably in the near term. The question of tolerance however, may be another issue. While we know some agents are allowing it as I said earlier, and appeals officers are allowing in effect, tolerance they don't really call it tolerance, and they really don't set a specific percentage. They just look at all these calculations and they say well agreee this one says you're redundant by 10%, this other method you just showed me on in age to ultimate basis shows me you're only 1% and we agree we're going to weigh that, we're going to take that into account. As a result, they may say you're okay and they reverse IRS adjustment. But the question of tolerance, if it is not utlimately decided, may be taken to court. Through three court cases that have come down in the last three years, not dealing with insurance companies, but dealing with other companies which in fact were self insurers it may be resolved favorably. I'll just briefly refer you to those cases. The Kaiser Steel Corporation, 7th Circuit Case, 1983, held that workmans compensation self insurance reserve was reasonable when subsequent developments indicated that it had been understated by 7%. General Dynamics, Court of Claims Case, 1984, medical benefits self insurance reserves were reasonable even thought they were originally overstated by 18%. Esco Corporation, Nice Circuit 1985, a 10% redundancy in workmans compensation reserves was permitted. Well certainly if noninsurers are allowed a tolerance on self insurance reserves, insurers ought to be entitled to a tolerance. And I think that these court cases would be very favorable. And these are not low court cases. They are cirucit court and Court of Claims cases so they carry much more weight. Does anyone have any questions on what I've gone throught thus far. Yes sir.
The testing msworkman that's one of the other problems that we have today, is that the testing is done, now you're talking about reinsurance assumed by the company?

No this testing is before... reinsurance... This is looking at the gross reserves, okay. Of course you know it has to be affected by any reinsurance that is ceded out. But they're testing the total reserve. Now some company on the assuming side, they generally accept... an assuming companies... they don't separately test the reinsurance. And that has always been a problem. Right. Yeah. The deduction is not, but the testing is done on a gross basis. Any other questions? Let me go through a real story. Everybody always likes real stories. I have a client, that was examined for the years 1977, 1978, 1979. The IRS came in and said this was the first time that they were going to go to the closed claim testing method, and they introduced us to a computer audit specialist who came in and obtained all the information on the company records and files and so on to determine how he was going to go about retrieving the data that was needed to compare or make the test. In our particular case we told him we did not have the machine sensible data going back beyond 1976, the first year, so that they had to start with 1976. They reluctantly said well that's unfortunate you don't have it, we're going to do the test anyway. Well of course we didn't have the data to go all the way back, so all they could do was start with'76. Remember they're testing '77,'8 & '9. So they start with '6, go through '9, come up with these big numbers, and then they say we will let you carry the payments go all the way through 1983 or '82 I think it was at that time. So they went beyond the year of examination. They still came up with tremendous numbers of

redundancies. And a tremendous proposed adjustment. After a lot of arguing, and I think at that time we had the national coordinator involved that was with the IRS at that time, we got the agent and the case manager to back off the closed claim method because the data wasn't available and instead we went back to a manual historical development. We then came up with a number which we agreed with at that point with the agent. Then we filed amended returns in 1980 to carry over the cumulative adjustments through the end of 1979. The IRS immediately came back in and did another examination. This time for 1980, 1981, and 1982. And then they said, well we told you last time you didn't have the information to do a true closed claim testing, now you do because its a couple of years later, so we'll start with '76 again and we're going to use the closed claim method again. Which they did. And they took '76, 7 & 8, well they took '80, '81 & '82 and they devloped them out under the closed claim method. The primary position was the closed claim method. Big, big numbers of proposed deficiences and again still netting salvage and subrogation against the payments which completely distorts the development and comes up with some big numbers and then separately developed (AE). Unpaid Loss Adjustment Expenses as well. Now they weren't even at that point sure of themselves with respect to the closed claim method and I think we're seeing this in more and more examinations now. That after they've done the closed claim method because it is under such fire from the industry and there are alot of inequities within the method, they came back and proposed an alternative method and that was going back to a manual development again. That manual development came up again with significant redundancies but they were 50% less than the redundancies under the closed claim method even though the manual development still netted salvage and subrogation against the payments. And in the alternative method instead of separately developing the unpaid loss adjustment expenses, they used the ratios of the redundancy factors on the unpaid losses and applied it against the unpaid loss adjustment expense. Now this case is presently being protested and will go to appeals. We feel very confident that we will be successful in obtaining a resolution of the matter at the appeals division level that on the basis that you do not net salvage and subrogation, and hopefully the private letter ruling will come down. And even if it didn't, we have been successful at the appeals level of getting the appeals officer to agree with us on that position. And we've also been successful in providing the appeals officer with supplemental data information and we might even go to, if its useful in this case, the age to ultimate calcualtion as a new means of showing that the company was reasonable.

Question: Are you suggesting, Phil, that we'll defend it to the client's last dollar? That's right? Jerry, let me repeat that comment.

Jerry said that we will defend it all the way to the client's last dollar. No we're good business men. We believe in a return on investment. My personal opinion is that this whole area is an area that has to be looked upon on not being an exact science. And I think, we being Me and Jerry as tax experts, need to solicit the abilities that we don't personally have because we're not actuaries of you actuaries because you people have the conceptual knowledge of how to put these factors together, how to bring into account some of the unusual circumstances that might exist in a particular situation and be able to capture that in an actuarial manner. And I think that's what we're going to ultimately do to show reasonableness, is something that is put together that has a lot of basis behind it. Actuarial basis to show after the fact that the company was reasonable. Because its always easy to say that at the time you set up the reserve we were reasonable. We have to be able to prove it years later and only through an actuarial analyses are we able to do that. So we look upon the acturaries within Coopers & Lybrand and the outside acturaries within our clients as critical to ultimately helping us go to the appeals division or in some cases even to the agent and resolve the matter on the spot. And say, here is the documented evidence that these reserves are reasonable. Any questions? Yes.

Question: (inaudible)

Answer: I believe these payments are gross payments. They are not netted salvage and subrogation.

Question: (unclear)

That's right. If you take those two factors, that very key to why you come up with a different result. Yes.

Question: Do I understand the age to ultimate method only takes six years and develops through the fifth year...?

Answer: No. You really should be looking at each line. A particular line might be a three year development period. You know. Or it could be ten.

Comment: (inaudible)

Response: It's got to be close to 100% developed within whatever period it is. And thats why you go and determine a development period by line of business. Now some of the IRS agents I've seen that come in they say since all the lines are 90% developed within 5 years, that's good enough.

Comment: They're very big on recency of data and sometimes are unwilling to recognize that there is any development beyond the 5th year where some lines there is.

Comment: I understand that there is, I think that their position is that you know, there is no need to go beyond the 5th year. ?There's been a softening? Jerry mentioned and the comment was made from the audience that the IRS is very reluctant to go beyond five years even though they know there is development beyond the fifth year. And Jerry mentioned that they are softening somewhat in that. They are agreeing in situations to continue that development to the true development period where you have a greater development period. Or even yesterday. They're becoming much more lienient in that regard.

Comment: You mentioned that you used the age to ultimate approach in your appeals case if it were ?---? improved. Why won't you use it anyway? No, I'm saying we intend to use it. If it is favorable we would use it. Again, depending on the unusual circumstances some of these methods would not necessarily be favorable.

Comment: This would not necessarily be favorably. I mean some people this would be a disaster. Yes. How prevalent are IRS, examinations, especially given the fact that the reserves are 15% deficient. The comment was how prevalent are audit examinations by the IRS in particular as a result as a comment made at lunch by the speaker that reserves are deficient by 15%. And a lot of people have made that simiar comment. All I can say is that comment may exist for particular segments of the industry, but the ones that I've seen, the companies that I have seen, are not deficient in their reserves.

Comment, Unclear Not based on the test. So we're talking about two different things I think. The historical developments of testing unpaid loss reserves even when...the company's own development will show in many cases that they are not deficient, but redundant.

Comment: I always felt it a good idea... Take a company that has gone bankrupt and apply the approach and see what comes out. I would expect that based on how it works that ...

Response: I'd be very happy to do that if the receiver would pay us for it. But there are... Jerry do you want to comment? The only thing is that where it happens they still look at history. The IRS is softening, they're getting more educated and maybe getting to believe whats going on in the industry and the last few comments I've heard at meetings with the groups of IRS people at the sort of policy setting level in this area anyway is that they recognize that they got to look at all the facts and circumstances. So they might look at a company thats in liquidation and if they look at history it could again under any one of these test prove that the reserves are redundant. But obviously something happened and they'd have to look at all the facts and circumstances and the national coordinator has been saying this to his agents. He's saying if it tests out, if the reserves test out to be deficient you should look at facts and circumstances. If it tests out to be redundant, you should look at current facts and circumstances. Maybe it didn't mix with the business change. Maybe their reserving techniques changed. So history is an indication, and history is what you're suppose to use to verify. But certainly you're examining a company. Use your judgment he's trying to tell the agent. Of course agents are quick to just do a broad examination and come up with a number. So the point is well taken. Its impossible for us to conceive of anybody saying that a company that is in receivership or liquidation is redundant as far as their loss reserve estimating is concerned. But for a particular company under examination, it's conceivable under any one of these test that the answer would come out that way. And the other question about the amount of examinations, companies that are insignificant that are in an operating loss carry position, are not going to be examined by the IRS necessarily. They're going to wait until years in which they, are used. If they had significant enough losses they won't necessarily come in and even audit those years be cause they could always...Right...unless there is carry backs or something, or there has been some derived tax benefit from those losses. They will wait until the ensuing years because they can always pickup the cumulative redundancy in a particular year when it has a tax impact. And I guess in most cases that the companies that have gone or become insolvent, the service again, likewise for the same reason, doesn't even go in and bother testing reserves. There's nothing to do. If they tested them and it was 100% redundant possibly because of the magnitude of the losses they wouldn't get a dollar of tax, so they wouldn't waste their time. Any other questions? Yes.

Question: (not clear) The question basically was that the cost effectiveness and the cost on the part of the company and the IRS of using a closed claim testing method, do I think that the IRS will eventually back away from the method? I think they will continue to use the method, so long as they feel it is an acceptable method, not necessarily the only method, on the basis that as of right now anyway, they like the results that are coming from the method. It is coming up with the biggest dollars and therefore puts the burden back on the taxpayeer to come up with an offsetting method that doesn't have as many dollars. So as long as they put you in a defensive position by merely using the method, I think they'll continue to use it until they're convinced either that it's not the approach or they're convinced it's the method is not an acceptable method.

Comment: (unclear)

We may have to live with method for a number of years. Certainly. Yes. Have there

been any court cases which have demonstrated the stupidity of the closed claim method? There have not been any of those cases that have come down. However, I understand that there may be a case that has been docketed where the closed claim method was applied. And now as to when that case will come out, or if ever, because you know many situations just because a case is docketed does not mean it will go to trial because the taxpapyer and the government will have another opportunity to settle their dispute. But it will be very intersting for a court to review the method. Any other questions. Derick.

Let me just take a couple of minutes of your time. The service has indicated on loss reserves they will look at all different methods, but they're still hanging tough on the closed claims. They are obligated to report back to the industry who responded to the closed claim methods with an alternative method some months ago, but the alternative method is merely to give some credibility to open cases by establishing the accuracy of the reserves attributable to those open cases. As far as I know I'm sure the service will accept that as an extension of the closed claims methods. But the whole point that the service is making , and continues to make is, that the industry that we work with, that we work for or with, uses computers, uses alot of software programs. Has almost all information on computers and they are saying its a lot cheaper, its a lot simplier to access the information on a computer and test loss reserves rather than sit down and do what I call a hand job. Okay, and add up all kinds of numbers and sweat all over the tapes and try to maintain the tapes. They're saying that you have all of this in your computers. And if you don't you should tell them.

FEDERAL TAX ISSUES 1F/3F

Q R A

PHILLIP S. MOORE

Q R A

- WOULD REPLACE

  UNEARNED PREMIUM RESERVE

  REPORTED CLAIM RESERVE

  IBNR RESERVE

- SEPARATE RESERVE ACCOUNTS BY LINE AND POLICY YEAR

- APPLIES TO P & C AND A & H

$$\text{AFTER TAX YIELD RATE} = \frac{\text{NET INVESTMENT INCOME (INCL. TAX EXEMPT)} - \text{TAXES ON THAT INCOME}}{\text{MEAN ASSETS}}$$

LET WP = WRITTEN PREMIUM

EP = EARNED PREMIUM

E = EXPENSES PAID

L = LOSSES PAID

R = RESERVES AT END OF YEAR

IR = INVESTMENT INCOME ON R FROM PRIOR YEAR

IS = INVESTMENT INCOME ON SURPLUS

T = TAX RATE

ASSUMING TAXABLE INVESTMENT INCOME

	YEAR 1	SUBSEQUENT YEARS
CURRENT TAX FORMULA	$T (EP - E - L - R + IS)$	$T (EP - E - L - \Delta R + IR + IS)$
QRA TAX FORMULA	$T (WP - E - L - R + IS)$	$T (WP - E - L - \Delta R + (1 - T) IR + IR + IS)$

ASSUMING TAXABLE INVESTMENT INCOME

	YEAR 1	SUBSEQUENT YEARS
CURRENT TAX FORMULA	T (EP - E - L - R + IS)	T (EP - E - L - ΔR + IR + IS)
QRA TAX FORMULA	T (WP - E - L - R + IS)	T (WP - E - L - ΔR + (1 - T) IR + IR + IS)
		= T (IR) + T (WP - E - L - ΔR + (1 - T) IR + IS)

ASSUMING TAX EXEMPT INVESTMENT INCOME

	YEAR 1	SUBSEQUENT YEARS
CURRENT TAX FORMULA	T (EP - E - L - R)	T (EP - E - L - ΔR)
QRA TAX FORMULA	T (WP - E - L - R)	T (WP - E - L - ΔR + IR)

OBJECTIVES OF QRA:

- PARITY BETWEEN INSURED AND UNINSURED LOSSES
- EQUAL TREATMENT OF INSURERS AND SELF-INSURERS
- MATCHING REVENUES AND EXPENSES
- MORE TAX DOLLARS

QUALITIES OF QRA:

- EQUAL TO CASH BASIS
- RESERVING ERRORS DO NOT AFFECT ULTIMATE FINANCIAL POSITION OF TAXPAYER
- RESERVE DISCOUNTING NOT REALLY NECESSARY

RESULTS OF QRA:

- MORE TAX PAYMENTS
- HIGHER PRICES FOR INSURANCE
- LESS INCENTIVE TO INSURE
- U.S. INSURERS LESS COMPETITIVE WITH FOREIGN INSURERS
- SELF INSURER HAS ADVANTAGE OF NO STATE PREMIUM TAX

CURRENT POSSIBILITY

$100 PER MONTH FOR 25 YEARS	= $30,000
TAX SAVINGS = .46 X $30,000	= $13,800
PRESENT VALUE AT 8%	= $12,956

EXAMPLE SITUATION

Premium = $100 Expenses = $30 Losses = $70

Year	Loss Payout
1	45⅝
2	27
3	9
4	6
5	4
6	3
7	3
8	2
9	1
	100

FINANCIAL POSITION AT END OF 9 YEARS

Tax Formula	Tax Rate = 46%		Tax Rate = 33%	
	Taxables 10%	Tax Exempts 8%	Taxables 10%	Tax Exempts 8%
Current	$9.87	$17.23	$13.30	$17.23
QRA	6.74	11.90	10.31	13.41
Current w/Disc.	9.36	16.51	12.81	16.72
Cash	6.74	11.90	10.31	13.41

Panel Sessions 2C/4F

DISCOUNTING LOSS RESERVES AND ASSET LIABILITY MATCHING

Moderator: Frederick O. Kist
Coopers & Lybrand

Panel: Bruce Bunner
California Department of Insurance
John T. Baily
Coopers & Lybrand
Robert W. Sturgis
Tillinghast, Nelson & Warren, Inc.

1985 Casualty Loss Reserve Seminar

Kansas City, Missouri

Fred Kist: The views expressed in this session are the views of the individual and not those of the AAA or the CAS. In addition, this session, as other sessions throughout the seminar, will be recorded. We would appreciate it if individuals with questions would use the microphone in the center of room. Please identify yourself and state your question into the microphone.

In today's panel we will be touching upon three areas of the discounting and asset/liability issue. First, we will introduce the concept of the valuation actuary, discuss various recommendations of the Joint SOA and AAA Committee on the Role of the Valuation Actuary and comment on its applicable to property/casualty companies

Secondly, review the activity of the AICPA on the issue of discounting and thirdly, the regulatory perspective of the issue.

We do not intend to utilize this session for discussing the tax issues associated with the discounting of the loss reserves. The federal tax session which is in this room right after lunch will discuss that topic in detail. Therefore, I would like to suggest that we hold those questions for the tax session.

With me this morning to address these areas are Bob Sturgis of Tillinghast, John Baily of Coppers and Lybrand, and Commissioner Bruce Bunner of the California Insurance Department.

In August of 1984, the final report of the Joint Society of Actuary and American Academy of Actuaries Committee on the Role of Valuation Actuary was issued. The report recommended that the state enact statute requiring directors of life insurance companies licensed in the state to appoint by resolution, an actuary to be the valuation actuary of the company. In November of 1984, the Joint Casualty Actuary Society/American Academy of Actuaries Task Force was appointed and given a very limited task. To review the Joint Society of Actuaries/American Academy of Actuaries Committee report and consider its applicability to the Property/Casualty Industry and recommend further action, if any. Bob Sturgis chaired the committee reviewing the report and is here to discuss and summarize their findings.

Bob Sturgis is a Principal and Director of Tillinghast and Managing Principal of the Casualty division. He is a graduate of the University of Maine. Mr. Sturgis is a member of the American Academy of Actuaries and a fellow of Casually Actuarial Society. He served on the Board of Directors for the Casualty Actuarial Society and is currently a member of the National Association of Insurance Commissioners Advisory Committee on the funding of occupational disease.

Bob Sturgis: The views expressed here are not necessarily my own, but of the AAA and CAS. As Fred mentioned, the joint report of Joint report of the Society of Actuaries and Academy was issued in August of 84 and just briefly some of the key points are as follows (By key I also mean controversial.)

First of all, hidden in the language, you should pick out the clear intent that the valuation actuary be appointed by the board of directors and not by management. This was considered a key eliment of control to again control the his opinion and independent and the soundness of the company. Another key point is that the evaluation actuary would be responsible for the selection of assumptions and the establishment of reserves are appropriate under the circumstances. The report said "that in spite of the fact that there was alot of work to done, there were the principals and standard of practice in order to make this work did not exist, they had to be established in spite of that

recommended that go ahead with the establishing this concept and lobbying for its passage in the various states". And this recognized the fact that this statement of actuarial opinion would go beyond standard of statutory solvency. Specifically, it said " that the reserves established (and these are life policy reserves) together with cash flows, anticipated cash flows should be sufficient to cover margins of diviations or reasonable flucuations from expected values, what we often call margins for adversed diviations. And also, that such reserves together with surplus, be sufficient to cover plasible fluctuation, in other words the valuation actuary was not only surpose set reserves that would go in the balance feet, but to determine how surplus was enough. Again the committee recognized that in order to put these recommendations into effect for major areas needed addressed changes in law and regulations research, education and training and the establishment of standard to practice.

Fred mentioned, to our committee your task force was formed late year, that was a very limited charge to review that society of actuaries academy report and report back on whether it was applicable to casually industry and casually actuaries.

We very quickly found that is was necessary to understand that the background of the life insurance industry and how it differed from casualty companies and casualty actuaries.

The state laws that govern our casualty reserves are very brief and general in nature. Where as the corresponding laws and the life insurance industry are very lengthy and very specific. For example, New York has four pages of rules governing casualty companies. Dealing essentially with things like how do you allocate unallocated expenses to accident year, you should use 3 and one half per cent interest for discounting of workers compensation case reserves, how do you calculate the so call schedule P penalty. By contrast, the corresponding rules for life insurance companies consist of eighteen pages specifing the exact mortality table, interest rate and actuarial methods to be used and in addition they have a non --- statute regarding minimum cash values that are even longer than that section of the code. So in summary coming into this life actuary valuation report their standards were specific and it was the judgment of that particular committee that they had not worked. That with the rapidly changing environment and economy and double diget inflation and interest rates and every changing policy forms that qualified standards and rules, had broken down and they were in part, at least responsible for the large number of insolvency or other difficulties.

So it is necessary to review or consider their report in that historical light. They were moving away from that strict pre-determined standard and toward reliance on the judgment and professionalizm of the actuarial proffession and a specifically designated actuary. In that sense, it can be seen as moving toward where we are in the property casualty side. Reliance on the judgment applied to specific situations of the actuary.

It should also viewed in the light of international actuarial practice. Concept of the valuation actuary is very close to the current actuarial practices in Great Britian, Europe and Canada. Moreover, regulations that were proposed in Canada are currently being tabled with the new party in power for property casualty companies. In compas this concept of the valuation actuary. Also it is important to consider this as it relates to property casualty companies, in light to the other things that are going on. The academys interpretation 8B which is, still I think an exposure draft status, does deal in loss reserve, margins for adverse development and reserve discounting where appropriate consideration should be given to quote, "current and expected rates of return on assets and expected cash flows from assets". The property casualty committee of the CIA (in Canada, Canadian Institute) is also working on a draft of the valuation actuary concepts, again for property casualty companies and these guidelines include consideration of

liabilities in the premium reserve including premium deficiencies. Again quoting, "the membership basis investment return, already stated take into account future investment earnings, and he should base that on what he expects the portfolio to earn --- expense and so on. And so our committee reviewed this and some what surprisingly to me I should mention that the committee consisted of my self as chairman, Andrew Williams from the Travelers , Linda Bell, Chuck Berry from the Aetna and I think thats it.

With out too much in the way of disagreement, some disagreements will be noted, concluded first of all that the actuarial principals under lying the society of actuaries report, applied in full measure to property casualty companines in general and actuaries in particular. However, this was approximately Feb. of 1985, this was not the language of the report but in effect we said "Look, we cannot recommend in spite of the this conclusion that they apply, we cannot reommend forward with implimentation of this concept, because that would be silly". The known fact that the CAS in terms of board resolution, had never supported the concept of actuarial loss reserve certification and annually was asked by the American Academy if they would authorize the Academy to move ahead with the recommend that it be expanded in to more states and every year the CAS board said no. Concerned historically was, that there were enough actuaries to do the job.

They turned attention not to the valuation actuary but to the concept of reserve certification and reverse their position and has been announced in various..., its certainly in the CAS news letter, that is now the official position of the CAS and the Academy as been authorized to move ahead with recommending that extention of loss reserve certification.

Just finishing recommendations, we agreed that the position of the valuation actuary should be formely established designated incumbent, but did not agree internally to our committee, there was not agreement that it had to be appointed by the board.

We also absorbed that many of the principal and standards would apply to multilined companies that right life insurance groups as well as casualty insurance and therefore these would have to be across both life and casualty lines, and therefore it was essential that the CAS worked with the Society of Actuaries in developing those standards.

Because of the change in position on the loss reserve certification issue naturally we had to go back and re-write our report. So after concluding that the principals applied our final report also concluded that we should preceed with the concept. That final report was presented to the CAS board of June of this year and the considerable discussion, considerable concern about the scope and speed with which we were moving in that direction. And also, some criticism implied of our report that we did not specify and enumerate sufficiently what this was all about and what the principals were that we agreeing with. So they asked us to go back and prepare doucment that would enumerate those principals and comment upon them. And let me pick the more important ones now. I have already mentioned that the committee divided on whether the valuation actuary needed to be appointed by the board and responsible for them and not management. It is not so much a case of a heated discussion with the committee split, but its more a case indifference. I believe, speaking for my self and observing the comments of the other members, I believe that the feeling was that the concept and the procedures and that these things should take place in valuing a company for the statuatory reporting purposes were important and useful and would be important and useful regardless of who the valuation actuary reported to and we were going to..., we thought we could leave that arguement to the regulators and the attorneys and what not. Another key point, the language said of the SOA report that the evaluation actuary

is responsible for the selection of assumptions in the establishment of reserves. We just wanted to make it clear that we thought that meant that he would offer an opinion on the reasonability of the work done by others. And in fact reserves might be set by management than by different section, especially if a large multilines corp.

Finally on the area of this particular session, discounting of matching assets and liabilities, we just wanted to make it clear that buried in there language this is a key change for casualty actuaries and sort of taken for granted more in the life side. Namely that we must take into account the yield on the asset base and the matching of the maturity of those assets and liabilities to assure that the monies would be there when needed to bet the liabilities obligations and also implicit in this is ... or explictit in this is a margin for adverse deviation. Or again, reasonable flucuation and also determination of..., at least the way read the society report, how much surplus is required to cover plasible or catistrofic kinds of situations.

And so we prepare this suppliment describing the key principles. Unfortunately I was not able to attend that board meeting to present it but two members of our committee are on the board presently (I neglected to mention Bob Baily from AM Best).

It passed the resolution and I cannot quote from it because I received this information only over the telephone, but some key points in the wording, obviously reflects some concern still by the CAS board at the speed in scope of this direction. It approved the concept of an actuarial valuation, clearly it did not distinguished that from concept of an valuation actuary, said that in theory it is applicable to property casualty companies and it formed a new task force to proceed with the coordination with the other activity going on on the life side and to coordinate changes and inhancements to the CAS celabus and education process. It would be necessary to support this expanded evaluation actuarial role.

Fred Kist: In the early 80's, the AICPA Insurance Companies Committee, undertook the process of revising the AICPA industry guide for the audit of fire and casualty insurance companies. In this process the committee identified several accounting issues that were not addressed in the previous audit guide, or where as existing practices is varied. One of these issues was whether claim liabilities should be discounted.

In December of 1982, the AICPA Insurance Companies committee released the draft issue papers on discounting claim liabilities of insurance enterprises. We have copies of that draft report here for those who are interested. This draft was never finalized and the issued returned to the committee for further review. John Baily of Coopers & Lybrand is here with us today to update us on the activity by the AICPA in this area.

John is a General Practice Partner in the Chicago office of Coppers & Lybrand. He has 20 years of experience in the audits of all type of insurance companies; life and property/casualty. John received his Bachelor of Science Degree in Economics from Albright College and a MBA from the University of Chicago. He is a past chairman of the Illinios CPA Society Insurance Companies committee and a past member of the AICPA Insurance Company committee.

John Baily: I thought it might help if I start off by summarizing where we are right now as an industry in discounting.

As most of you know, a year ago the SEC instituted some new requirements for disclosures of loss reserves by public companies. We thought this was a good opportunity for us to do a survey, to find out what companies where really doing in a lot of different

areas in loss reserving. Let me just give you a few results of that survey.

Fourteen out of the top twenty-two companies indicated that they were doing some discounting. Of those, eleven were discounting Workers Compensation. One indicated that it was discounting some Portfolio Reinsurance, and about four indicated that they were discounting medical malpractice.

The rates surprised me to some extent. When we talk in a minute about the SEC posture today on discounting, you will see why I was surprised. Most of them indicated that they discounted at statutory rates of 3-3½ percent, however, there were 3-4 that disclose discount rates of 7 and 8 percent.

It is difficult to tell, even from the current disclures whether IBNR is discounted.. Apparently it is discounted in medical malpractice from trying to read between the lines. It is not clear on workers compensation what is being discounted; i.e., is it IBNR, is it just tabular reserves on pension cases, is it the indentity portion of all case reserves, is it LAE or is it just medical costs. You can't really tell that.

As a side light, I'd also point out that as you know, Financial Accounting Standards Board is considering some amendments to FASB 60. They are consi- dering 3 issues at once.

The portfolio transfer paper that came out last January which gave some of you a lot of problems.

The Premium Defiency paper - that is the anticipating of the investment income in determining whether there is premiun defiency

Life accounting for New Life Insurance Products.

This may be another instance where the accounting is following after whats actually happening in practice. My own observation, as part of that survey, was that 75 or 80 percent of the companies are anticipating investment income in determining premium deficiencies. There is a danger, although I don't see it as probability, that the FASB could decide to get into the discounting issue as part of the reviewing these papers. To date, they indicated that they don't really want to touch that hot potato any more than the Insurance Companies Committee of the AICPA. Right now I don't think its a live issue.

The SEC position, which is not any where in writing but has been postulated orally several times, is that the SEC will accept discounting if it has first been approved for those lines by state regulators; thats the first condition. This has generally been presumed to mean, that the at a discount would be the statutory percent. How this relates to those companies indicated to be using 7 or 8%, I can not say. The Second condition for adopting discounting is having a preferability letter from your CPA firm. That could also present some problems in determing whether its preferrable or not. I would suggest to you that is probably practical to get such a letter on workers compensation but its not so practical to get it on general liability since there is by no means a majority of the companies discounting general liability.

While we are talking about the SEC, I might also point out to you that is the SEC getting more active in the whole loss reserve area. The loss disclosure requirements of last year were just one indication of this. Recently, and I suspect that we are going to see something definitive before year end, they have been inquiring pf a number of companies

as to why there is no disclosure of the total amount at risk on financial guarantee insurance. What they have done is focuse on schedule 7 used by SEC registrants called "Guarantees of Securities other issuers" This schedule is filed within the company guarantees an obligation (usually debt) or another company. I don't know of any insurance company that filed this for any kind of insurance.

Somebody in the SEC has said Hey, why doesn't financial guarantee insurance fit in here. They have made some oral inquires of the CPA firms on this, and the Insurance Companies Committee has agreed to look at this at their Nov. meeting. I suspect we may hear more about this from the SEC before to year end.

What does the future hold in this area. There is a new AICPA Task Force looking at discounting, its not an industry oriented committee, it does not include representatives from the insurance industry. It is looking at discounting at all areas including deferred taxes. However, they have indicated they will focus on insurance. I talked to the chairman of that task force earlier this week to find out where they were. He indicated he had quickly come to realize that taking on the chairmanship of this committee was probably the greatest limiting factor on his future career of any of the activities he had recently undertaken. In short I don't really see any fast movement of that group. Those of you who follow some the AICPA activities know, that these things move slowly. They have targeted the first quarter or 1986 for an initial discussion draft. That says to me that anything definitive from that committee is really about 2 years away or more, or unless we see some heavy SAC pressure in this area. What they are trying to do in this committee, is to look at the conflicting examples of discounting in the literature and try to sort them out. One of the key issues which goes to your asset liabiltiy matching question is, do you just discount liabilities (which is what the AICPA draft paper 2 years ago said), or do you really have to look at the big picture. That is, do you really have to look at asset valuation as well as liabilities? Thats an issue that was really not addressed by the AICPA paper and one that this task force is going have to look at.

What resurrected this discounting issue at the AICPA? Those of you who followed this two years ago remember that when the Accounting Standards Executive Committee (ASEC) which is the senior accounting body in the AICPA talked about this topic they tabled it. Those of us involved with it at that time thought that it was tabled for a long long time. What brought it back to the fore front is the same thing that makes me question whether the SEC might not jump on this in the near future and decide that it if a priority. One thing that happened was that the FASB started to get bombarded by what they considered to be "back door discounting" kinds of issues such as portfolio transfers. They looked at that and said " whats the reason to go into a portforlio transfer? It is really discounting isn't it they looked at bond puts and right or wrong, and they said "aren't bond puts arising because our accounting model requires us to carry these investments on the balance sheet at a value (amotized cost) which doesn't baer any relationship to the current market values? When you go through a bond put, aren't you really discounting to some extent". Structured settlements are also seen by some as another form of discounting. The premium deficiencies issue paper is seen by some people as back door discounting. I believe they are wrong, but the perception exists never the less.

You might be interested in some of the current questions that are coming up, but I don't have answers to all these questions right now but I'll tell you the questions. I'm sure a lot of you will be developing the answers. Questions number 1 - I'm not sure I trust my reinsurer's financial stability. "I'm not sure their going to make it in the long run. What would happen if we commuted our reinsurance agreement with that reinsurer and took those reserves back at a discounted basis. Should these reserves be net or gross?"

Question number 2 - We have these foreign reinsurance subsidiaries and we think we are going to phase them out. We will run off the old business and write no new business. Can we discount these loss reserves as discount operations. We only want to discount the loss reserves of those subsidiaries, where we are going to let the business run off."

These kinds of discounting issues, I think, could push this topic to the top of the list for the SEC the FASB and/or the AICPA to look at discounting. As you know, this a schizophronic industry right now. There was significant industry pressure on the AICPA not to adopt discounting. Yet we see 14 of the top 22 companies are doing some form of discounting with more doing so each year I suspect that if congress gives us QRA or some other form of discounting for tax purposes we will see even more companies go to discounting.

Let me just back track very quickly to what the AICPA issue papers said. By the way, although I have copies of the AICPA issue paper here for you, I don't think it completely addresses issue. The AICPA issue papers was written in a very heated atmosphere. The philosophy that got the paper passed by the insurance companies committee was one of frustration. The committee have worked out the paper for so long without visable progress that it basically decided to approve paper just to get it off of its agenda. What the paper basically says that all reserves should be discounted. It also says that investment yield should be that of the total company. In other words its not a new money rate concept, its a total portfolio rate. It doesn't focus on the complexities of discounting IBNR vs. case reserves and different varibles. There is really very little guidance using delta's for adverse deviation.

Nor is there any real consideration given to using companies with investment year methods, (i.e. like life insurance companies where you might isolate new money rates in a given year and match it with liabilities of that year. As a practical aspect those that are opposed to discounting are concerned that it takes away any cushion for defiencies. If you look at this survey you know that the industry in general has been terribly deficient, some more so than others, but never the less deficient. Those opposed to discounting fear that if this additional variable is introduced into the loss reserve equation it is sure to result in companies being even more deficient in the future. Let me point out that when discounting in addition to estimating to ultimate loss, that is is also necessary to estimate payment patters, and forecast investment yields. Those of you involved in the investment activities of your companies know how difficult it is to forecast investment yields, yet in my mind that is very simple compared to estimating payment pattern.

Most would agree that discounting is appropriate when the timing and the amount are known. Where the insurance companies committee started, quite frankly, and I'm still not quite sure how it got off the track was it started to say lets discount when the amount and timing are relativly certain. When I have a long term disability when I have structured settlement I know the relative payment pattern I know the relative amount.

At one point one of the Insurance Committee members from industry had come up with what I considered to be a quite good matrix. What he tried to do was take almost every kind of claim in the industry and determine what portion was fixed and what portion was not fixed. He then put this information into a matrix. Every thing above a pre-determined point you can discount, everything below you can't discount because there are too many unknowns. That concept didn't fly because the accountants fear of having a cook book, and that look awfully like a book.

Another area that really caused debate was the discounting of IBNR. IBNR certainly is not fixed or reasonably determinable, yet there is good theoretical agument for discounting IBNR. The paper as finally approved indicated IBNR should be discounted.

What about using delta's for adverse deviation in determining discount rates? For those of you involved in life insurance accounting that seems rather logical. When we set up life reserves one of the things written in FASB 60 is the use of a margin adverse deviation. However, that is the only place that concept appears in the accounting literature. In today's accounting climate is difficult to sell because it sounds liek smoothing of income.

That paper by the way hasn't really focused on that concept for property casualty accounting.

One of the thing that are interesting therefore is to see where asset liability matching fits in the whole discounting picture. An I indicated before, one of the issues the Insurance Companies Committee did not fully address was the question of the total balance sheet.
The problem is that its difficult enough to talk just about discounting without bringing in all the unknowns of the other elements of the balance sheet. There are a aweful lot of arguements against stating the assets at present values. As a practical matter, many don't like it because of the uncertainty it induces.

One precedent you might focus on when you thinking about asset liabiltiy matching, is Financial Accounting Standards Board I'm sure some of you know this by heart. FASB 76 is on the extinguishment on debt, which was hot topic about a year and a half ago. Companies would buy back their debt or put aside funds to retire it and be able to take a gain on the retirement because the new interest rates were lower than the interest rates of the debt that were retiring. Belatedly, the FASB passed FASB 76 that says "that a company retiring its debt can recognized a gain only when it has a fund set aside that precisely matches the maturity of that debt." Thus if a company has 50 million of debt outstanding at 17% interest rates and it knows it can replace it today at 12%, it can't just say its going to commit to pay that off in the future and thus recognize a gain. The company actually must set up a irrevocable trust and put assets in there that are matched in payment patterns to the retirement of those bonds only when thats done can the company recognize a gain.

Where is discounting going to go, I think its really up to you and the industry where it goes. Thank you.

Fred Kist: The regulatory position on discounting is not uniform and various states permit or required discounting. This typically falls under the catagory of tabular workers' compensation reserves, or medical malpractice. California has taken the position that discounting is prohibited for all lines business. In conjuction with this position it required, as reported in the Wall Street Journal last November, that American Express makes a substantial capital infusion to Firemens Fund.

Here with us today is Commissioner Bunner to discuss a regulatory viewpoint of discounting and asset/liability matching. Specifically, discussing California position on discounting, and current activity by the NAIC in this area.

Commissioner Bunner was elected to office in 1982, prior to sucessfully running for office he was partner with Pete, Marwick & Mitchell. Commissioner Bunner is active in all major NAIC committee's and is currently Acting Chairman of the EX4 Committee and Chairman of the blanks sub committee.

Fred Kist: The regulatory position on discounting is not uniform and various states permit or require discounting. This typically falls under the category of tabular workers' compensation reserves or medical malpractice. California has taken the position that discounting is prohibited for all lines of business. In conjunction with this position it required, as reported in the Wall Street Journal last November, that American Express makes a substantial capital infusion to Firemens Fund to reverse a portfolio transfer.

Bruce Bunner: Let me just add, in contrast to Bob these views are solely mine and nobody elses and I'll volunteer them for what ever they're worth. This is a topic that I'm greatly interested in, and I think certainly the NAIC.

I guess that I'll start off by saying the if you're purist in accounting theory or actuarial science or economic type principles, I frankly don't see how you can argue against the concept of reserve discounting or the recognition of time value of money and in the connection with our financial statement reporting. I guess that the real question is why don't we do it. I think probably reason we don't do it is because those of you that are independent professional actuaries, because your clients don't want to do and those of who are tied with a company, you management won't let you do it for various reasons and probably wish fully management feels that we shouldn't think such heretical thoughts. And every time I get on to this subject I'm kind of reminded of you know that great classic the Odessy, you recall that delima of that Greek Herial Hedesha was having his journeys and one of his travels had taken to the twin hazards of ----, and if you recall in that situation we had some kind of a whirlpools, and some sort of monster reached out and grab and devioured you, and all his smartness to get to where he was trying to get to he realized that it was a trade off and just traded some of his men for the monster and that allowed him to surf and get on through. In other words some trade off was exacted and in order for him to fulfill his objective. I think insure management is sort of faced with the same kind of similar deadly trade off if you will. So fortunately or unfortunately depending on you persective I would probably say that the insure management doesn't have any intestinal fortitude of an Indesious if you will, which in this case is trying to deal with economic rally with whats going on today in the accounting and reporting environment. Then so if you kinda get into these discussions, what other kind of arguement or problems that were facing with. Well one that you're face with is, I talked to management and they don't want to create the appearance of compasity, its a great topic today, the crunch that we're in and the potential compacity crisis that we're faced with. To some people, I think that this is some sort of myth and -----. I think more importantly probably the other bigger issues all the over writting tax implications. So I have great difficulty of being the Chairman of the NAIC Tax Force and Property Casualty Taxation when they asked me to testify before Congress on some of these tax issues, and I said well, pretty difficult when you talk out both side of our mouth. And I think regulators are having problems too. I think we're quite often bound up by tradition and an arguement that I quite often make with some of my examiners and other people eternally is, sometimes we get up our underware so when the mechanical issues are put in the annual statement worring about what line and which call makes things go into and you kinda over look what in the world is really going on in terms of economic reality.

In some ways we're probably intellectually dishonest but I realize that thats a too harsh a term for all of us professionals in this room and the point is I guess we have a number of

biases. I think probably the real answer on this particular issue is that we're really not ready for this at this time in the conventional accounting environment that we're in.

Let me give you a little background on where the NAIC's is come from and what I think perhaps we might be trying to go or atleast where I think we should go and give you some insight where I think Calif. is going whether the NAIC goes that way or not.

The discounting issue is not a new issue its been around for along time, but I think very recently the Illinois department in connection with their involvement on these tax forces and the financial conditions cart committee. ---- took the lead in revisiting this whole issue very recently surrounding this whole discounting concept of reserves. You know working for..., task forces were put together made up of industry people actuaries accountants and the lank and they kinda completed their work last year and made a report to the NAIC EX4 Committee and basically they're charge were somewhat along these lines. What interest assumptions should be developed, what lines of insurance should be permitted to have discounting, what annual statement changes were required to disclose and to accommadate the accounting for discounting and any other actions that they deemed necessary.

While in the course of all this study the findings were generally along these lines. First of all they found out that there's a merely of practices going on among the various 50 states. To some degree, I think its mentioned here earlier, some states are allowing discounting and malpractice reserves, allowing discounters respected tabular reserves and workers comp., there are some strict proabitions, in other cases there is more leniency. They said that if there was discounting, it should --- against the reserves. They objected to any kind of explicit type of recognition, particulary as an asset, as it ---- destorted the Irish task and distorted some other figures that are used in kinda of investment type of limitations and what have you. Otherwise whats your big objective, I feel very strong about is the explicit recognition and if we have a problem with ratios we just adjust the ratios, I don't know whats so difficult about that. Any way that was their thrust.

Schedule P was another major area and any kind of distortion in that development and that process. They said it should be grossed however if you are using tabular reserves that was fine.

Structured settlements, I guess we started this a little to earlier it was not considered an issue primarily because I think this..., they felt the risk would be a transfer of the life companies, I guess one thing I always have a problem with or never understand why P&C companies can't have structured settlements and have a nuety accounting and closed the transaction to involve them, but someday we'll probably reach that point too.

Walls Portfolio Contract was voided, they recommend that each state make their own decision on this issue and I suspect thats why we've won it all over the lot, til we found certain states like Calf. and New York have taken different stands if you will with respect to this issue. I think that is the one thats drying up, but the concept isn't drying up and I'm sure it will surfuse in some other form or fashion. I might add we have a vote and its going to probably go out in another week or two. I have discussed with primary of the reinsurers and life and casualty side and which will give some guidelines what constitutes transfer risk and what constitutes reasonable and benefication, some of those kinds of issues. I guess, sort of anticipated what maybe the AICPA will do.

They've avoided any kind of suggestions or guidelines with respect to the termination of potenence of discount rates. So in summary when they finally ended up after all of this

in length of the paper they finally said they really believe that we should discourage discounting and that it would be unwise to the NAIC to promote the whole concept. So what do the NAIC do? Well they excepted the paper and basically it took no action and we kinda shifted the decision to each one of the individual states, so we left that whole issue up to them. I was really kinda greived with that and I feel that the NAIC was very much remissed in not taking a very strong and firm stand. I'm a strong believer that what we really should be doing to the NAIC is we ought to be tacting these issues head on coming up with atleast preliminary positions and coming up with answers and all these kinds of accounting issues whether they be discounting or other wise. We should articulate the preferable accounting treatment and disclosure in the annual statement. And obviously each state would have a perogative to deviate if they so wish. But atleast they would have a preferable position that we all should be stricking for and have some sort of ---- across the country. If states want to deviate them thats fine. I guess in now regards just to as a side point I did set up this year the merging issues task force within the accounting procedures committee in order to deal with some of things as they crop up and jar a little to and remember those things that deal with this ---- .

Basically the issue is still basically alive became part of the EX4 agenda, which I am acting Chairman of for 85, and about 3 months ago I just finally said forget it dropit its not worth spending more time on this things. We aren't going to reconsider the discounting issue til some other concepts are better developed and crystalized.

So whats happening in California? Basically discounting is not permissable, and we've taken a strong stand and we've been very adament about any kinds of transactions. However, I think I should add to that, I've been willing to at least open the issue and to certain circumstances and certain conditions. I think that some of this might lead in the direction where John was referring to maybe AICPA may or may not be going. To give you some example; the California Department proposed legislation which have cleared the legislature is now sitting on the governors desk for signature with respect to the municipal bond legislation. I think not so much to the importance of the missile bond the legislation expect the financial guarantees, I think this might give you some indication of the kind of things that we should be thinking about. In that legislation, we clearly dealt with how reserves are going to be determined. Basically mandated that any kind of faults that we have that these guarantees are covering, that we in fact make set the loss reserves up at a discounting value. In using what ever the effective yields are today as opposed to some sort of mandatory minimum type of yields.

Going with that is, in the event, if you are going to set up a discounted amount than we're also requiring that you clearly identify those assets that are going --- relationship to the maturity of those loss obligations that are in default that you're guaranteeing and the effect were ending up with a matching of assets and liabilities in that whole process. We might call it insubstance type deficiencies within the statutory environments.

To give you some other indication of what happened early on, about a year and a half ago, one of our carrier with respect to the pension life reserves wanted to discount those reserves. We don't even allow discounting based on the tabulary reserves. Basically I said to them, I wasn't really opposed to that again, we followed these same kinds of concepts, I said go on back and draft some legislation and I'll tell you what I'll support it or not. They infact did that, I actually had to rewrite that inorder to get the kind of points in that I wanted to get into it. It sort of came back with the same concept, that you could in fact discount the pension life reserve, you could use something more than some minimum statutory type rate, but if you did do that we're going to end up with some form of defeasism type concept and then you do it. Well any way I said, "I will

support that legislature if the industry would support it. Well we went to the industry committee and the various trade group in Calif. and they got shot down in the first meeting so it never got out of the trade group meeting, in order to get to any other kind of committee in the legislature. But the point was, I said was, "well I would support that if that was what you wanted to do. So again it kind of comes back to the industry, really doesn't want to do this. Loss portfolio are the same thing, as Fred mentioned, Firemens fund, I don't really want to pick on them but American Express did get a lot of publicity. Basically we came back on the assuming company and said hey again we want to follow FAVS60 certainly if that is more conservative than the statutory environment, it doesn't make sense if we create these games of statutory environment if we can't do them in the gap environment. And so I say for the assuming companies, if we clearly had a financing type transaction we'll lay those guidelines down. In fact you could just follow the FAVS60 type concepts but again you had to set those assets aside, so the fees, the maturity of those strutured payouts and those loss portfolios transfers. But again our policy is on the seating side no release of the reserves.

Perhaps you could kind of gain from what I've said so far, that I'm not necessary against discounting, but I don't really think its going to be resolved or can be resolved in regulatory environment with out a more in debt study of this whole concept of asset and liability matching. I think that thats where we need to go, and that kind of picks up where some of the areas that Bob was talking about.

Again I might add that we're not going to make much progress in this area until the QRA and the GAO type issues are resolved on the tax side. If those kinds of things do involve..., do become reality and there is sore pressure for discounting, I guess I would take a position that if you want to have this, or if you want to deal with the total balance sheet. Then I could get excited about some of this discounting thats going on. My prediction is QRA probably is dead, the statutory accounting will continue to be in a inastrictably linked of federal tax type thing, so I don't think that we're really going to go anywhere. So really what should we really do? I believe that with the NAIC and the Actuaries Accounts and an all of a sudden interest in this subject should be going..., is really some form supplemental reporting or a separate annual statement type exhibit. There is a number of issues to be considered that are obviously not within the scope of this discussion, but clearly one of the paramount objectives is to..., is the matching of assets and liabilities and principally the loss reserves. I guess maybe the simplicity terms I would come back and say I would like to us start focusing on losses and in a sense kind of quantifying and grouping them by a degree of exposure and risk. In an essense we will be getting to certain precisions type actubutes as to I think somewhere in this discussion in your agenda some where today they talk about confidence type levels. Thats the kind of thing I think we need to be doing and then also projecting the payout patterns that would associated with each of these kinds of groups. And then once you could do that, than I think we'd come back to this whole concept of how do you match the assets to those particular groupings.

In that environment I would allow discounting for those amounts for fixing eternal and and kind of reasonable payout patterns, and I think than you could back look at assets and how they relating and mature the relationship to those payout patterns. The remaining assets, and I've been inclined to come back and say that they should be restated to market as we deal with those kinds of grouping of loss reserves that are high degree of -- - if you will with the estimation process the precision level is very low. Obviously all of this will be done, inter-related to some other quality to test of surplus and all of which isn't really within the scope of this discussion today. So I think really the point is I tend to advocate the supplemental type reporting because it doesn't really do damage to the current accounting frame work that we have, and we don't end up with a kind of piece

meal approach saying this reserve can be discounted and this one can't be. Then we end up with those kinds of things and I think that you sort of goes against the grain of...., I think you as actuaries as well as some of us as accountants.

Once again this subject is timely, this is a concept that needs to be considered, and Calf. has a great interest in it. Again I think that we're moving to the supplemental type..., reporting type concept and I'd like to bring that kind of influence and pressure under the NAIC and I think that there's any message that I could perhaps leave you with , I would urge you to move more expediously. I think we're going to do some things maybe even this year, if I could ever get home long enough to work on some of this. To have some preliminary type accounting and reporting in this current years filing. Very well, I think that you have a lot of work to do, in one sense you need to clean up your act as actuaries and I might add that in fall I wanted to..., some of the comments here this morning, we are trying to form legislation here now which will give power to my office if you will to inmandade or require information intested to by accountants and actuaries and together with that some form disceplinary type mechanism not maybe, somewhat similar to what the SEC hasn't and 2E type proceeding, I don't think we don't have that, I really don't feel that these kinds of certifications are (I don't want to say that they're not worth for the paper that they're written on) but I think that it has to be a clear understanding to what extent regulators are relying upon your work and if there is going to be a professional failure, then we have to have some sort of mechanism to come back. I think the trend is the industry is growing much faster then the budget is allowing the regulatory environment. So I think its a great opportunity as we go forward. I guess I'd leave you with move expeditiously as possible if you don't I think you might find people like me laying things on you that you may not like.

Moderator: We're opening up the panel for questions now, please use the microphone in the center of the room.

Let me ask Commissioner Bunner to comment on the relationship of the pricing and the reserving mechanisms. Many states require that investment income to be explicitly recognized on the rate making side, but at the same time companies are not permitted to discount reserves for those lines of business. On a statutory basis we're seeing higher lost ratios than would have actually been appropriated if we were to use the rate making assumptins in establishing reserves.

Commissioner: Well I'm not sure I have a good answer for you, I think that in some ways we're really kinda in the dark ages, but then again you have to keep in mind that the whole statutory frame work is really built around a great degree of conservatism and looking through the eyes as if..., in terms of liquidity and solvency and what have you.

I think that there's just so many issues that need to be considered that this isn't really an issue in Calf. because were in an open rating state and we don't really get into these kinds of (I don't mean that we don't get into them but) were not really interacting with a companies and prohibiting you from doing these kinds of things, but there are so many other things to me we dealt with, you know premiums and deficiences, we could do our deferred taxes, we could our undeclared dividends, how about continuous reserves and earth quake type coverages that we're writing on all that exposure we have we're not building up on, all the balance sheet types of commitments that are going on today particular in financial guarantee area and you know this just seem to be a minor type consideration in relation to all the things that we really need to do and we need to really emerge out these dark ages quickly and sort of really get with it and build the statutory

model that really makes some since. So I guess thats not really a good answer to your

question, I guess in relationship to all the things that need to be done, this is really part of the agenda.

Question: I'd like to phrase a question to Bob Sturgis. How is the concept of the valuation actuary is the PC industry different or broader than the current position of the actuary who signs the statement of opinion for a property/casualty companies.

Bob Sturgis: Well its broader in 3 or 4 different ways. First of all its very clear, keep in mind that there is no separate set of details for property casualty companies but merely reference to the SOA document. First of all it makes it very clear that consideration of cash flows on both policy and investment should be taken in to consideration in assessing the adequatecy of reserves.

Secondly it makes it very clear that the margin for adverse diviation be taken into account. A reasonable deviations and the interesting concept..., atleast very interesting to me because its stated and not discussed in any length is this concept of plausible deviation. From reading between the lines of the society of actuaries report its pretty clear that they're thinking in terms of a company with a large surplus where that surplus exceeds what would be necessary to cover liablities as well as these plausible fluctuations and that that portion of the surplus be earmarked eternally and called to the attention of the board, you've got one hundred million dollars of surplus and 50 of it is probably necessary.

It really doesn't deal with the opposite situation where you have 5 million dollars of surplus and 50 is necessary so you're statutorally solvent but you're really not sound financially. Those are the key differences..., those considerations of the cash flow of the asset base to cover them are the key things that are pretty clearly not included in todays statement of opinion.

Jay Cushmen: I'd like to ask Commissioner Bunner 2 questions. Would you elaborate please on your earlier comments that alot of the talk about capacity of a lack of capacity is sort of a myth than a straw man; secondly would you spectulate whether the Calif. Depts. position on discounting has had any impact on willingness of companies to stay in the state of Calf. or to move away.

Commissioner: Well the reason that I say its a myth is some very real things has happened I think that the industry hasn't been faced with and I think that probably the most significant one is really been the whats happening to the reinsurance market. Its a very clearly..., that unavailablity has had a really ownerist type of affect I think that a primary companies. The reason I kind of a lude to it being a little bit of a myth, I think capacity is sort of a state of the mind. If profits are there, theres not going to be any problem with capital formation we've already seen a great deal of funds come in to the capitol base of companies and this recent year or so. But I sort of come back again and say if we feel that we've got problems today we should have screaming 5 or 6 years ago, so I kind of feel that the markets have improved significantly and these kinds of things that aren't being recoginized on the financial statements today. In real terms, I'm not sure we any more solvent today then we were back in 1979 lets say.

And so thats..., you know, its kind of a shoe in the hip type statement, but I think that to some degree that would be born out if you did a real study on it.

I'm not so sure theres any real exodus in Calf. because first of all we happen to be the biggest insurance market on the world. We really never had a great many domestics any way in terms of numbers. To a large degree most of what happens in Calf. is dominated

by Eastern type companies. Obviously we have our share in real fine companies, but to a large degree you'll find that there are even indirectly or directly controled by Eastern type interest or interest outside the state. So I don't really think that thats a factor one way or the other. Frankly I think most people would prefer to have a strong standards in good regulation or good type approaches in all these areas that we're talking about. If we really welcome it if was something done across the border. I think its these inconsistences that we see across the country and the problems that I have are the solvencies for the most part are caused by companies and states that really are somewhat weaker in regulation. Not as agressively pressed as they should be in terms of moving against companies so I've always been --- not too excited about no guarantee type funds. I feel its kind of a thing that we fall back on as regulators and I've been more of a stronger component that when you do a better job in this area financial analysis and so we move more quickly and we deal with the quality of surplus and I guess some comment was made here, when we technically are solvent under the code but we're really insolvent if you look at this thing the way it should at. So I'd rather go for the ladder and better identify companies that are in hazardous conditions to move against before we have a technical insolvency.

Peter Norris: This is for John Baily. You stated that the theory of discounting that you have to take into account the forecast of future payment patterns as well as future yields. However, in asset liability matching, theorytically if you're matched yields aren't unimportant. You'd be immune to any changes in the movement of yields.

John Baily: I think you're right. You have to remember the AICPA was done with out explicitly looking at asset liability matching. Remember now that the AICPA paper does talk about overall portfolio rate expected to be aimed were the period the claims are unpaid.

The problem that I would throw back to you is, I know of very few companies at this point that have done a whole lot asset liability.

Question: For Commissioner Bunner, unlike most insurance companies the discounting issue is very critical to the doctrine of medical liability insurance companies which were forced into creation approximately 8 years ago. Primarily because most of them are single line companies and you have to contend with the long tail problem, we have to contend with rate increases which have probably doubled premiums for most companies over the last 3 years. Reserve adjustment have been significant. Ratios are very poor, what is Calf. doing with the doctrine on companies relative to the issue of discounting.

Commissioner: Well I think when this crisis transpired back in the mid 70's, we moved very quickly to a claims-made policy. have not had the kinds of problems in terms of even pricing in spite of all the complaints any where as near as the consequenses that states like New York and Florida have been suffering. We don't allow discounting, infact I.., I guess my actuary is here and can probably even speak better than I can see monitors that whole process very closely and we have annuals, we file the requirements or we can stay on top of it.

So in one sense California doesn't have a malpractice type problem and its working very well.

Along as we talk about claims-made, the big problem I have with claims made is to some degreee there's sort of a postponedment of reality and we get the shifting of premiums and losses and I really wonder..., thats why I talk about some of the off balance sheet type commitments whether something shouldn't be factored in for ---- coverage type

thing.

Lisa Chanzit: I have a question for John Baily. You were talking about the 14 out of the top 22 companies that are discounting their loss reserves according to the SEC disclosures. Did you take a look at the disclosures with respect to structured settlements and loss portfolio transfers as well.

John Baily: Thats a good question. The way the disclosure requirements were stated it is very difficult, to quantify the number of structured settlements. I gotta tell you, but I can tell you, I only remember one company even mentioning structured settlements. As far as portfolio transfers, I must admit that I was surprised, but I only remember about 3 companies even talking about portfolio transfers. I don't know what the cause of this. When you're talking the top 22 companies they may have had no need to go into portfolios or they may have said that that weren't material and did not need to be disclosed. I can't anwer that one, but it did not pop out. I can tell you that in almost every registration statement with the SEC over the past year, the first standard question is have there been any portfolio transfers. That says to me that the SEC is inconvenience that everybody is disclosing portfolio transfers.

Moderator: If there is no more questions, I'll bring the panel to a close. I'd like to ask you to complete the evaluation forms for the session some time over the next day or so. I'd like to ask you to join me in a well deserved round of applause for our panel members.

1985 CASUALTY LOSS RESERVE SEMINAR

2C/4F DISCOUNTING CLAIMS OF INSURANCE ENTERPRISES

Prepared by

Insurance Companies Committee

Auditing Standards Committee

Auditing Standards Division

American Institute of Certified Public Accountants

John Baily

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Introduction

1. The AICPA Insurance Companies Committee is in the process of revising the AICPA industry guide, Audits of Fire and Casualty Insurance Companies ("audit guide"). As a part of the revision process, the committee identified several accounting issues that were not discussed in the audit guide or where existing practice varies. All but two of the issues were resolved in Statement of Position (SOP) 78-6, Accounting for Property and Liability Insurance Companies. The two issues not resolved were (a) whether claims should be discounted (presented at present value) and (b) whether expected investment income (time value of money) should be considered in the computation of premium deficiences. The SOP stated that because of the importance of those issues, they would be addressed separately. Financial Accounting Standards Board Statement No. 60, Accounting and Reporting by Insurance Enterprises, likewise, did not address these issues. As the discounting issue applies to all types of insurance enterprises, it is addressed in this paper from an overall standpoint. A separate issues paper addresses the issue of the computation of premium deficiencies.

2. The interests of policyholders and the public in the financial integrity of insurance enterprises makes it important that their solvency be continually demonstrated to regulatory authorities. Consideration of those interests, together with the

uncertainties inherent in the future, has resulted in the conservative accounting practices prescribed or permitted by insurance regulatory authorities ("statutory accounting practices"). Federal income taxation of insurance enterprises is also based primarily on statutory accounting practices. The use of generally accepted accounting principles as discussed in this issues paper should not be construed as an indication that these accounting principles should also be used in reporting to regulatory or taxing authorities.

Definitions

3. The following definitions are used in this issues paper:

CLAIM (loss) - A demand for payment of a policy benefit because of the occurrence of an insured event such as death, injury, destruction or damage. This paper discusses the following categories of claims:

- Fixed or Reasonably Determinable on an Individual Basis - Claims on which the insurance company and the claimant have agreed on the amount to be paid, the frequency of the payments, and the period over which the payments are to be made.

- Fixed or Reasonably Determinable on a Group Basis - Claims that are not fixed or reasonably determinable on an individual basis but which in the aggregate can be reasonably determined as to ultimate cost and payment

pattern. Payments can be subject to future escalation, mortality or morbidity if the pattern for such adjustments is reasonably determinable.

- Incurred - Claims from insured events that have occurred as of the date of the financial statements.

- Reported - Claims from insured events that have occurred and that have been reported to the insurance enterprise.

- Incurred But Not Reported ("IBNR") - Claims from insured events that have occurred but have not yet been reported to the insurance enterprise as of the date of the financial statements.

- Long-Term - Claims that generally remain unpaid for more than one year.

CLAIM ADJUSTMENT EXPENSES (Loss Adjustment Expenses) - Expenses incurred or to be incurred in the course of investigating and settling claims. Claim adjustment expenses include any legal and adjusters' fees, and the costs of paying claims and all related expenses.

DISCOUNTING - Recording future claim payments and expenses at their present value.

EXPECTED INVESTMENT INCOME - Investment income expected to be earned on the cash flow generated from the collection of

premiums, net of acquisition costs, in advance of the payment of claims and claim adjustment expenses.

LIABILITY FOR CLAIM ADJUSTMENT EXPENSES (Loss Expense Reserves) - The amount needed to provide for the estimated ultimate cost to investigate and settle claims relating to insured events that have occurred on or before a particular date (ordinarily, the balance sheet date), whether or not reported to the insurer at that date.

LIABILITY FOR UNPAID CLAIMS (Loss Reserves) - The amount needed to provide for the estimated ultimate cost of claims relating to insured events that have occurred on or before a particular date (ordinarily, the balance sheet date). The estimated liability includes the amount of money that will be required for future payments on both (a) claims that have been reported to the insurer and (b) claims relating to insured events that have occurred but have not been reported to the insurer as of the date the liability is estimated.

NEW MONEY RATE - A rate at which funds can currently be invested.

PREMIUM DEFICIENCY ON SHORT-DURATION CONTRACTS - The amount by which anticipated claims, claim adjustment expenses, policyholder dividends, unamortized acquisition costs and maintenance expenses exceed related income.

PRESENT VALUE - Discounted net future payments at an assumed interest rate.

PORTFOLIO RATE - Average investment yield on total invested assets. The investment yield is the ratio of interest, dividend, and rent income, net of investment expenses to the carrying amount of invested assets.

SIGNIFICANT CLAIM VARIABILITY - Total claim payments that vary significantly from prior estimates of amounts or payment patterns.

STATUTORY ACCOUNTING PRACTICES - Accounting practices prescribed or permitted by insurance regulatory authorities.

ULTIMATE COST - Estimated total net payments (total payments less reinsurance and other recoverables) to be made in paying claims.

UNDERWRITING - The assumption of risk in consideration of receiving a premium.

Scope

4. The advisory conclusions in this issue paper apply to incurred claims of all property and liability, health, life (except mutual life enterprises, assessment enterprises, or fraternal benefit societies), title, and mortgage guaranty insurance enterprises, in financial statements that are intended to present

financial position, results of operations and changes in financial position in conformity with generally accepted accounting principles.

ISSUE NO. 1 - DISCOUNTING CLAIMS

Statement of the Issue

Should insurance enterprises present incurred claims (and claim adjustment expenses) at the present value of anticipated net cash payments?

Discussion

5. Incurred claims (and claim adjustment expenses) can be divided into two types of payment patterns, namely, short-term and long-term. Short-term claims are generally paid in a relatively short period of time, from just a few weeks up to approximately one year. Most life, property (for example, automobile physical damage), health and mortgage guaranty claims are in this category. Long-term claims normally take in excess of one year before they are completely paid. Long-term claims include disability claims and third-party liability claims, such as workers' compensation, product liability, automobile liability, medical malpractice, and general liability claims.

6. Life insurance enterprises generally present long-term claims (primarily long-term health claims) on a discounted basis, while other insurance enterprises generally present incurred claims at estimated ultimate cost. Life insurance, and many forms of health insurance, have historically been viewed as long

duration contracts, as defined by FASB 60, and the time value of money is recognized in determining liabilities for future policy benefits. The liability for future policy benefits is the most significant liability on the balance sheets of most life insurance enterprises. For life insurance enterprises, it was a logical extension of this view to also discount claims. On the other hand, property and liability insurance contracts have historically been viewed as short duration contracts that generally do not require the recognition of the time value of money. Over the years, investment income has not been as significant to property and liability enterprises as it has been to life insurance enterprises because the property and liability premium has historically been designed to cover all claims and expenses. However, as investment yields increased, some property and liability insurers have become more willing to accept underwriting losses in order to generate investable funds; accordingly, investment income has become a more significant part of their operations. Finally, as litigation over claim settlements became more protracted and certain settled claims were being paid over a period of years, the appropriateness of continuing to present property and liability claims at ultimate cost needs to be reexamined.

7. At present, generally accepted accounting principles for insurance enterprises do not address the issue of presenting

claims at the present value of anticipated future cash payments. With the exception of long-term disability claims arising under workers' compensation and accident and health policies, property and liability insurance enterprises generally present claims at their ultimate cost, even though a substantial number and amount of claims are not paid within one year.

8. For the property and liability insurance industry as a whole, it is estimated that over 50 percent of the amount of claims are not paid within one year of the date the claim is incurred. For certain lines of insurance such as automobile liability, product liability, medical malpractice, and general liability, the amount of claims paid more than one year after the incurred date generally ranges from 70 percent to 85 percent of total claims incurred. Some claims are paid periodically over a number of years ranging up to 20 or 30 years, such as lifetime workers' compensation claims. Other claims may be settled with only one payment, but that payment may not be made until 10 or 20 years after the incurred date of the claim. Accordingly, the issue of whether long-term claims should be presented at present value is extremely significant to the financial reporting practices of property and liability insurance companies.

9. As previously indicated, long-term health claims are generally discounted by life insurance enterprises, and any change in practice (that is, presenting those claims at ultimate

cost) would have a substantial effect on those enterprises with a significant amount of long-term health claims.

10. Insurance accounting makes extensive use of estimates in determining the cost of services rendered. In estimating the ultimate cost of services rendered, insurance enterprises rely on historical data to analyze and project current costs. These estimates result in substantial provisions for unpaid claims and claim adjustment expenses, which are usually monitored closely and adjusted periodically as more current information becomes available. The adjustment of prior years' estimates may have a significant effect on current operating results or financial position.

11. The problem of accurately estimating ultimate cost is further compounded by the relatively long operating cycle of most insurance enterprises. The operating cycle consists of collecting premiums, paying operating expenses, investing premium cash flow and paying claims.

12. In estimating the ultimate cost of some long-term claims, anticipated price changes must be considered. This, of course, increases the difficulty of accurately estimating the ultimate cost. For example, some states now require continuing workers' compensation disability claims to be adjusted annually for increases in the cost of living. These adjustments significantly

affect ultimate cost since the monthly payments may increase two or three times over the original amount during a 15 or 20 year period.

Present Practices

13. Claims are recognized as they are incurred, that is, as of the accident date or date of first medical service for sickness claims. Costs are estimated for both reported claims and incurred but not reported claims. Property and liability insurance enterprises generally record claims at the estimate of ultimate cost, including the effects of anticipated price changes and other factors that may affect the ultimate cost. Life insurance enterprises generally record short-term health claims at estimated ultimate cost and long-term health claims at present value of anticipated net cash payments.

14. It is difficult to determine the extent to which property and liability claims are presently discounted. Prior to SOP 78-6, there was no requirement to disclose such information. However, in an April 1978 publication of property and liability claim reserving practices, Ernst & Whinney surveyed 46 companies and found that 24 were not discounting any claims and 22 were discounting some claims, principally lifetime workers' compensation claims. The survey generally included the larger property and liability companies. While not included in the survey, it is also believed that several smaller specialty companies discount medical malpractice claims.

15. Statutory accounting practices generally permit discounting lifetime workers' compensation claims and accident and health long-term disability claims using interest assumptions generally not exceeding 4 percent. In some states, it is also acceptable to discount medical malpractice claims.

Pros and Cons of Discounting

16. Pro - The insurance business consists of two major functions, underwriting and investing, and these functions are inextricable. Although the property and liability insurance industry has historically reported underwriting and investment operations separately, the industry has come to depend on investment income to offset underwriting losses. In 1981, the property and liability insurance industry had an underwriting loss of approximately $6 billion which was more than offset by investment income of approximately $13 billion. In 1982, the underwriting loss was even greater. The life insurance industry has long recognized that underwriting and investing are inextricably linked and does not separately identify underwriting and investment results. Most observers recognize that insurance enterprises cannot depend solely on premium revenues to cover claim costs and other expenses. Therefore, proponents of discounting believe property and liability insurance enterprises should not continue to account for investment income, a significant element of revenue, as if it were just "additional income" and premiums as if

they were expected to cover all operating expenses. Accounting for underwriting and investment activities separately blurs the fact that most lines of insurance are actually profitable after considering the time value of money. The recognition of the time value of money (by discounting long-term claims) results in financial statements that are more in accord with economics of the business.

17. Con - Underwriting and investment activities of property and liability insurance enterprises involve separate and distinct risks and rewards over differing periods of time, and the accounting for such activities should not necessarily require a symmetry which does not recognize these differences and cycles. Opponents of discounting believe that financial statement users presently may consider the distinction between underwriting and investment results to be important in evaluating the quality of both earnings and management in that repeated periods of underwriting losses are regarded by some as indicative of deteriorating or adverse financial circumstances. Discounting would blur the ability of financial statement users to assess these factors. However, because the investment function is one of several services provided by life insurance enterprises, and no single service can be considered dominant, life insurance accounting practices have not attempted to separately identify underwriting and investment results.

18. Pro - It is inconsistent to recognize as an expense today the anticipated effects of future price changes on existing unpaid claims, but not recognize at the same time the offsetting effect of the time value of money. To record claims at ultimate cost produces an improper measurement of the cost of services being provided. This point is illustrated by a lifetime workers' compensation claim that is subject to future escalation based on the consumer price index or other price change indicator. Assuming a price change factor of just 5 percent, the total cost of a 25-year claim subject to escalation would be more than three times as great as a claim not subject to escalation. By discounting the claim, the adjustment for the time value of money would substantially offset the anticipated escalation in benefits. Many believe there is a definite relationship between interest rates and monetary inflation and that actual interest rates reflect the true cost of money plus the perceived inflation rate. Most observers also believe that it is far more difficult to estimate future price changes than it is to estimate future investment income when the funds are already invested.

19. Con - Estimates of future price changes may be inherently more difficult than estimates of other claim cost elements and are subject to numerous unpredictables (such as social inflation in jury awards) frequently leading to subsequent changes in claim estimates. Provisions for future price changes may not be explicit

in the claims reserving process, and may in fact already reflect some implicit recognition of the time value of money. Therefore, presenting claims at estimated ultimate cost rather than at present value may be regarded as a provision for adverse deviation in the estimate of future price changes and other claim cost elements.

20. Pro - Claim liabilities represent an obligation to pay money at a future date and, therefore, it is appropriate to recognize the time value of money by presenting claims at their present value. It is inconsistent for insurance enterprises to record their largest asset (bonds) at amortized cost, which represents the present value of future cash receipts as of the date of purchase, and record their largest liability (unpaid claims) at their estimated ultimate cost when a significant portion of the claims may not be paid until after the bonds mature. Discounting long-term claims is not a piecemeal approach to current value accounting, but rather an attempt to value both assets (at the date purchased) and liabilities (at the date incurred) at present values. Life insurers recognize the inconsistency and present long-term claims at present value.

21. Con - Unlike bonds, claims are not fixed as to maturity, and, accordingly, symmetry in asset and liability valuation is not necessarily appropriate or necessary. Determining the present value of claims may require (among other uncertainties)

imprecise estimates as to the amount of invested funds attributable to policies against which claims have been incurred. Since investment portfolios of insurance enterprises generally are not matched to specific liability maturities and may frequently include substantial amounts of securities (such as common stocks) which are not fixed as to income or maturity, discounting would require the development of measurement techniques which would not enhance a claim reserving process already involving substantial other uncertainties and imprecisions.

22. Pro - It is appropriate to discount claims even though they are estimates rather than fixed liabilities. Although liabilities for incurred claims are generally the most significant and sensitive estimates in the financial statements, the estimated claim payment pattern (either on a group or individual claim basis) is usually more accurate than the estimates of the ultimate cost. The claim payment pattern is the amount of an individual or group of claims that is paid in the accident year, the year following the accident, the second year following the accident, and so on. Discounting claims should not imply a greater degree of precision than ultimate cost estimates because all elements (current cost, anticipated prices changes, discount rate, and payment pattern) are estimates. Although property and liability and life insurance enterprises both use estimates extensively in recording liabilities, generally life insurers

discount their long-term claims and property and liability insurers do not. There is no justification for continuing this difference. At least one other estimated cost, pension cost, is presently discounted in accordance with generally accepted accounting principles.

23. Con - Adding additional uncertainties, imprecision, or estimates to the claims reserving process (even if it is agreed that such factors may be more estimable than other claim cost elements) does not necessarily enhance the accuracy of the aggregate estimate, particularly if other claim cost elements are not within the insurer's control or subject to a high degree of predictability. Discounting implies a greater precision to the estimates which could be unfounded or potentially misleading.

Types of Claims That Might Be Discounted

24. There are three primary viewpoints on the types of claims that might be discounted:

a. Claims for which the payment pattern and ultimate cost are fixed or reasonably determinable on an individual basis. Other claims would be presented at ultimate cost.

b. Claims for which the payment pattern and ultimate cost are fixed or reasonably determinable on either an individual or group basis. Other claims would be presented at ultimate cost.

c. Claims of life insurance enterprises would continue to be discounted and claims of property and liability enterprises would be presented as described in (a) above.

25. Most would agree that those claims for which both the amount and payment pattern are fixed should be discounted. APB Opinion No. 21 requires that "receivables and payables which represent contractual rights to receive money or contractual obligations to pay money on fixed or determinable dates" should be presented at present value.

Views Favoring Discounting Only Those Claims for Which the Payment Pattern and Ultimate Cost are Fixed or Reasonably Determinable on an Individual Basis

26. Some believe that present value concepts should be applied only to claims for which the payment pattern and ultimate cost are fixed or reasonably determinable on an individual claim basis. Those who support this view believe that only those claims meet the criterion of APB Opinion No. 21 of being "contractual obligations to pay money on fixed or determinable dates." They believe that liabilities for incurred claims that are not fixed or reasonably determinable on an individual basis are imprecise estimates of ultimate cost and discounting may imply a greater degree of precision than is warranted. Liabilities for incurred claims that are estimated on a group basis, such as claims incurred but not reported, may be subject to significantly differing degrees of claim variability.

Views Favoring Discounting Claims for Which the Payment Pattern and Ultimate Cost are Fixed or Reasonably Determinable on Either an Individual or Group Basis.

27. Some believe that present value concepts should be applied to all claims when their payment pattern and ultimate cost are fixed or reasonably determinable on either an individual or group basis. Those who support this view believe that there is no adequate theoretical basis for valuing claims estimated on an individual basis differently from those estimated on a group basis.

28. In certain situations it may be difficult to reasonably determine either the payment pattern or ultimate cost of claims due to a lack of past experience or the variability of such experience. In those situations it may still be appropriate to discount the claims. However, some believe that, depending on the extent of the potential variability of the estimated payment pattern or ultimate cost, the discount should be modified by a provision for adverse claim variability. The provision for adverse claim variability, as in the case of a new enterprise or a new product line, could range up to the difference between the estimated present value and ultimate cost of the claims. The amount of the provision for adverse claim variability would be subjective, as are other elements of the estimate of claims. It should be reviewed on an overall basis as part of the overall evaluation of the adequacy of the estimate of claims. To the

extent that either the payment pattern or ultimate cost can be reasonably determined in the future, the provision for adverse claim variability would be reduced.

Views Favoring Continuing Present Practices For Life Insurance and Property and Liability Insurance Enterprises

29. Some believe that there is a distinction between life insurance enterprises and property and liability insurance enterprises and that they do not necessarily have to account for like items in the same manner. Those who support this view believe that claims of life insurance enterprises should continue to be recorded at present value because that is the current practice and there is no compelling reason to change the practice. Likewise, claims of property and liability insurance enterprises should continue to be recorded at ultimate cost because that is the predominant GAAP and statutory practice and there is no compelling reason to change. They may also believe that the distinction between underwriting and investment results is important and should be maintained and investment income should be recorded as earned and future investment income should be regarded as a provision for adverse claim variability.

30. Some who believe that there is theoretical merit to presenting claims at present value, nevertheless believe that present practices should be continued until such time that present value or current value concepts have been developed for applica-

tion to all elements of an insurer's balance sheet, including deferred income taxes. To do otherwise, they argue, would result in (a) a piecemeal solution to the issue of time value of money for all enterprises, including insurance enterprises, (b) opportunity for added cost due to possible multiple changes in accounting and (c) possible adverse effect on the confidence of financial statement users.

31. Application of the present value concepts discussed in paragraph 27 would have a very significant effect on the financial statements of most property and liability insurance enterprises. There is currently little experience in applying present value techniques to claims for financial reporting by property and liability insurance enterprises. The adoption of present value concepts in the absence of definitive guidelines on implementation would likely lead to wide divergences in interpretation and practice, lack of comparability from company to company, and confusion among users. Because of the lack of experience or guidance, some believe that discounting might be best implemented on an experimental basis as supplementary disclosures.

Views on Accounting for Claim Adjustment Expenses

32. Most believe that claim adjustment expenses are very similar to claims and should therefore be accounted for in the same manner.

ADVISORY CONCLUSIONS

[The following advisory conclusions were approved by the Insurance Companies Committe by a vote of 9 to 3. AcSEC's preference votes on the advisory conclusions taken March 17, 1983, are shown in brackets following each paragraph.]

33. When claims and claim adjustment expenses are incurred, they should be recorded at the present value of anticipated net cash payments if their net payment pattern and ultimate cost are fixed or reasonably determinable on either an individual or group basis. The amount and timing of reinsurance and other recoverables should be considered in evaluating the reasonableness of the estimated net payment pattern and ultimate cost. In determining the reasonableness of ultimate costs and payment patterns, claims should be grouped consistent with the enterprise's manner of acquiring, servicing, and measuring the profitability of its insurance contracts. [AcSEC vote: 8 yes, 7 no]

34. Depending on the extent of the potential variability of the estimated payment pattern or ultimate cost, the discount should be modified by a provision for adverse claim variability. The provision could, as in the case of a new enterprise or a new product line, range up to the difference between the estimated present value and ultimate cost of the claims. [AcSEC vote: 2 yes, 10 no, 3 abstain]

ISSUE NO. 2 - RATE TO BE USED

Statement of the Issue

What rate should be used in determining the present value of claims and claim adjustment expenses, and should the rate be "locked in"?

Discussion

35. There are differing views on the purpose of discounting claims, which leads to differing views on the appropriate rate to be used:

- Some believe that the purpose of discounting is to present claims at their present value and the present value of claims is determined without regard to the insurance enterprise's investable assets. They believe that when claims are incurred they should be discounted at a current market rate.

- Others believe that discounting claims is a means of achieving a matching of all elements of revenue and expense, including investment income, over the related policy term. They believe that claims should be discounted at the same rate that is being earned on invested assets.

The Present Value Approach

36. APB Opinion No. 21, paragraph 9, provides the following general principle for determining present value:

> If determinable, the established exchange price (which, presumably, is the same as the price for a cash sale)...may be used to establish the present value of the note.

Paragraph 13 goes on to state:

> In any event, the rate used for valuation purposes will normally be at least equal to the rate at which the debtor can obtain financing of a similar nature from other sources at the date of the transaction. The objective is to approximate the rate which would have resulted if an independent borrower and an independent lender had negotiated a similar transaction under comparable terms and conditions with the option to pay the cash price upon purchase which bears the prevailing rate of interest to maturity.

37. Although APB Opinion No. 21 does not specifically apply to claims, some believe that claims should be discounted in a manner similiar to that in APB Opinion No. 21. However, in most circumstances the "established exchange price (which, presumably, is the same as the price for a cash sale)" would be difficult to objectively measure for claims. Further, since most insurance enterprises rarely borrow money, an incremental borrowing rate would also be difficult to determine. Therefore, as a substitute, some believe that the appropriate discount rate should be a new money rate appropriate for maturities approximating those of the claims.

The Matching Approach

38. Some believe that all items of revenue and expense should

be recognized during the policy term. At present, property and liability premium income and acquisition expenses are normally recognized on a pro rata basis over the policy term. Property and liability claims are recorded as incurred, which means that they are also recognized during the policy term. Therefore, the only item of revenue or expense that is not fully recognized during the policy term and no attempt is made to do so, is investment income. Investment income is recognized over the period the claims remain unpaid. They believe that an attempt should be made to recognize all items of revenue and expense during the policy term. This can be accomplished through discounting claims at an investment yield rate.

Present Practices

39. FASB Statement No. 60 provides the following guidance in selecting an interest rate to be used in discounting liabilities for future benefits under life insurance policies:

> Interest assumptions used in estimating the liability for future policy benefits shall be based on estimates of investment yields (net of related investment expenses) expected at the time insurance contracts are made. The interest assumption for each block of new insurance contracts (a group of insurance contracts that may be limited to contracts issued under the same plan in a particular year) shall be consistent with circumstances, such as actual yields, portfolio mix and maturities, and the enterprise's general investment experience.

40. While there is no present guidance in selecting a rate to be used in discounting property and liability claims, the

selection of a rate is a subjective judgment which must be made by the enterprise in light of its actual and anticipated experience.

41. Of those property and liability insurance enterprises that do presently discount certain claims, most use very conservative rates acceptable to regulatory authorities. These rates generally range from 2% to 4%.

Views on the Approach for Selecting a Discount Rate

42. Those who support discounting at a current market rate believe that such a rate best represents the present value of the claims. If an insurance enterprise were to pay another entity to assume the liabilities, the entity assuming the liabilities would, conceptually, demand an amount of money that it could invest (at new money rates) to yield enough to pay the claims when due and a profit. Therefore, they believe that new money rates relating to maturities approximating those of the claims best represent the exchange price described in APB Opinion No. 21.

43. Those who support the use of a current market rate believe that the use of an investment yield rate for discounting artificially equates interest expense with expected investment income. They believe that an enterprise's net investment income (investment income less interest expense) relates to investment activities and economic conditions during the time the related

funds are held and invested. It does not relate solely to the policy term. They believe it is not appropriate to use discounting to recognize in the current period future investment income. To do so could result in recognizing income before it is earned. The FASB has stated, "the anticipation of future interest on funds expected to be held temporarily has no support in present generally accepted accounting principles." (Statement No. 13, paragraph 109).

44. Those who support discounting claims using an investment yield rate believe that it will not only achieve a better matching of revenues and expenses during the policy term, but will also result in more consistent accounting practices between life insurance enterprises and property and liability insurance enterprises and between long-duration and short-duration insurance contracts. The use of a new money rate, on the other hand, will add to existing inconsistencies. Life insurance enterprises, for example, would be required to discount their liability for future claims and policy benefits using an investment yield rate while their incurred claims would be discounted using new money rates. In addition, in those situations when the new money rate exceeds the investment rate, the insurance enterprise would recognize a loss each year since the amortization of the discount (that is, the amount added to the reserves) will exceed the actual investment earnings. An additional question would then arise as to whether those future losses should be recognized currently.

Alternatives for Selection of an Investment Yield Rate

45. Various alternatives have been proposed by those who support the use of an investment yield rate. In theory, the proper rate should be the actual rate at which the premium cash flow is invested, adjusted for the compounding effects of the periodic reinvestment of investment income. As a practical matter, only a portion of the premium is actually invested since some of it is used to meet current operating expenses and pay claims attributable to current and prior years. Only the net cash is available for investment at new money rates. In fact, during recent years, some companies suffered a negative cash flow from current underwriting operations. Typically, however, the cash flow is positive, and much of the premiums that is used to pay claims is invested at new money rates.

46. Among those who support the use of an investment rate, there are several views on the appropriate rate:

- A rate equal to that prescribed or permitted by regulatory authorities,
- A rate equal to the investment yield on total invested assets expected, at the time the claims are incurred, to be earned over the period the claims are unpaid.
- A rate equal to the expected investment yield to be earned on long-term fixed income invest-

ments made during the year that the claims are incurred.

- A rate equal to the expected investment yield to be earned on fixed income investments having the same approximate maturity as the claims.
- A rate equal to the anticipated investment yield assumed (implicitly or explicitly) in setting premium rates on the underlying policies.

47. Those favoring a statutorily acceptable rate point out its conservatism, understandability, and acceptance by insurance enterprises and regulators. They also observe that a statutorily acceptable rate would not cause any further differences between statutory accounting practices and generally accepted accounting principles for those claims that are discounted.

48. Those in favor of the expected investment yield to be earned on total invested assets (expected portfolio rate) believe that such a rate provides a reasonable and conservative measure of anticipated investment earnings during the related claim payment period. They also believe that this rate is the most appropriate since bonds are carried at amortized cost rather than at market value. They also observe that such a rate will exceed in most instances the more conservative rates used for regulatory reporting purposes but maintain the important characteristics of understandability, ease of determination, and con-

servatism so as to provide some margin in the event of adverse investment experience. This rate is generally used by life insurance enterprises in discounting claims.

49. Those favoring a rate based on the investment yield to be earned on long-term fixed-income investments made during the year that the claims are incurred believe that this rate recognizes the long-term investment of current premium revenues (much of which relates directly to the policies that give rise to the claims being discounted) and, thus, is consistent with current investment decisions rather than prior investment decisions.

50. Those favoring a rate based on the yield to be earned on fixed-income investments having the same approximate maturity as the claims believe that this method would produce a yield which most nearly corresponds with actual investment earnings during the claim payment period. Others agree with the merits of this method, but observe that the complexity of its application outweighs any benefits achieved by its conceptual soundness.

51. Those favoring a rate based on the anticipated investment yield assumed in setting premium rates believe that this rate best reflects both underwriting and investment decisions made by the insurer at the time the policy was written and that, to the extent the investment rates considered in the underwriting are less than actual yields, such difference provides a margin

for uncertainties. Other believe this method is too subjective, that many jurisdictions do not require explicit inclusion of investment income in premium rates, that the method does not provide definitive guidance to companies in selecting an appropriate interest rate, and that premium rates are affected by other market conditions besides investment yields.

The Lock-in Concept

52. Some believe that once the rate is determined, it should not be changed unless actual investment earnings are less than the annual amortization of the discount (the amount added to the claim liability). The rate is, thus, "locked-in". Any future adjustments to the estimated liability for unpaid claims should be discounted at the "locked-in" rate. Others believe that the rate should be redetermined as assets are reinvested or as the portfolio mix changes.

53. Those in favor of not changing (locking-in) the rate believe that no future investment decision or circumstance (except if annual investment earnings are less than annual amortization of the discount) alters the investment decisions made when the related premium revenues were received.

54. Those who support the use of an investment yield rate believe that the rate used to discount claims should be reduced if the company's total invested assets are less than its liabilities carried at present value.

ADVISORY CONCLUSIONS

[The following are the advisory conclusions of the Insurance Companies Committee. AcSEC's preference votes on the advisory conclusions taken March 17, 1983, are shown in the brackets following each paragraph.]

55. The rate used to discount claims should be the investment yield on total invested assets expected, at the time the claims are incurred, to be earned over the period the claims are unpaid. The rate selected should be consistent with circumstances, such as actual yields, trends in yields, portfolio mix and maturities, and the enterprise's general investment experience. [AcSEC vote: 10 yes, 1 no, 4 abstain]

56. Once determined, the rate should not be changed unless, in the unusual event, the expected portfolio rate becomes lower than the composite rate for all discounted claim liabilities. In this unusual situation, the composite rate should be reduced to the expected portfolio rate. Any future increase or decrease in the estimated ultimate cost of claims should also be discounted at the original applicable rate. [AcSEC vote: 12 yes, 2 no, 1 abstain]

57. The unamortized discount should also be reduced proportionately if the enterprise's invested assets are less than the

amount of discounted claim liabilities and other liabilities presented at present value. [AcSEC vote: 11 yes, 0 no, 4 abstain]

Disclosure

58. An insurance enterprise should disclose the amount of claim liabilities carried at present value, the range of rates used to discount the claims and the period of years over which the significant majority of claims are expected to be paid. [AcSEC vote: 14 yes, 0 no, 1 abstain]

Panel Session 2D

REINSURANCE RECOVERABLE RESERVING

Moderator: John Tierney, Consulting Actuary
Tillinghast, Nelson & Warren, Inc.

Panel: Richard P. Caporaso, Senior Manager
Arthur Andersen & Company
Dale F. Ogden, Assistant Vice President
Kramer Capital Consultants
Robert N. Tremelling, Vice President
John F. Sullivan & Company

1985 Casualty Loss Reserve Seminar

Kansas City, Missouri

Hello my name is John Tierney and I will be moderating this panel. The topic of our panel is "Reinsurance Recoverable Reserving." We have three interesting panelist who will be offering to you their perspectives on this subject. Without further delay, let me introduce the first panelist.

Richard Caporaso is a Senior Manager in the Hartford Office of Arthur Andersen, specializing in audits of financial institutions, particularly insurance companies. Rich has performed audits on national property/casualty direct writers and reinsurance companies and also performed special procedurial reviews and adequatecy tests of loss reserving procedures and outstanding reserves. Rich has spoken before various industry groups and is also a frequent instructor at the Arthur Andersen firm wide insurance schools. He is going to talk a little bit from the accountant perspective on this subject..., he is going to give us an over view of statutory and GAAP principles regarding reinsurance recoverable reserving, a little discussion of the current environmental concerns, and we will also get into the monitoring and reserving for reinsurance recoverable.

Richard Caporaso: Obviously the topic this morning addresses the subject of credit risk. As John mentioned, what I'm first going to do is give a little bit of the over view. For some of you it may seem a bit low level, but what I'd like to do is cover some of the basic accounting and review considerations for reinsurance recoverables particularly for those of you who may not be too involved with brokers or reinsurers or ceded reinsurance on a day to day basis.

Let me also mention one thing that John stated--this morning at breakfast when the four of us discussed this subject for a while, just preparing for the session and we agreed that the session could be very beneficial just from dicussion of the questions that follow the prepared presentations. So I would just encourage you as we go along with our presentation, to make any comments or notations that you have and contribute them during the question and discussion portion of this session.

We know that the industry as a whole has been through some difficult times, and during these times the attraction to cash flow underwriting and other factors have really brought significant emphasis to the second and third types of risk, which are essentially investment risks; that is the rate of return in the timing risk. You certainly have seen these in pricing where investment returns are such a significant component of the pricing of products, particularly long tail lines. Certainly from an accounting and audit stand point, we've had to address the issues of investment return. We and the AICPA have been grapling with discounting for a number of years and just have not come up with any answers to this point. We have also addressed the issues of portfolio transfers; financing transactions v. tranfer risk. And primarily all these issues have involved the first three, underwriting risk, investment rate of return and timing risk.

Very little consideration to this point has been given to the credit risk aspect primarily because thats not an issue we typically look to when we try to determine how to account for a policy, either on the direct side or on the reinsurance side.

The credit problems today directly stem from some of the investment yeilds which we've seen over the past years. That is the underpricing, inadequate capital, and minimal retentions and quite frankly its finally time to face up to the problem and thats what were addressing today. The credit risk issue is certainly not just an international issue. As many of you know even domestic reinsurers have suffered significant losses in recent times, and many people believe that there are further problems to yet be revealed in the very near future.

The NAIC has indicated that probably upward toward 8 or 9 percent of the companies they have looked at this year of the approximately 2,000 domestic companies will require some immediate attention in the very near future. Probably 8 or 9 percent of the companies will also require some targeted attention in the very near future.

Now granted that many of these companies are primary or direct writers, but many of them also have professonal reinsurance departments so they are certainly applicable to the discussion this morning. A significant number of Lloyd's members have also failed the annual solvency tests this year. A recent publication indicated almost five hundred members of the 30,000 members of Lloyd's. I don't mean to imply by that, that there will be problems, security in terms of getting funds out of Lloyd's, because typically the security is adequate. But what I do mean to indicate is that, these are problems and some of them are in the highly regulated areas of the reinsurance market.

What about the other markets--the other countries--where the regulations are certainly less strict, if they exist at all. Those markets really receive quite a substantial amount of the ceded reinsurance business. So we really have some significant concern with this whole topic.

The key point this morning is to recognize that there is a problem. I'm not going to debate the degree of the problem; I'll just submit to you the fact that there is a problem, it will vary by company and by circumstances but there is an issue here. The second point is to commit to the fact that there is an issue and to decide what's going to be done to face up to the issues, and than once we get that point, how do companies identify what there exposure is and how do they account for that exposure.

We, the panelists, have all agreed that throughout this discussion, no one is going to try to give out any set percentages for reserving for any RLR either on payed or unpayed cases or IBNR because it's just not appropriate. What we will review are some of the considerations and some of the procedures that you should address in determing exposure at your own companies or clients.

Very quickly look at the accounting practices. I will discuss it genericly and with primary emphasis on the gap basis. Obviously RLR on payed losses are recoverable balances that are classified as assets on the balance sheet and allowances for uncollectable recoveries should be provided (soon we will look at the various methods for doing that). Regarding RLR on unpayed, first of all the recoveries are recorded as reductions from gross outstanding reserves, so that the net reserve is recorded. Also, for RLR on unpayed losses a provision should be made for those recoveries which will ultimately be uncollectable. What I have listed here is what I've seen in a couple of

situations, and that is to the extent that there may be some potential in collectables on ceded IBNR and unpayed losses, some companies book an additional provision to the bad debt or allowance from uncollectable reserve. This approach is used because even though nothing is specifically identifiable, once those unpayed RLR balances become paid the non-collection will be recognized. To the extent there ae some RLR's and unpayed balances that are very or probable of non-collection, those recoverable balances should probably be reduced and therefore, the net outstanding losses will be increased.

With respect to IBNR, we should also consider the uncollectable recoverable balances on IBNR reserves. I will discuss that a bit and I think that we can also get into that in the discussion because to some degree I think it becomes academic when one considers the industry indications of the adequacy of IBNR reserves; and also the scientific and non scientific methods for providing some of those IBNR reserves to get scientific with recoverables may be somewhat ludicrous.

In regarding the approach to reserving, first of all there are essentially four phases. The first is very similar to what we do as accountants and auditors and that is first to look at the company's procedures and internal controls. The company firstly should evaluate the adequacy of approved reinsurers, essentially determining which reinsures is it appropriate for the company to do business with. Once that list is determined, the list must be monitored on an on going basis either for additions or deletions from that list and to the extent any of those previously authorized reinsurance companies has now been deleted from list, its appropriate to look at what business has been transacted with those reinsurers and determine what that means in terms of exposure for recoverys which a company may now have from prior ceded business. Thirdly, and also as part of the, in determining security the company has to look at the adequacy of collateral in terms of amount and also the nature of the collateral, such as a letter of credit, trust funds, funds withheld, and other types of security. Once these steps are addressed there is the question of evaluating the recoverablity of specific and aggregate balances. We'll get into that in a little bit. And then once all that is determined, to reserve accordingly.

I'm sure most of you are familiar with the AICPA's statement of position on auditing property and liability reinsurance, but for those of you who are not let me just review a few of the key points. This is really a very key document to the whole RLR reserving process. For a little background, in 1979 the SEC concluded that there just wasn't enough guidance with respect to auditing property/casualty reinsurance. The SEC regulated that the AICPA do something about it, and in response the AICPA set up the reinsurance task force which after do process resulted in the 1982 issuance of the statement of position. The statement of position outlined procedures which ceded companies should have in place to evaluate assuming companies or the assuming company's financial responsibility and stability, but the key is that the title of the document said auditing. Quite frankly, a lot of the procedures specifically listed in that statement of position addressed management responsiblity and control procedures with respect to ceded and assumed reinsurance. Some of the procedures are that a company should analyze the financial data available for possible assuming companies; GAAP reports, SEC and statutory reports are that sort of thing. Look at the IRIS tests or the Department of Trade ratios for

UK companies. Inquire about retrocessional practices of possible assuming companies. Does an assuming company rectrocede to obscure companies or companies that are in financial difficulty. If an assuming company does a lot of fronting, what are the types of market or companies that fronting companies rectrocede to; those sort of considerations. Inquire about the general business reputation of companies, history of growth, their service reputation, is the possible assuming company authorized in the cedeing company's state of domicile and after that consideration the need for collateral and also the adequacy or the type of collateral have to be addressed.

The developed list of authorized reinsurance should be reviewed by a management group. Each of these review procedures should be thoroughly documented so that a record is kept to support why the company had determined it was appropriate to do business with certain assuming companies and also that documentation can be used to track changes in the status of any of those authorized assuming companies.

That information is used for determining which companies at any point and time would be canidates for assuming reinsurance. But facts and circumstances change and now the ceding companies are faced with monitoring reinsurers that have assumed previous reinsurance accounts. The fact that a company was authorized say two years ago may have little to do with its current status or situation. To perform this monitoring function a company must maintain a profile of current reinsurers. One way of doing this, first of all for payed RLR is to analyse or profile all the payed RLR receivable balances, by aging the accounts, listing the accounts by country, listing the accounts by reinsurers and also by brokers. This may involve a significant amount of work.., and let me say right now that any of these procedure for a company that does a significant amount of ceeding business may take a significate effort. That should generally be understood.., there is no easy way around this issue. But I believe that it is part of the price that has to be paid, given todays environment.

In maintaining a profile of reinsurers, some of the issues which should be addressed are as follows: Aging of account balance. Information, how do we get information? Look at the press releases, and you all know whats available in the various publications word of mouth, its incredible to see the information that can be obtained from other industry people, from brokers, other reinsurers, etc. Look at currency problems, for example many of you probably have seen situations where there might be recoverable balances related to some account that was ceeded in 1978, and a recovery has to be made US dollars while the reinsurers local currency may be leria currency or paiso's. As you know its somewhat more expensive in that local currency today than it may have been 6 or 7 years ago.., there is probably no chance of receiving those pyaments from some reinsurers. Look at geographic considerations, look at political risks that may obstruct reinsureres from making the recoverable payments.

Slow paying companies-- typically they are alien companies, and I don't know if any of you have ever delt with reinsureres or tryed to confirm reinsurer balances. We have, and even on RLR on payed losses the recoverables which typically we would expect to be clean, we have gotten mostly responses such as "Who, What, How Much, send me more information"..., Honestly, and we get frustrated by it, but though we panicked, say a few years ago..., we found out

that its typically the nature of the environment. It does not necessaryly mean that those slow paying companies will be no-pay companies, but many of them seem to live by the philosophy that they won't cut checks until they absolutely have to. (I think I see some heads knodding, so I presume there's some agreement on that issue).

But than we get down to no-pay companies, and typically when a company has finally been determined to be a no-pay company there's problem. No-pay may be because of lack of financial resources strength of the US dollar, or other reasons. But all these factors have to be looked at, the data and this information have to be accumulated and again documented in such a way that profiles can be developed on each reinsurer that a company does business with. And I should mention that materiality should probably be a consideration in any of this. To the extent there are small recoverable balances, its up to any companies judgement to determine how far to go on any given balances new paragraph. Then with respect to the management committee who should be supervising this whole effort, they would have to recommend courses of action for any recoverable balances; either, try to collect the recoveries or determine what is the appropriate alternative action to be taken. For RLR on paid losses, companies may visit reinsurers and try to work out some sort of settlement (even for unpayed, we see a growing frequency of comutations which I'll speak to in a moment). Once courses of action are implemented, management is in a better position to determine what recoverable amounts will become non-collectable. Also in that consideration will be quality of collateral which has to be analyzised man ongoing basis.

Just to summarize quickly, once all this information is gathered, to go back to the accounting, RLR payed losses, to the extent there are any specific probable uncollectables, should be reserved for, as a bad debt and a reduction of the payed RLR receiveable balance. To the extent it is determined from current or historical information that some percentage of those receivables may not be collected a company should be able to support a reasonable percentage reserve for those non collectable balances. And its really no difference than any other sort of receivable in any other industry that we have to address from an accounting and auditing stand point.

It gets a little trickier with RLR on unpayed losses. Its much more judgemental; obviously we can't do any aging schedules, since we're talking about reserves but still here we can apply historical experience that we have witnessed on our payed RLR, we can look at the current monitoring information which I just discussed and which the management committee has developed. Obviously, some information is readily available from periodicals and knowledge of the market, but then there are those that aren't the obvious, but which in fact, will result in problems of non-collection. And again the approach, will be to determine some reasonable percentage after we have determined the specific accounts that won't be collected.

With IBNR the same issue exists and the same approach can be applied as with the RLR on unpaid case losses. However, this task will be even more judgemental, because we don't even know who the specific estimated recovery balance are to be made from. But again, historical experience can be applied and most of the actuaries can relate to this. Some historical experience, some information about the current environment, changes and profiles on the

assuming companyies are all necessary factors. Its possible to develop some sort of statistics to determine how much of IBNR or recoveries against IBNR probably will not be recoverable. So the key point in summary is that there is significant concern that I think we all should address and secondly it will be a significant challenge to work out those concerns. I believe its an issue that has to be addressed immediately because the problem is only going to grow.

There's one last item I want to cover and that's the issue of commutations. I just put up a simple example, and again this is something we see growing in frequency and I believe there's much more of it to come, at least for those companies that are facing up to the problems. Look at the example of the 50% quota share treatee. If there is a loss of $2,000 the company retains half of this so it has an ultimate loss of a thousand dollars. The reserve on the ceded loss is zero, which is the ceded outstanding of $1,000 less the estimated recovery. The company realizes that there is some posibility of non-collection some time down the road and wants to commute the balance, or essentially bail out now, and get what it can for the recovery. The company determines that the present value of that $1,000 loss recovery is probably $700 and negotiate with the reinsurer a $650 settlement. There are two ways of booking the entries, but before I get to that, first to restate the issue. It's recognizing that there is a problem, which we've addressed, determining the ultimate value on the present value amount of those recoveries, which may not be an easy task. Than negotiating a settlement which may very difficult and than again the accounting. The issue as we see it, and we understand that this is holding up some companies from doing these transactions; is if it's recording its other reserves on an ultimate basis, and then it takes back the recovery and records it on an ultimate basis, using the example, it will be an immediate and current loss of $300 which is obviously just the difference between the discount and the ultimate loss. We have heard companies say that though taking back the reserve it consistent with how I do may ultimate reserving on my retain business, its really somewhat different, because I never expected to have this business on my books when I did the initial transaction, and quite frankly, it looks like the company is being penalized for actually possiblely improving its situation by getting what ever money it can get on the dollar or on the account today.

It's an issue that has not been resolved, and again, I know that some companies are waiting to see how the industry does tackle the problem before they go ahead and consider more of these transactions. I think a key point here is this: there are some companies we know that are holding off on doing commutations and for those companies its just evidence to the fact that there are problems out there on recoveries. I believe the other point is, for those companies who have already commuted many of their agreements, that probably more comutations are to come. There are problems out there and I hope through this whole session we continue to heighten you awareness to those problems.

John Tierney: Our next speaker is going to bring us an actuarial perspective on this subject. He is Dale Ogden. Dale is an Executive Vice President of Kramer Capital Consultants, where his principal responsibilities include, in addition to actuarial work, rehabilitation of insurance companies. Dale has been very much involved with assisting client companies in the collection of reinsurance. He has also helped put some reinsurers in the position of not

being able to pay, not through the size of the fees, but because of their financial condition. Prior to his work with Kramer he was manager of the Insurance Actuarial Consulting Group of Peat, Marwick and Mitchell, where he was involved in a large number of audits of insurance and reinsurance companies. He is going to speak to us on the actuarial issues regarding this subject and give us some "war" stories of some of the situations that he has been in and how they apply here.

Dale Ogden: To start off, there are a couple of areas, looking at reinsurance recoverables, I think we can break it in to four groupings, very similar to what we heard earlier today. Statutory accounting for reinsurance recoverables, concentrates on three areas: unearned premium, which is a rather straight forward calculation; paid losses, which again is rather straight forward; case reserves; and IBNR reserves.

Little is done trying to estimate IBNR reserves for reinsurance ceded, yet that is one of the direct liabilities of the company that it expects to collect from a reinsurer. One of the problems in determining what your bad debt should be, is that you do not know the ultimate value of the liabilities that you trying to collect. The biggest problem in estimating those is the fact that reinsured IBNR is very unpredictable on an individual company basis, unless you are a rather large company. That's part of the reason you bought the reinsurance to begin with. That area..., that level of your loss is unpredictable and therefore, you want to cede that away and try to manage it to make your own net losses more predictable.

There are a number of methods that are used to allow credit for reinsurance on a statutory blank. One: is the company is liscensed in the appropriate state or admitted as a reinsurer in those states? If that isn't the case, then letters of credit, trust funds and other types financial instruments are used to secure that. Historically, those letters have only covered paid losses, case reserves, and unearned premium reserves. More recently the New York Department, California Department and a couple of others are beginning to require that these letters of credit or other instruments cover both the case reserves and the IBNR reserves. One situation that I've seen generally is that the ceding company prefers to have licensed carriers when they can get them. Licensed carriers with good ratings. I might take issue with that in that if you have a letter of credit drawn on a reliable bank, you are more likely to be able to collect that in many cases than from an A rated licensed US carrier. There are a number of situations we have run into where there was an A rated US carrier licensed in many states and has gone under leaving the ceding company to collect 70, 60, 80 cents on a dollar of liabilities. Other situations where you have alien companies going under a number of the reinsureds have letters of credit they draw them down and the bank take the bath instead. Its an interesting problem how to get around that.

The one approach that I might recommend that a lot of companies should try in estimating what their liabilities are, is to try to estimate the reserves both on a gross and a net basis. There has been talk of changing schedules O and P to be produced on a gross basis and have some indication of what the net reserves are and that way the regulators can follow those reserves form the primary company to the ceding company to require the reinsure to carry reserves at what ever level they are.

The next issue I'd like to talk about, is determining the credit worthiness of a reinsurer. The first thing you have to ask your self is what are you really buying, when you by reinsurance. That depends very much on the line of business your are buying. If you are selling a lot of automobile physical damage and you want to buy catastrophe coverage, than you need to know that reinsurer has a large amount of liquid assets and that they can pay your claims over the next 18 months to 2 years. But if you are writing malpractice coverage or commercial liability coverages what you really need to determine is whether that reinsurer is going to be around in 10, 20 or even 30 years to pay those claims. In a course of 20 years a reinsurance company may go through 4 or 5 changes of management, 2 or 3 underwriting cycles, all kinds of things. It is virtually impossible to predict what can happen over that period of time. Based on what happend in the last 5 years, it is very easy to see how 2 or 3 bad years or 2 or 3 years of intense competition can wipe out the surplus of companies which has accumulated over several decades.

A couple things that I might suggest that you might look at in trying to determine whether or not a company with good credit risk is to look at their historical ability to make a profit. Obviously a company which can't make a profit is not going to be around very long. The easiest way to look at that is to look at your own reinsurance. If you cede business to a reinsurance company and you figure that there is no way the reinsurer can make a profit because they priced it so low, the odds are that they're doing that for every body else too. That's a situation where you get what you paid for, maybe you're just a much better negotiater than the rest of the market and therefore you're going to be the guy who wins out at the expense of the other ceding companies, but I would doubt that would be the case.

Another thing to look at is how leveraged is the company. There are companies which at least based on their published financial statement are writing very high levels of premium to surplus. Part of that is because surplus has been depleted and now rates are going up and they're say that now they don't need as much surplus because we have much higher rates. It's not unusual in the reinsurance market, particularly in casualty lines to see large blocks of business producing combined ratios well in excess of 150 percent, so if a company is writing at a ratio 4 to 1 it doesn't take long for a 150 percent combined ratio to make a company at least statutorily insolvent and create a potential credit risk problem.

Another issue along with the leverage is to just to figure how likely is that company to survive the next 2 or 3 underwriting cycles. I think its easy argue that the current situation in the industry is a lot more than just cyclical and that there have been a lot of other influences than just the normal underwriting cycle. But what is their ability to survive that cycle? What are their other sources of capital in the future? Do they have a wealthy parent company that couldn't afford the bad publicity? Are they writing at a very unleveraged position? Another very important consideration is absolute size; one way to look at the structure of the insurance and reinsurance industry is that the goal of the insurance industry is the substitute stability of financial results for its policyholders by absorbing their unknown losses and pooling those losses together and accepting those variances. To go one level further, the reinsurance industry is there to help the primary insurance industry smooth out its results and absorb even wider random or cyclical fluctuations. So it is very important a company have a

large surplus, and just be generally big enough to survive through that.

Another thing to look at is various financial ratings, although I think those might be the least useful of all. Historically the ratings have never been able to predict trouble in advance. The rating organizations have never been more than a year or two ahead of the receiver.

Another thing to look at is the ability of the company to control its destiny. A lot of reinsurers have sprung up because its a very very easy market to enter. In a lot of states you need only two or three million dollars of capital and a license and you can start writing reinsurance. In Bermuda and other off shore areas, you need only 500 thousand dollars of capital and surplus, even less in some places. In fact, in some places you don't need any capital to start a reinsurance company and issuing treaties. Depending on the ability of that company or the size of the treaties that those companyies are writing they may be completely unable to control the business coming to it. A company that can write a sizeable treaty and take a sizeable participation in a program, can afford to spend the effort to evaluate it and price it. A company that does nothing but take one or two percent or even five or ten percent of a number of items that are offered to them, either through pools or broker markets or what ever, really has no ability to control its own destiny. It's just going to follow the market and be at the mercy of the whims of the market. I think what I've seen happen in the last few years is that the whims of the market have destroyed a large number of companyies. I think the current reinsurance issue of national underwriter mentioned, that the number of reinsurance companies has more than doubled in the last 5 or 10 years and my experience has shown me that probably if you were to take out the insolvent one there are fewer now than there where 10 years ago.

Without trying to sound like a advertisment for the large direct writing reinsurers, I beleive that consideration of the expenses and economies of scale are very important. Obviously a large company which is writing direct can have a lot lower expenses, they can recognize economies of scale; they can control the business they are writing; they can differentiate their product. There is not a completely inelastic demand for reinsurance; therefore, they can affect the prices and the demand for their product by trying to control what they are doing. They have the ability to put in all the controls that are needed.

Another problem with the large number of reinsurance companies that I have seen is that there is a trimendous lack of underwriting and management expertise in the reinsurance area. If experience teaches someone how to run a reinsurance company then the fact that the number of necessary company presidents and underwriters has doubled or tripled or quadruppled in the last ten years means that there is a lot of inexperienced naive management out there.

One last issue that was mentioned earlier, is this issue of commutations. Perhaps I can provide a little different perspective and I guess war stories as they were called. The largest set of commutations that have occured so far have been with a Universal Reinsurance Corp. Its likely that there is a very sizeable number of people out there whose companies are wondering what they are going to collect. I cannot tell you, because that would be giving away

the store. What's happening with number of reinsurance companies and will be happening with still a larger number is that the dramatic losses over the last five years, have bankrupted, not bankrupted but created masses of insolvencies. Even if you were to take all the loss reserves on a present value basis for these companies, the companies are still insolvent. A lot of the losses are not recognized in their financial statements because of the fact that it take a while for the premiums to emerge. Most reinsurance companies project ultimate loss ratios and apply that to what ever premium has been collected so far. A company which may have been looking at a 200 percent loss ratio on the average over the last 4 years is producing a financial statement showing it solvent. It may actually be insolvent because they have another hundred million dollars of premiums coming in the door on prior underwriting years and 200 million dollars of losses.

I sugget that the recognitioin of premium deficiencies ought to be addressed in the NAIC for statutory purposes and by the AICPA for GAPP purposes to a greater extent than has been. In my opinion, the purpose of financial statements is to give the public including the ceding company information that they can use to evaluate the reinsurer. The size of any premium deficiency is a very important aspect in evaluating the solvency and solidity of the reinsurance company.

A technically insolvent reinsurere engaged in the commutation of its losses must evaluate its total liabilities, including premium deficiencies. An internal standard must be established so that the reinsurer can run off its business and ultimately end up with no assets and no liabilities. Such standards take the form of interest rate assumptions for present value (e.g. 30%) or some portion of the fair market value of the liabilities (e.g. 70 cents per dollar of present value losses). Obviously that is not an exact process, and just because of the fact that humans are involved, it is going to be a very inexact process and is going to vary somewhat from one situation to another. To gain a perspective on commutation prospects, a ceding company should try to evaluate the ratio of assets to liabilities of the reinsurer at fair market value. You then can evaluate the present value of your losses and apply that ratio to it. That will give you a good idea of the kind of commutation you could try to target. You may do better or you may do worse.

John Tierney: Our third speaker is Bob Tremelling. Bob is a Senior Vice President with John F. Sullivan and Company, reinsurance and intermediaries. He has 15 years experience in the business, the first nine with a primary company and the latter 6 with reinsurance brokers. He specializes in financial-oriented reinsurance, both financial guarantees and corporate reinsurance covers. He is going to talk to us a little bit about the state of the market place; give us some of his thoughts on criteria for evaluating a reinsurer; and also, give us some qualitative comments from a broker's perspective versus the actuary's perspective and the accountant's perspective.

Bob Tremelling: We have talked a lot about the criteria and the fact that there is a problem, and what I really like to do is take just a few minutes and talk about the state of the work and the practical issue of, "Can you buy enough quality reinsurance?"

There is no question that there is a problem. It has been varying for a number of years. This secodn we are talking about the intense competition that has been going on for about six or seven years from the very start of the downturn cycle. To the extent that primary companies have problems, reinsurers have much worse problems. Some of you may work for reinsurance companies or certainly you might have reinsurance arms in the primary company. If the combined ratio for a primary company is running about 120% right now, for a reinsurance company it might be running at 160% or 175%. If the truth be known (if the reinsurance companies were truly reserving to the ultimate, and who knows how close they are in their reserving practices) the combined ratios are probably running well over 200%. The typical discussion held in the reinsurance community talked to the fact that reinsurance are going to need to double, triple, or even quadruple their rates. Some of this is just a reaction to the past; some of them may be just talking in order to get their prices up. Even if it isn't tripling premiums, or even doubling premiums, you can recognize that the reinsurers are sustaining severe underlying losses, and it doesn't take too long at those combined ratios before you run out of surplus.

There are different degrees of the problem, and I think they were alluded to earlier, all the way from a company that is absolutely insolvent and cannot pay a nickle, through companies that are impaired that can pay off 50, 60, or 70 cent on a dollar (in those cases you are going through a commutation process or a negotiating process with a company) to those companies that are slow payers. It is true that most of the slow payers are the foreign markets, and there are some slow payers in the U.S. also, but even the London markets pay, and the London companies are notoriously slow. A lot of this has to do with the fact that have retrocessional agreements and they have to go their retrocessionaires before they can pay off. That is one of the things that is really unknown in this industry at this point. If another Hurricane Betsy were to hit the East Coast, just what would happen; how many reinsurers would pay off. It becomes to a certain degree of how it occured.

In the casualty area, especially the working casualty area, the problems I am talking about in terms of the Hurrican Betsy would be a large property-type losses. We haven't had any really tough property losses in the past few years. It would put a whole different complexion on the issue. In terms of what we as brokers (and I'm talking now of both John F. Sullivan Co. and brokers in general since I was at Carpenter before I came to Sullivan) are dealing with on a day-to-day basis, it isn't necessarily the companies that are strickly insolvent, but the companies that may be impaired; the companies that are slow paying; the companies that may have a problem trying to define which companies will have a problem in the future. We are spending a tremendous amount of time dealing with these day-to-day issues, and I know that there are at least three to four of my clients sitting in this room who know what I'm talking about. Its very, very difficult for a primary company to avoid having at least two, three, four or five problems in this area, whether they be from a company where the letter credits inadequate, or a company where you simply can not collect within 60 or 90 days and then you have a liquidity problem all the way through the line. What is being required of broker these days is something very different from what was being required a few years ago. A few years ago was simply a price-conscious buyer and a price conscious broker. Now it has shifted gears dramatically to the other side.

In about September of last year, clients and brokers were concerned about how high the prices might go. That lasted for about two or three months. It then became an issue of, can we collect and where is the security. That now is the overriding problem. I think you're going to find in the brokerage houses a different mentality, a different approach. You are going to have different people in the brokerage houses in the next few years. People are going to have to address collectability issues. You have much more a quantitative type of person entering into the brokerage community - people who can get in and evaluate the worth of companies. As mentioned earlier, not only the worth of companies today, because they take care of, "What am I going to collect in the next few years off of these past reinsurances?" but where are these reinsurances going to be in 10 or 20 or 30 years. It does take 20 or 30 years to collect a larger or higher level compensation in your casualty losses and to tell you the truth, I don't know who has any kind of line on who is going to be around 20 or 30 years from now. That does not mean that we shouldn't address the issue, that we shouldn't take a stab at the reserving - and on our parts, take a stab at coming out with better quality reinsurers. But it is a very, very difficult issue.

I'd like to just indicate how many reinsurers might be out there for you to look at when you are buying your reinsurance through a broker. I'll leave the direct market aside. The direct markets themselves, I would say, also have their own issues and problems. They have been losing capital just like the regular reinsurers. If they have an average of 5%, 6% or 7% per broker, that doesn't make much difference in the expense rate. If you still writing at a 125, 130, or 150 combined ratio, the problem is a loss ratio. The problem is the underpricing during the last five, six, and seven years; that is the issue. So the direct market has their problems just like the broker markets. They have their own Schedule F assets that they have to look at. They have to buy alot of reinsurance themselves to offer a capacity. So most everybody is in the same kettle of fish. Its just simply difficult situation.

On our own list that we use, and brokers do have list of companies that they feel might be the better ones to approach, in the A+ category we only have a total of about 30 companies. But really only about 15 which you would you would consider multi-line type reinsurers. Companies that would take maybe a piece of the global program of a property or a casualty program as opposed to handling a loss portfolio. There are only about 15 or maybe 16, 17 or 18 markets in the A+ category. You then go on through to your A companies and there is a larger category. Of course, these that is the best it is doing. There are maybe between 30 and 40 companies in that category that we would look to, that we would want to deal with. Again, you have to watch out a little bit because not all companies are going to do all the covers. A lot of companies will do high layer excesses. A lot will do low layer excesses. A lot of companies will do property and not casualty and vice versa. The list really drops down from that.

You then go through you A companies down to your B+ companies. I am sure some of you already are saying, "Well, we don't deal with B+ companies". Here we only have, in the B+ category, maybe another dozen companies. So, it's not as big an issue as you might think in terms of whether you would use an A company or a B+ company. It is just that not many fall into the B+ category. You put all these together and you might have as many as 50 to 60 markets. That's

market in general. If you have a specific cover that you are trying to place, that figure might drop in half, or drop by a third, or drop by two thirds, all depending on that you are trying to do. There is not a wealth of companies out there to deal with. They are just simply not there these days. The companies that are there, of course, are being approached like they never were before and the first thing you get from them is, "But we have our own premium to surplus requirements, we can only take on so much business." We have stacks of incoming mail, so that's what is happening. All of this is focused down to the quality companies and the quality companies, as good as they might be, simply cannot cope with it, nor can they cope with the financial requirements that are being placed upon them.

The same goes true for London. I have been over in London two or three times this year and at the beginning of the year it was, "We're really going to sock it to you and we need a lot more price, but the capacity is still available." During the July renewals, (which by the way are still going on - this is like the 84th day of the renewals) the London companies (they're large companies) simply said, "We're out of capacity. We just don't have any more." They themselves are putting together major retrocessional programs at this point with, for instance, U.S. companies, German companies and Swiss companies. You talk to the Swiss and you talk to the Germans, and they have their own constraints too. So I guess I'm starting to sound pretty negative as a broker, but I think there is a reality here that we have to look at and that is to simply say, "Look, I need to upgrade. My security won't take care of it." There is not that much out there and you are going to have to decide. First of all I think you should decide, as it was alluded to earlier, not to buy cheap reinsurance. Go for the quality whether it be direct markets or it be broker markets. Look at the security of the company that you're dealing with - and just like Lloyd's, if you're in Lloyd's and you look at the different syndicates, you relly don't want to go to the syndicate that has all the people queued up waiting to see them. That is the cheapest market; that is the one that all the brokers are over at, but that is the one that you are going to have problems with in a few year. Go to the ones that have maybe five or six or seven people standing there, but not 27 people standing in the queue waiting to see them.

Buy quality reinsurance. To the extent that you can pay the price now, yeah, it's going to hurt a bit, but it won't hurt as much later on.

Some of the criteria we use (and the folks before me have really gone over it in depth so I'm just going to spend a minute on it) will be the same that I would hope most of you are, or all of you are going to use. We will look at the basic solvency ratios in the NAIX, the premium surplus, things such as that. We will look a lot at the quality of the management, we will look beyond the numbers to how sound the management might be, how long they have been in place and who they are. It is a very small community out there - it is not a large reinsurance community and the names get known and the people get know and you tend to know who the people are, who are really going to be aroung for a while, the long-term players. We will get a lot of input, obviously inside our own shop. We'll talk to client companies, we'll talk to producers, primary producers and just simply a lot of industry contacts. I think that Rich mentioned here today that you should do some talking to other people; that is a good way to find out who's doing what. We'll look at the loss reserve practices, just as you folks might. We'll see if they're running

down their loss reserves position. We'll look at the averages relative to everybody else. We'll look at their schedule F's. We'll look at what's in back of them. We'll look at just how new they are as a reinsurer, how long they have been around, and the willingness of the parent, if there is a parent, to stand in back of them. That is very, very important issue which I velieve is going to be tested a great deal in the next few years. As a matter of fact, I think that it is going to be tested fairly immediately with one or two major reinsurers who have defaulted. The degree to which a non-insurance or even an insurance parent should stand in back of the subsidiary, especially if there have been representations made by the parent that they would stand in back of that subsidiary, those types of things will be in front of the courts within the next year or two.

We obviously, according to the ICPA, will supply any and all financial statements that are needed by the client's company. We will assist the company to the degree that we can with the analysis. I know that Carpenter does this and they do a fine job at it. They have a very good department to do this. We have our own security department. We will provide any background information that you might require. We will ask that of the reinsurers. Again, we will look at not only their ability to pay, but in a lot of cases, we will look at the willingness of the reinsurer to pay. We have reinsurers on our list that might look fine, but who really are fairly sticky about paying. As a matter of fact one of the things starting to occur right now in large doses is an increased trend towards litigation, and an unwillingness to pay without litigation or arbitration. Everybody has heard about the business being a handshake business. It is not a handshake business at this point. There are issues that I am dealing with right now on contracts that seem fairly clear in requiring the reinsurer to pay, and where certainly five years ago the reinsurers would have paid; reinsurers are declining, saying "Well, come and get me." and that is what's going to have to happen.

I would also suggest that on your part, and again on the part of the brokers, on the part of the markets that you really look at your contracts and make sure that those contracts say what they are surpose to say. You can not only get caught by a reinsurer who is in Chapter 11, you could get caught by a reinsurer who says "Here is alittle proviso in the contract that will let me off the hook from paying, therefore, I will pay." In my experience (I guess I'm dealing with more of the issues that maybe some brokers right now) some of the things that I have in front of are very, very large problems where this is coming into focus. The contracts are saying one thing when everybody that was involved in the contract know that maybe it should have been different way. As much as you might get into your do diligence work and work hard, whether you are primary company, or even the reinsurer, there is a lot of this going on right now. So please doublecheck those contracts and make sure you have very sound contracts going in.

I feel that, while this has been addressed this moring, it's going to be very, very difficult for you to really come out with a sound estimate. You still have to go through the process and have to come up with the reserve because it is there. But is it going to be very, very difficult for you to do so and I think it's also going to be a very difficult for you to do so and I think it's also going to be a very different reserve that you come up with by company. There are some companies that are out there (we can name names) but there are a lot of companies out there, a fair number, that if they had to put up an

uncollectablity reserve, would go way across the line into the red. What do you do with a Chrysler Corporation. Do you stop them today and say "No, we're not going to let you sell any more cars." or are you going to let them work out of it. That is one of the issues that this get into. Do you right now post all of the reserves that you truly feel are uncollectible, or that you might think are uncollectible, on a statutory basis? A statutory, of course, is very black and white. We have been talking mostly to GAAP here this morning but on a statutory basis it is a very, very tough way to go. It is very, very conservative and very black and white. If you do that right now, and I'm not saying that you shouldn't, you are going to have a major problem confronting the industry. I think that we have to address it, but we have to be fairly careful of what were going to come up with and not lock our selves into any set formulas.

John Tierney: We will now go into a question and answer session. I do ask a couple of things of you. One is that you come up to the microphone in the center of the room to ask your question. Two, is that you give your name and your company because all of this being recorded for posterity. I would like to start with the first question. And I'm not going to ask it of the panel, I'm going to ask it of the audience. First of all I would like a show of hands as to how many in the room are involved to a large extent with your company's reserving. Now how many of you with your hands up are looking at reserves the way Dale Ogden suggested. By that I mean, how many are trying to measure IBNR on both a direct and net basis. A fair number of you. Of the others, how many of you sleep well?

Does any one want to talk on that subject - any of you folks who are working for insurance companies and are looking at both direct and net IBNR, or those of your who aren't - would any of you like to get up and to the mircrophone and talk on that subject? Are you all too afraid to admit to what you know? Okay, anybody else who has questions of any of the panelists?

Tom Camp from Resolute Reinsurance Company: Kind of a general question about whether or not charge offs for uncollectable reinsurances ought to be considered part of underwritten results or as something else, bad debts below the line or something like that.

Richard: Everything that we've seen so far supports treating them as part of the underwriting results. So for the example on the paid RLR which is a simple example, There is a receivable for those recoverable balances. If some of those recoverable balances, are not made or infact received, that is going to float through as a reduction of those RLR balances right to the bottom line underwriting result. Has any one done it any other way? Apparently not.

Jim with Alaskian National Insurance: I've got a couple of questions. One is when you run into these so called slow pays or no-pays, now there is different types. I mean some may be insolvent and can't pay but there are others that use that as a delay tactic and try to get their own investment income on it. At what point do you resort to other methods and what are the other methods outside of the perhaps sueing them and whose responsibility should it be the broker or the company it self? I'm just kind of curious what some of the experience has been and if its gone to that point by any company yet.

Dale Ogden: Most of the companies that I've worked with over the last couple of years are companies which are in either a rehabilitation or liquidation mode. What ever reinsurance existed when a company entered that state the reinsurers may try to rescind coverage if possible they're worried about how bad their liabilities are going to be, so they're going to try to hold back. Certainly in a case where you have broker reinsurance the broker has some responsibility to aid in collection of that reinsurance and nag the reinsurer to get it. But I think its also incumbant upon the company itself to get out there and pound on the reinsurer and make sure that you've provided all the documentation and all the backup necessary so that the reinsurer has nothing to fall back on and say well you haven't proven that this loss is covered under the treaty or those types of things. Give them everything that proves that they owe you the money and then they are very hard pressed at that point not to pay you. In a situation of an insolvent reinsurer, they can sit back and say well we can't pay right now and maybe their delaying things to try and earn a little bit of investment income and repair some of the damage. There is a lot less leverage in those situations, but diligence is necessary. Just a lot of hard work and diligence very often collects alot of it.

Audience participant: I agree with all of that. I think the broker is duty bound to assist in any way possible. I mean actually going out and trying to collect, but I would really emphasis a point that alot of what we get into is imperfect information where you..., again a few years ago you simply put in a loss and it was paid. Now you put in a loss with some back up information and its not paid. Give the broker all the possible information that you can and make it clear concise and detailed and that takes away atleast some of the back and forth that goes on. It will get into back and forth for months. It will go back here and back here, and back and here and back here and on seeking information. So up front make sure you have alot of information and then let the broker.., thats one of his responsibilities but to the extent that the client can assit and to the extent that the client can be there and it really is a joint thing. Thats absolutely necessary also especially when it get after at about 90 days or 120 or 180 days. And thats..., thats unfortunate but not at all uncommon.

We monitor very carefully how long our receiveables are..., the clients receivables are out standing, 30, 60, 90 days and so on we do it both by excess of loss contracts and in the perportional contracts which are more of monthly type reporting or a cordially type reporting. So we have all the statistics and we have monitored on a client by client basis so and on a reinsurer by reinsurer basis by and account executive. So that we typically are on top of it, but to the extent that the client can help out and actually be there if things really do get into a problem thats of course much more helpful.

Mike McManus from the Insurance Service Office: Both Dale and Bob mentioned premium and surplus ratios as one of the tests of recoverability of reinsurance. I believe that most analysts agree that reinsurance companies should operate at a lower premium to surplus ratio than the industry as a whole. Do any of you have a feeling as to what a proper guideline would be for the premium surplus ratio reinsurer.

Dale Ogden: I have feelings of what they should be. I don't know if there is such a thing. There is work that has been done, I don't even remember, it on

the CAS examinations syllabus where somebody looked at what the premium to surplus ratio should be for various lines of business. I can relate a story in which an un-named Insurance Department once refused a rate increase because it would cause premium in the surplus ratio of the company to exceed 3 to 1. If rates were high enough the answer would be, you don't need any surplus to write business, if rates are producing 200% loss ratios, maybe you need 0.5 to 1. Pricing adequacy and the with that premium the surplus ratios aren't even important. However at any given time I believe that reinsurance prices are market driven. Based on one's own evaluation of the general adequacy of the pricing of the market you could determine how long a company could survive writing at a 150% or 200% loss ratios. The long term answer may be 1 to 1. The historical purpose of using premium to surplus ratios as a benchmark was to be sure the company could absorb random fluctuations from year to year. I don't think the problems that the industry has experienced are exactly random fluctuations. Its just the idea that how long can a company survive lossing money with this current market, depending up on how much business they are writing right now. I might say that a ratio of 1 to 1 is reasonable for a reinsurance company which is attempting the price adequately and continue on in that vain. Thats a lot lower than whats happening though.

Panelist: I'd like to add one or two comments. This is an area that..., why do premium surplus ratios by line. I think you'd be very careful not to use averages here and to look at the reinsurers to see what they're writing. Because as I mentioned earlier some reinsurers will take on say high layer casualty. What kind of an IBNR do you can throw up for that, let alone how surplus should you have. That stuff doesn't even show up maybe for 5 or 10 years. E&S verses a property buck, you have to be very, very careful and really look through the basic ratios. If you want a number they should definitely right in no more than say a 2 to 1 on average but you have to really look at the companies. The other thing I'd say, definitely ask the companies or look through to the types of reinsurances that they have. Not only for there own excess of loss protections but right now a lot of whats going on in the industry a part from the straight cast --- protections is the purchase of a quotashares which are surplus relief contracts, surplus relief covers. A lot of people would like to get those and there are not too many people willing or able to take them on. So that again we start talking about gross and net and you have to again be very careful that you look at a company and that company don't have to have a quotashare of 75% of his business that maybe he has a limited exposure to the reinsurer.

Marty Adler of GEICO: I'd like to ask Bob, what do he thinks of Dale observation, that the companies that write a very small percentage of the who market can't control their own destiny. I believe that you're brokering for a lot of those companies; Are you not?

They write a small percentage of the market. I think the answer is..., are you talking about regular property casualty or something more along the lines of what resolute does.

Resolute will write the traditional covers, but also, by that I meant they will specialize in certain areas. And I think that if you specialize in certain areas, you have a great chance of controling your own destiny. I'll give you very frank observation, I think that if you're a company that writes across the board and takes half of one percent lines you're destine not to

win. I think that thats a very tough way to go, because you number one cannot set lead terms, you will not set lead terms and number 2 I think that you have to believe that your underwriters..., that your people have something to offer and can differentiate between good and bad risks. If you take a percent, 1% of every risk thats in the United States or half the risk or--- of the risk. I think that you're going to get in trouble and companies have in the past.

Marty Adler: I kind of expected that Dale wasn't talking about a company that just took everything that came in the door.

Panelist: A lot of companies would do that type of underwriting which is no underwriting at all. It sound a little bit defecious, there are major companies over the past 5 years where the president was compensated on production. His bonus depended upon production not on underwriting results. These are underwriting companies not brokerage houses.

Dale Ogden: The kind of issues that I was addressing, certainly not talking about companies that took every thing that came across their desk. Alot of the companies that I looked at would keep an exhaustive set of statistics to show how carefully they were underwriting their business. They might say that we rejected that 80% of every thing that has been offered to us, or 75% or..., and now we're rejecting 90% but when you look through their underwriting files and their accounting files there is nothing in there that could possibly have ever allowed them to differentiate between a good risk and a bad risk. There was no historical information, no pricing information or anything. Just that they were offered something and they took some of it and they rejected some it. They have exercised little or no control over what they're doing; they have no information many of these were either small companies or subsidiaries of non-insurance companies. Their reaction to their parent management was "If we ask them for all this data, they won't bring us business any more." What I've always told the parent management is that you don't want it. If they won't tell you what it is before you write it, why on earth would you want it. Would you run a manufacturing industry that way? Where you bought your parts to put together and after you sold the product, somebody came back and said, well we want $5,000 for each part rather than $50 for each part. I mean you've got to have some information before you can make any kind of intelligent decision about what you're writing and what you're not writing. There is an incredible, if plurality (if not majority) of companies out there that got into this business in the last decade or so that did exactly that. They didn't take everything but it certainly wouldn't have made any difference (except volume) if they took everything.

Nolan Ashe of Score Reinsurance: I was interested in the comment Dale made also having a preference for large reinsurers v. smaller reinsurers. I think its interesting to note that the Universal Re case which you refered to at the podium. At the time Universal Re bit the dust they were one of the 10 largest reinsurance companies in the U.S. Example number 2, one of the 10 largest reinsurance companies in the U.S. right now has 170 million dollars of policy holders surplus. 110 million dollars was a contribution made by its parent company. Without that contribution they would now be writing somewhere around 400 million dollars of reinsurance business with 60 million dollars of capital and surplus. The rhetorical question that I'm building up with this is, it seems to me that from a security stand point I would be very curious to look at a company's rate of premium growth particularly over the past 5 to 10

years. Perhaps a case that bears watching is a company that has gone from zero reinsurance premium of vertually zero reinsurance premium to massive premium volumns in a very brief period of years. I've made the trip to Lloyds very often as Bob has and I think that he was very insightful in talking about the wear of the syndicate where everyone is going up to it near the hot market right now and everyone is buying business from them. I think that is almost a guarantee of low rated business being written by that organization and rapid growth. But to try and turn this speech into a question, I'd be curious to hear both Bob's and Dale's comments about what you would feel about a reinsurer that is growing 50-100 percent a year going from zero premium volumn to several hundred million in a few periods of years. I wonder if that might be one to add to your list of things to beware.

Panelist: I think that thats an excellent point. I get involved with those --- amount of..., like loss portfolios work and that type of thing and I see alot of different companies and of course on behalf of my clients I do also. I'm not sure that I've seen a company out there that is growing fast over the last 5 years that is doing well right now. It just..., they're just not there. I'm sure somebody can dig up one, but its pretty hard to do, so I think that thats an excellent criteria. You look at the ones that have really grown fast and they're probably going to have their share problems. Its hard to avoid them.

Dale Ogden: I'd like to state that a little stronger. Rapid growth even in primary companies is suicidal. If you look at what Universal Re wrote in 1980 even or 1979, it was a teeny tiny little company. In 1983 they were writing a 120-130 million dollars of reinsurance and incurring 250-260 million dollars of losses. I could point to one book of business that one underwriter wrote that from 1981-1984 incurred a 600% loss ratio on low layer excess automobile business. The experience was predictable, so that a logical reaction would be to believe that the guy was trying to do it on purpose. I can't imagine somebody being that stupid to do, but obviously somebody was. If you pull out of its experience that one book of business, Universal Re wouldn't be any different than most of the other reinsurers in the market.

Panelist: Just to reillurate from what Dale said I think thats another good point is that typically when you talk to companies whose got problems you'll find out that some of them will have problems just simply across the board. More likely than that, they've gotten into 1,2,3 or 4 things that have absolutely killed them. Its very hard you know if you're writing 99 risk properly but one improperly you can be in big trouble if you write..., if its trucking, and then thats, I'm sure you've all seen it where, that why I try to stay away from ratios or looking at just this test or that test because you have to look at the individual company and their own personality and more often now again its been 1,2,or 3 big deals that they have done that have just taken a whole company down or one particular line of business that a company got into. And its happen time and time again and its unfortunate.

Question: To follow up on the big v. small reinsurer issue I guess I'm somewhere in the middle because my parent is one of the 15 largest reinsurers in the World but no where near one of the 15 largest reinsurers in the U.S. We draw a distinction between the 2 environments. How would you react to this attempt to try and draw in what Marty was trying to get at to what you were saying. I think what you were trying to say is that a company that writes a

small share of alot of different treaties and thinks that their protecting themselves is fooling them selves. B t on the other side of the coin, I think that my company outstand as an example and with John F. Sullivan in particular we've done a number of things where even though we have only writen 5 or 10 or 15 percent of a treaty, we have influence terms and act as if we were lead and many times shocking or surprising the 50% other participant and getting calls like gee thats a good idea I'm glad you thought of it. I guess that there is a real problem in may mind with this bigger is better mantality in the world of reinsurance. I think that if its questionable and primary insurance, I think its extremely dubious and reinsurance. I don't know, I'd like to get either of your comments on that particular point.

Dale Ogden: I guess that my comment that bigger is better is being interpreted that way. I will agree that even if you're small, if you are actively influencing pricing, contract terms and so on and making very accurate pricing decisions, even if there is somebody else taking 50% and you're only taking 10% and that the person taking 50% isn't paying attention to what is going on then you are controlling your own destiny. My experience is that generally the smaller companies don't control their own destiny. They take what the market gives them. You sit down and talk to the Senior underwriter and most of these companies pretty much do what everybody else does. And they say if you apply those numbers to every company up and down the street they are all insolvent. But I guess "bigger is better" is like all rules of thumb. It has a lot of exceptions. I think the essence of my comment can be summed up in two quotes: "The race does not always go to the fastest nor the battle to the strongest." That's out of the Bible but Damon Runyon responded: "That's the way to bet".

Question: Would you be biased by the fact that the small companies you've dealt with intimately are the ones that have fallen on the rocks and the Universal Re counter examples of the ones that fell upon the rocks that weren't small.

Panelist: Perhaps I'm biased by the last 2 years of market activit. Prior to that I spent 3 and a half years in public accounting. I don't see much difference between my reinsurance clients now and my reinsurance clients then.

David Hart from Merit Cyndicates Lloyds from London: I'd just like to say how much I agreed to most of what was said, even about Lloyds. But make one point in relation to one of the recent pieces of discussions, and that is that we must not confuse premium income with exposure. To talk in terms of very rapid growth of premium income in the next 2 to 3 years I suspect doesn't necessarily mean any increase in exposure. So I just warn about that particular point. But my question is really to Richard Caporaso, the one thing that I basically disagree with in the presentation was something that he said about the value of historic data. I'm very worried that the historic data in evaluating the porportion of your reinsurers who might not be around could be a very misleading thing to use. Because, a) your probably dealing with reinsurers who were okay 2 to 3 years ago but may not be okay in the future; and b) you may have changed your reinsurance program totally and therefore it may not be in the least relavent. Could I have comments on that particular point please.

Rich: In making an analysis in lost reserving, certainly circumstances within any individual company may change, the lines of business, the layers assumed, the prices, etc. may all change and therefore to look at your historical loss experience and use that to project current experience or current ultimates would be totally inappropriate. My point being, to look at historical experience, I believe, is appropriate but must be tempered by all the factors. Some of the factors I mentioned are current information by way of discussion with people, current financial information and current actuarial studies, etc. But historical information is just one of the numerous pieces of information or sources of information which must be considered in total in making your decisions absolutely.

Panel Session 2E

PARTIALLY FUNDED INSURANCE MECHANISMS

Moderator: Charles McConnell, Consulting Actuary
Tillinghast, Nelson & Warren, Inc.

Panel: Thomas R. Bayley, Assistant Vice President
Aetna Life & Casualty
Richard J. Marcus, Executive Secretary
National Committee on Insurance Guaranty Funds
Ollie Sherman, Assistant Actuary
Travelers Insurance Company

1985 Casualty Loss Reserve Seminar

Kansas City, Missouri

On the dias with me today are three distinguished gentlemen who are acknowledged experts in their individual areas. I'd like to briefly introduce them now, I will introduce them again as they speak. Tom Bayley will speak to us this morning about excess medical benefit funds.
Ollie Sherman will speak to us about workers compensation, second injury funds and various workers compensation assessment funds. Richard Marcus is going to speak on guaranty funds.

My instructions say that I should announce the Session number and title, introduce the participants, note that the session is being recorded so that any thing you say can and will be used against you, (No that's not on the sheet, its my own addition). All questions from the audience should be asked from the center aisle microphone. Your panelist should also repeat the question for the record and I think it would be helpful to identify yourself as ask a question. Remind the attendee to complete the seminar evaluation form and return to the registration desk. I have now handled all of my sworn duties.

Actuaries (at least actuaries in my experience) first encounter reserving somewhere in the midlife of their educational process. I suspect that the basic axioms which underlie reserving are presented we all hold near and dear, and learned much earlier. Among these are three that stand out in my mind. First, in a financial statement context, we try always to match revenue and expense. Second, premiums per insured are to be directly related to the insured's expected cost. Third, and very important to today's discussion, is that reserves should be carried to their ultimate settlement value.

The purpose of this panel is to introduce three classes of reserving mechanisms that violate these axioms in one way or another. We hope (or at least I hope) that these gentlemen will touch on why those axioms don't hold in these cases and, more importantly, what the company reserving specialist (that's you) should consider in evaluating how your companies interface with these mechanisms.

Our first panelist is Tom Bayley. Tom is going to speak us about the New Jersey excess benefits fund. It's an assessment fund. Tom is fellow of the CAS, a member of the AAA, a graduate of Lehigh University. I don't think he is an engineer, but he certainly got out of there somehow. Tom currently is works at the Aetna Life and Casualty as an Assistant Vice President, he plans results for home owners and auto. He has served at the CAS on their Public Relations Committee and he's now the Chairman of the External Communication Committee. It was reported last night that Tom likes bowling, warm fires, soft lights and cheap beer. An contuary to rumor, Tom is not going to an become ex-manager of the New York Yankees, I don't think even knows George Steinbrenner.

Our panel today is discussing future cost implications of partially funded insurance mechanisms in the insurance industry. When you think of that topic your thoughts turn to Medical Malpractice, Miscellaneous BI or Workers Compensation where the tail on the losses is long and the ultimate liability is more difficult to estimate than in other lines. You probably don't think about an unfunded liability where predominantly personal lones are involved.

SLIDE 1

What I'm going to talk about today is a nice round number for an unfunded liability -- $1 billion! That's not enough to put a dent in the Federal budget deficit, but in the state of New Jersey, where it exists, it is almost equal to the annual liability premium. One billion dollars.

In the state of New Jersey, reinsurance coverage is provided for excess medical benefits on no fault claims. Medical benefits under the New Jersey no-fault law are unlimited. The Excess Medical Benefits fund was established in 1978 as part of the New Jersey Unsatisfied Claim and Judgment Fund to reinsure all claim payments in excess of $75,000 on no-fault claims. It was designed to protect the small insurance companies from the shock of the large losses, particularly where they might have more than their fair share. The reinsurance premium assessed each carrier is that portion of the excess losses represented by the company's marketshare.

The governing board of the UCJF was concerned over the adequacy of the fund's assessment reserves. They hired the consulting firm of Tillinghast, Nelson & Warren to do a reserve review of the fund. Tillinghast found that a significant unfunded liability existed. Let me show you some numbers.

SLIDES 2A & 2B

In my presentation today I want to give you some background on the excess medical benefit portion of the UCJF, briefly review the operation of the EMB fund, compare the handling of the unlimited medical losses in New Jersey with that of the other states that have unlimited medical benefits (Michigan and Pennsylvania), and layout the reserve concerns that each company might want to address. I'll also discuss the latest development - an industry proposal to eliminate EMB losses from the UCJF.

Background/Operation

In response to the need for a cap on the potential no-fault liability for insurance carriers, particularly for smaller insurance carriers where solvency may be effected, the Excess Medical Benefit Fund was established in February of 1978 and placed under the administration of Unsatisfied Claim and Judgment Fund. The UCJF was originally established to provide benefits to those claimants in accidents involving hit and run or uninsured motorists and are left with no economic remuneration for their claim. The EMB portion of the fund has become the major component of the fund.

How does the excess medical benefit fund provide the reinsurance coverage?

The process is as follows:

SLIDE 3

1. Each carrier must file a notice with the UCJF for each case where the carrier recognizes the potential for medical costs in excess of $75,000.

2. Once $50,000 of medical expenses have been paid, and I emphasize on the word paid, the carrier required to file a report which contains

an estimate of the next two years expected payments and the ultimate reserve. Upon receipt of this report the UCJF reviews the claim and sets up initial reserves.

3. Once claim payments in excess of $75,000 are made, a request for reimbursement is submitted to the fund with an update of both reserve estimates.

SLIDE 4

The cost of this fund must then be distributed to the insurance carriers. This is the reinsurance premium, if you will. The assessment is based on the reported two year reserves, which is comprised of the expected two year payments on known excess medical claims and the anticipated two year payments on claims that have yet to cross the $75,000 paid threshold but have been reported to the UCJF. This procedure should produce assessments that exceed reimbursements. Each individual company's assessment is based on their share of the automobile liability market (Personal and Commercial combined) in the state of New Jersey. That percentage times the total assessment reserve is the company's assessment for a particular year.

SLIDE 5

Two other states had unlimited medical payments coverage in their No Fault benefits until recently. On October 1, 1984, Pennsylvania adopted a $10,000 minimum, $100,000 maximum benefit. However, prior to that date Pennsylvania had no mechanism other than private reinsurance to protect the carrier against significantly adverse experience that the unlimited coverage could generate.

In Michigan, a reinsurance mechanism does exist that is similar to the New Jersey EMB fund. Payments are provided for claims in excess of $250,000. Another significant difference from the New jersey fund is that he assessments made in Michigan are on a fully funded basis, that is, on thebasis of ultimate liability for all known and anticipated excess medical claims payments. The reserve is established on a life table case basis. The reserve is, thus, discounted for mortality and interest.

Reserve Issues/Concerns

The New Jersey reserve and assessment mechanism is in effect only covering the next two years of payments. The fund hired the consulting firm of Tillinghast, Nelson & Warren to review its operation. Tillinghast found a liability that was growing and now has a significant unfunded portion of over $1 billion. This then results in a concern that the industry in total may be under reserved for these excess medical cases.

Tillinghast would recommend the following accounting instructions be used by each carrier in New Jersey:

SLIDE 6

1. The direct losses of each carrier should reflect the ultimate liability for those claims incurred by the insureds of the carriers.

2. A reinsurance recoverable for the incurred liability in excess of $75,000 on those claims should be established and reflected in Schedule F. The resulting net liability of $75,000 per claim will then be reflected in Schedule P and in the underwriting and investment exhibit.

3. A liability item which they would entitle "Anticipated Assessments - UCJF" should be established. This amount would be for what the carrier would reasonably expect its prorata portion of the future assessments to be on claim occurrences prior to the reserve date.

The adoption of this recommendation on an industry basis would do the following:

1. The unfunded liability would be reserved for by the industry.

2. No fault experience of each carrier would be adequate for ratemaking purposes, since the full value of the No Fault claims would be reflected in the experience. However, New Jersey requires that no-fault losses be limited to $75,000 in the rate filing.

3. The accounting procedures and reporting of these liabilities would be appropriate in terms of annual statement treatment.

Currently, this situation is being handled differently among carriers. The methods vary as follows:

- Some companies are following the Tillinghast accounting recommendation.

- Some carriers have begun to establish anticipated assessment reserves, but carry their own losses capped at $75,000.

- Other companies are carrying their losses at full value with no anticipated assessment reserve. Their assumption may be that the excess losses on their claims is representative of their share of the EMB unfunded liabilities.

SLIDE 7

At Aetna we have begun to establish an anticipated assessment reserve.

GO THRU SLIDE

Other issues are concerns are as follows:

SLIDE 8

1. Ratemaking Implications - no-fault rate indications for the industry as whole are probably inadequate. New Jersey requires that no-fault losses be capped at $75,000. An assessment provision is allowed in the rate determination, but it is based on theactual assessment and includes nothing for the unfunded liability.

2. Alternate Methods - it has been suggested by the industry and Tillinghast that the stop loss limit be raised to $250,000 like that of Michigan. This would reduce the deficit on future claims and make a life table case method easier to use in the reserve determination.

3. Reserve considerations

   - o GAAP vs. Statutory - because the assessment is based on current market share (lagged two years) there is some uncertainty as to the level of the future assessments. Raises the question of whether the reserve should be included in the GAAP adjustment.

   - o Allocation Issues - the formula for allocating the assessment to the carriers is that originally used for the UCJF, prior to the inclusion of EMB claims. It considers both personal and commercial liability premiums in determining market share. While this may be appropriate for UC's, it does not seem appropriate for allocating no fault claim costs. The split of no-fault premium between personal and commercial lines is much more heavily weighted to personal lines, since commercial vehicles are only required to carry no-fault to provide coverage to injured pedestrians. Thus, an allocation based on liability premium unduly favors the predominantly personal lines company. This is an allocation issue for the industry as well as within your company.

   - o JUS Share - the JUA has a growing market share in the 1984, and it has been determined by New Jersey that it will be assessed as an insurance carrier. Thus, as a new entrant to the New Jersey market, and a significant one, the JUA will begin to be assessed in 1986, based on its 40% market share. Another JUA subsidy burden?

In summary, the industry has a significant unfunded liability, and there is inconsistent handling of the reserve situation throughout the industry.

Let me close by informing you of the most recent development on the EMB fund. There is a industry movement afoot to propose that the EMB fund be eliminated possibly beginning with AY 1986. This arises largely because of the deficit position of the fund. There is also a feeling that it would be simoler and more efficient for the individual carriers to handle their own claims and seek private reinsurance if so desired. Personally, I think this is a proposal worth considering. It will require an industry effort to make it happen and to determine how the current deficit is to be dispensed with. It's time to put the claim reserving back in the hands of the private insurers and bring some sanity back to the interpretation of New Jersey results and rate indications.

Moderator: Now that you have heard the good news, we will move on to something a little different.

Ollie Sherman is going to talk to us about Workers Compensation. Second Injury Funds and Special Assessment Funds. Ollie is a Vice President with Tillinghast, he is a graduate of the University of Virginia, with a degree in

applied mathematics (I don't know what that has to do with actuarial work but its on his bio.), Ollie is a fellow of the CAS and he is a member of the American Academy. Prior to joining Tillinghast he spent 10 years with the Travelers. He has very extensive experience and pricing and reserving workers compensation coverage. I'm informed that Ollie hates bowling, hates warm fires and soft lights and cheap beer. He does however, like to do something he calls boogie and Ollie will be in the lobby bar this evening to demostrate the finer points of this talent to any of you without experience in boogie.

Ollie: Thank for that introduction Chuck. As Chuck indicated, I recently started a new job, I'm really excited about the new challenges and new opportunities that this new position presents. Thats the good news. The bad news is that I've been so busy cleaning up behind Chuck that I really haven't had the time to prepare as well for seminar as I would have liked. Some additional good news that Dave Bradley at the Hartford gave this talk last year at the reserve seminar and he was very helpful when providing you with some of the information I'm going to talk about today.

I hope I can present this in a cohesive enough manner that they won't be embarassed that I gave them the credit for heling me.

The topic that I'm going to talk about today is Workers Compensation assessments in general with an emphasis on second injury fund assessments. What I'd like to do is to give some brief background information and then take a look at the approach that some individual states have taken to funding these liabilities. As we go through the examples, I'd like to take a look at two aspects of the liabilities. First is reserving which is the primary topic of this seminar, with reserving you are concerned with the recognition of the liability and accounting for it. A second and related aspect that I'd like to look at, is the pricing. Pricing provides the source funding for the liability. If you don't include the appropriate amounts in your prices you really have a difficult time in setting up your appropriate reserves.

Basically there are three reasons for under funded liabilities the first is the inability to measure a liability, the circumstances surrounding it might be so uncertain that you really can't get a good feel for the amount or the timing of the liability. The first example that we're going to look at is going to give us an example of that kind of assessment. The second reason for under funded liabilities is intentional under reserving. This results mostly from economic considerations. A liability might be so large that you just don't want to set aside the funds or you can't afford to set aside the funds to fully fund it. Or the timing or due date of the liability might be such that you may want to recoginize the investment income potential and fund the discounted value of it. The third and more distressing source of underfunded liabilities is ignorance our lack of awareness of the liability.

Most of you heard the saying that ignorance of the law is no excuse and that can certainly be applied to reserving. The fact that you are not aware of a liability doesn't ease the pain when it comes due and there are no funds to provide for it. If we are going to hold our selves out to be loss reserve specialist, I think we owe a duty to be as informed as possible. What we are going to attempt to do today is to provide you with some information on the various types of assessments and workers comp.

Basically, there are three cost sharing mechanisms for Workers Compensation. Workers Compensation Insurance is mandatory in most states. It is either mandatory that an employeer buy commercial workers comp. insurance or qualify as a self-insured. The mandatory nature of this coverage require that there be some mechanism for sharing a risk. The reinsurance pool were established to provide for sharing of large medical losses associated with the unlimited medical aspects of workers compensation. Assigned risk pools were established to provide for coverage for risk that no individual insurer desired to take on its own. Both these mechanisms are voluntary and they attempted to be fully funded the only risk of under funding is adverse development. The second injury fund however, are a little bit different animal. Second injury funds have mandatory participation. All insurers and self-insurers are required to participate. They are established to encourage the hiring of disabled workers. If a worker who had a previous disability, has a subsequent disability the second injury fund is trigerred and it pays the difference between the cost of the current injury and the accumulative cost of the current injury in connection with previous injuries.

The funding mechanism vary significantly by each state, and we are going to take a look now at the approach which some states have taken to fund these things. In a first example California has taken a rather extreme approach to funding its second injury found. They have provided a 70,000 dollar payment in the case that a no dependency death case. So that each time you have a death case where there are no surviving dependents, you have to kick in $70,000 in the Calif. second injury fund. This is an example of a liability that you cant really predict you really cant know that you are going to have a claim where the claimant dies with no dependents. If you could predict that then you really wouldn't write that kind of business. When these losses are paid, they are coded in as your paid claims so that if they do get into your data base for pricing to the extent that you've had these kind of claims before, they also get into your reserve bases so you do have some reserve amount up for these.

In the next example we look at Florida with its second injury fund assessment. Florida has made the basis for the assessment premium. The assessment rate is currently two percent and that fixes your liability because once you know how much premium you have written the liability can be easily determined by applying the assessment rate to the written premium. Once you have stop writing premiums you have no future liability for these assessments. The rate making treatment is to included it as any other tax item in the rate. It's relatively straight forward and there is really no need for a reserve on the part of an individual carrier. In the third example things start to get a little bit more interesting. We have a couple of states here, Connecticut and New York. New York assessment is based on calendar year paid indemnity losses. The assessment rate is recomputed each year and it changes significantly from year to year. The rate making treatment is to calculate an assessment rate and apply it to the incurred loss provision so its loaded into the rates in the same manner as loss adjustment expense would be loaded. The reserving implication for this isn't quite clear. As long as you have loss payments in New York you still have this liability for the assessment so, even if you stop writting business the run off of your paid losses would still generate assessment potential. To accurately reserve for this, you need to have a projection of your paid idemnify losses item of the future as well as some kind of estimate of how your assessment rates are going

to vary over time. An alternative to doing that is be to set up a precautionary reserve which you would take an average assessment rate over a long period of time and apply that to your expected loss payment pattern to generate a reserve for that. In Connecticut the situation is pretty much the same except for the computation of the assessment rate. The legislature in Connecticut has taken the approach of fixing the second injury fund assessment at 3 and a half percent per year. That means that the maximum rate that can be assessed in Connecticut is 3 and a half percent. What the legislature didn't fix was the number of times you can levy an assessment. And Connecticut has levy that assessment twice in five out of the last seven years, and in one year they levied at 3 times at 10 and a half percent a total.

The forth example that we are looking at here is pretty similar to the previous example except that in this case the rate making treatment isn't quite as certain. We've got some open rating states here, noteably, Minn. and ILL. and the manner in which an individual carrier provides for these assessments is left totally to the carrier. If you are not aware of the assessments you probably don't have any provision what so ever. My own personal experience at Travelers is that we didn't recognize the potentials for this assessment. A couple of years ago the Minn. assessment was at 7.8 percent, and we were merrily going along, thinking that were making some money in Minn. even though the claim experience was pretty bad. Once the claim experience got a little bit worse we decided we wanted to reduce our writings in Minnesota. We found that even without writing any Minnesota business we would generate large operating losses in Minnesota. The assessment rate applied to paid losses increased substantially. One of the problems with that assessment is that there are some political pressure to keep the rate down so that there is a significant build up of the inadequacy in the Minn. special comp. fund. A current estimates it that an adequate assessment would be 30%.

In New Jersey we have a similar problem, the assessments are also on paid losses. But the way they included in the rates are a little bit unique. They are included as a budgetory item with a build back of prior years inadequacy. The intent of this prcedure is to cover a period of years balance the amounts collected through rates with the actual assessment payments. The reserving implication here is pretty much the same as in the previous slide.

What I'd like to do now is to just talk very briefly about a couple of new assessments that have come along in the last several years. The first is a Minn. Reinsurance Association. The Minn. Legislature in its infinite wisdom decided that a means of reducing workers compensantion cost in Minn. would be to establish a mandatory excess of loss reinsurance fund. All insurers and self-insurers are required to participate in this. The fund is currently managed by consultants. There is a consultant who does the rating, there is a consultant who does the reserving, there are consultants to the consultants and all this is done in the name of reducing workers compensation cost to Minnesota employers.

The funding for this Association is intended to be on a fully funded basis. There are two occurence limits, the first one is currently at a $150,000 per occurence and it escalates annually. The other one is a constant $200,000 above the lower limit. Each company have the option of selecting one of these two limits. The first year that the association came into existence, they let

each individual company select its limited. Some of the devious who had several companies in their fleet, selected different limits for different companies. They wised up to that and now each company group has one choice of option to select. The rating basis for this is to include an assessment on pure premiums. The fully funded level attempts to have funds set aside to provide for losses up to 2.7 million dollars. Losses above the 2.7 million layer are on a pay as you go bases. There were some political pressure associated with the association which prevented them from setting adequate rates and there is substantial potential for future assessments. The association has the ability to go back and make assessments for the inadequacy in prior years I think this is the first year they can legally make an assessment but its doubtful that they are ready to do that yet. The auditor for the association has been putting a lot of pressure on them to publish some informatin which will allow carriers to recognize the extent of the liability for this kind of assessment in the future. I'm not sure exactly what kind of information the assoc. is going to put out, but they are looking at putting out some additional financial information that will provide some assistance to companies who desire to recognize this.

The final thing that we are going to look at is the Kentucky Reinsurance Assoc. I have no idea what the purpose of this thing is. Prior to this reinsurance assoc., Kentucky had a special fund which funded mostly black-lung payments. The reinsurance assoc. picks up, from the time that it was inacted the future liability the special comp. fund so its just replacing one assessment vehicle with another. The idea is that reinsurance assoc. will be on a fully funded basis, so their leving assessments to try and build up a fund to pay these liabilities. The problem with this is that there is still an assessment for the run off of the old Kentucky special fund so that the current schedule has that the assessment reaching a maximum of about 40% in 1987. The intent is that the insurer act as a tax collection agency for the state of Kentucky. The funds that the insurer collects are intended to be passed on the state of Kentucky. The problem with this is the assessment is based on case basis incurred losses and most insurers are including it in the rates on a premium basis. Kentucky realizes that there were some inequitity there so they established a rule that the liability of an insurer of this assessment is the maximum of the amount of that they collect and the amount that they should pay based on the assessment rate applied their losses.

The reserving implication of this is none if you are collecting the right amount. If you are not collecting the right amount the reserving implication is that you need to reserve for the difference and what you are collecting in your rates structure and what you project would be your actual assessment based on your funding.

Moderator: Our final speaker will be Richard Marcus. I've known these other two gentlemen for ten years and I think going through an examination process like the CAS exams provides a level of comradeship allows some good natured kidding. But I've never met Richard before today so it was unclear whether to stand up here and roast him or not. Then I found out that Richard's a Lawyer and so I said "what the heck." Richard Marcus has a BA degree from the University of Illnois. He is a Juris Doctor from the University of Chicago in 1977. He has worked for the Willis County Legal Assistance Program, the Alliance American Insurers, and he is currently the Executive Secretary of the National Committee on Insurance Guaranty Funds. His responsibilities include

all the administrative details of that organization as well as his communication with the outside world, and I suspect that that is why he is here today. Richard is not an actuary and as far as I know he has no plans to ever take an actuarial exam. I suspect that no personal friends who are actuaries.

Richard Marcus: There is some thing very funny about me participating in this seminar and Charlie put his finger right on it. I don't know anything about numbers, I don't know any thing about accounting which is certainly unusual for a speaker at this meeting. I prepared this handout which will give you all the numbers you will ever want to see with regard to the guarantee assessment.

I'll start my presentation with just a few preliminary remarks on two terms that I will be using in my discussion of the guarantee fund system. The first term is guarantee fund system or guarantee funds. The focus of my presentation is on the property and casualty post assessment guarantee fund system. This is a mechanism created under state law for pulling money of solvent insurers in order to pay certain claims against an insolvent propety casualty insurance company. After an insurer has been determined to be insolvent. The assessments are based on estimates of the outstanding claims limited by statutory deductibles and caps. that the guarantee fund is expected to pay. The post assesssment property casualty guarantee fund systems is in place in Puerto Rico, Washington D.C., and all states except New York. New York has a pre-funded insolvency mechanism. It operates in a mannner that is quite distinct from the post assessment system. The property and casualty guarantee fund system is separate and distinct from the life and health guarantee fund system. There is a significant difference between major provisions of the two systems. Accordingly, it would be quite improper to make generalities regarding the post assessment property and casualty system based on the experience with either New York pre-funded mechanism or the life and health guarantee fund mechanism. So, throughout this discussion when I refer to guarantee funds or guarantee fund systems I am talking about the property and casualty, the post assessment guarantee fund system. The other term I am going to be using is Model Act. And when I'm referring to the Model Act, I'm referring to NAIC Model Guarantee Fund Act. All but two state guarantee fund laws are based upon the model guarantee fund act adopted by the NAIC in 1969. California and Wisconsin have statutes enacted prior to 1969 but these resemble the model very, very closely. In fact, some of the provisions in the model were based on the provisions in the California-Wisconsin acts. Because of the close similarities of state guarantee fund laws with the NAIC model , I'm able to base my remarks today on provisions in the model act knowing that this will also give a general picture of the provisions in the various state guarantee fund statutes as well. I will, however, point out some of the variations from state to state as they pertain to our discussion. Now I give you a brief idea how our guarantee fund system works. The model act provides for the establishment of an involuntary, not-for-profit association consisting of all license companies writing the lines of insurance covered by the guaranteed fund. The key word here is involuntary. Your company has to belong to the guarantee fund in a stat in which it wants to be licensed. If you don't belong, you don't get licensed. The guaranteed fund laws provide that the association should act through a board of directors consisting of insurance company representative. The guarantee funds are not a government agency. They are not run bureaucrats or

by politicians, they're run by representatives of your companies. They sit on the board of directors and they have a certain sensitivity towards the industry and its problems and needs. Well lets go on to the lines that the guarantee fund system covers. The model act provides guarantee fund coverage for claims arising out of all direct insurance except life, title, surety, disability, credit, mortgage guarantee, and ocean marine. Everything else written by a property casualty insurer on a direct basis, the reinsurance is not included is covered by the guarantee funds under the model act. Here is a place where there is some state by state variations. Some states, a small handful for example, include surety as a covered line, and they are paying dearly for it today. Some states have eliminated workers compensation. For example, from coverage, because they have other mechanisms to respond to claims of insolvent workers comp writer. And then there are some states that deal with faternal mutuals and exclude them, or include them as the case may be. But those seven lines that I've gave you are the core of what would be excluded in most of the guarantee fund acts in the states. What are the limits of guarantee fund coverage. Well basically the association pays insurance claims and refunds the premium of insolvent insurers within the followig prescribed limits. And there's about five limitations. One, guarantee funds need only pay covered claims which are defined as unpaid claims arising out of the coverage and not in excesss of the applicable limits of the insured's policy. In other words, you can't recover more from a guarantee fund than you would under your policy had your company not gone insolvent. Another limitation is on the _____ of claim. One seeking payment from a state guarantee fund must either reside in the state at the time of the insured event or the cliam must involve property permanently located in the state. This seems like a simply definition, however, recently we had some insolvency of large commercial writers that had big corporate insureds and guarantee funds are puzzled over what is the residence of a corporation. Is it the state where the corporation is chartered, or the state where its headquarters is, or the state where it does it principal business, and depending on who's ox is being ?bored?, people look at different principle contacts that try to decide where that insured, or that claimant resides. The guarantee funds up to this point have been working these things out among themselves, and the NCIGF is also participating in some efforts to try to resolve siteous of claims disputes. A fourth limitation on coverage, is that the model act applies only to license insurers , surplus lines carriers and claims arising from their insolvencies are excluded. Actually that was the third limitation if you're taking notes. The fourth limitation: claims of insurers or reinsurers are excluded. Your company cannot bring a claim against the guarantee fund. You're out of luck. You just have to absorb that cost. You might have a claim as a result of some subrogation action. The fifth limitation deals with the fact that claims to the guarantee fund are subject to maximum recovery limits and deductibles. The model act provides that coverd claims ar covered up to $300,000. They are also subject to a $100 deductible. These limitations do not apply however, to workers compensation. Workers compensation claims are covered to the full extent of the claim. This is another area where there are some limitations, however, some states have maximum claim limits of $100,000. There's about three that have maximu claim limit of over $300,000 including, I believe its Maryland that has... the sky's the limit. Ther is no maximumm claim limit. How does a guarantee fund get money to pay for all these covered claims. Primarily it gets it through assessments. Fund sfor the payment of covered claims, and the expense of the guarantee funds are derived from assessments against licensed

companies writing the covered lines. Thse amount are collected as needed. Of course you don't know what's needed until the guaranteed fund tells you that. For years in which no covered claims are paid, and expense incurred, no assessments are made. The assessments are made on a prorata basis which takes into consideration the volume of net direct written premiums of your company written in a state as compared to the net dirct written premiums of all the companies writing that same business in the state. I don't know much about math, but let's see if I can get this right. If your company was responsible for about 10% of the net direct written premiums in say Missouri, and Missouri guarantee fund wanted to assess a million dollars, your company would be responsible for 10% of that or $100,000. I see smiles, it must have been right. It gets a little complicated here, though. The model act suggests states may wish to create separate assessment accounts. For example, 20 states assessed companies separately for covered claims and free accounts. The automobile lines account, the workers compensation account, and the all other accounts. Thus, in a state with these separate accounts, a company writing solely workers compensation coverages would not be assessed to pay claims arising out of the insolvencies of a company that wrote only automobile insurance. I think that's clear. There are limitations on assessments. The model act provides the assessments in any year are limited to 2% of net direct written premiums. So you can never be assessed more than 2% of your net direct written premiums in anyb state. Now while most states have adopted this 2% limit, a significant number, 19 have a 1% assessment cap. Ohio has a 1½% cap. Most states provide for the recoupment of assessments through the rate making process which works sometimes. New Jersey and California provide recoupment through a surcharge on policyholders. Fifteen states recoup assessments through a premium tax offset mechanicism. Let's consider the cost of the guarantee fund system to the industry. I gave you this NCIGF handout,. what that is is the 1984 NCIGF assessment report. Each year th NCIGF sends out a questionnaire to all the guarantee funds in the country and ask them to report on their assessment experience for the previous year. We then take the responses and update our records which we been keeping since 1969 and draw some general pictures about th assessment history under the guarantee fund system. Paging through the report, at least through the first coupl eof pages, you'll notice that the approximately $528 million dollars has been collected by guarantee funds through assessments from November of 1969 through December of 1984. Last year, 1984, 74.1 million dollars was assessed, which is about the second highest assessment collected in any one year. It compares to 40 million dollars or so collected in 1983; 43 million dollars in 1982, but doesn't approach the record year of 1981 in which we ring the bell at 84 million dollars. This year we're going for a new record, I shouldn't say that, but I expect this year we might surpass the 84 million dollar mark. We're wrestling with Ideal Mutual, Excaliber Insurance Company, there's another one, Optimum Insurance Company and a hosts of small _____ writers which could add up to some big bucks. At the same time the report will indicate that the guarantee funds have returned about $135 million dollars to its member companies. After an insolvency, the assets of the insolvent insurer are liquidated and guarantee funds in most states are in a high priority level to receive distributions of the assets of the insolvent company. And often times that the guarantee fund receives a significant amount of money back and can refund that to its member companies. The report also shows that through 1984 guarantee funds have made assessment to cover insolvencies of 104 companies. Twenty of these were declared insolvent 1984 which matches, I think it was 1975 when we reached th 20 company level

again. This year I have a 11 hash marks on my wall and it might grow. So what we'll see is how we come out this year. The 104 insolvent companies were domiciled in 32 states. Interestingly, 62 of these companies or almost 60%, were domiciled in just six states, those being Pennsylvania, New York, California, Florida, Illinois, and Texas. If your companies are licensed in those states then you know what the effect of these numbers means on your assessments. Let's talk a little bit about past cost and what might happen this year. What about future cost. Well the future cost of to the industry of the guarantee funds system is based on th future fortunes of the insurance industry. Are you the person that looks at a glass of water and sees it's half empty or half full, and depending on how you see you come out, that's what you might think about the cost of guarantee funds. Where are we in the insolvency crunch. There's some people who I have spoken to who think that the we _____ out and we're startint to come back up and the whole fact that the pricing system seems to be more realistic is an indication that we're climbing out of a hole that we've dug over the last few years. On the other hand, there's people who think that we're still slipping down the insolvency pool. A report I read recently in a publication by the Triple I, reported that the NAIC has placed 187 companies on the "in need of immediate attention list". I'm not sure what that means, but I do know that's about a 50% increase over the number of companies on that list last year. These are some facts to chew on. As I said, I don't know what these facts means; I'll leave it to acturaries who are better predicting things, or presumably, than I, to draw your own conclusions. I can tell you this, that regulators and law makers and industry officials are very concerned about the guarantee funds system and it has draw their attention for the first time in many, many years. I follow the progress of guarantee fund legislation. This year I tracked about 78 proposals nationwide which affected the guarantee fund system and looking at these bills I see two trends that conflict with each other. Two interest, that I guess are reflected in these bills. One interest is the interest in legislators and the sponsors of this legislation to insure the capacity of the guarantee fund system. To make sure that it has enough money to handle a major insolvency or a string of smaller insolvencies, or to respond to some solvency crisis. The bills that I'm referring to, will protect or increase capacity by excluding certain lines of coverage by protecting the trigger mechanicism of the guarantee funds, to make sure that they can't be triggered prematurely and have them to contribute to the rehabilitation of a company rather than to pay claims of the company when it is actually down the drain. On the other hand, and I should add, that I've seen a number of these type of bills enacted this year. At the same time, there's another interest that I see reflected in legislation, and that is the interest of legislators and lawmakers in making sure that their constituents are able to recover as much as they can, and not suffer to terribly when there insurance company goes down the drain. These bills will increase the scope of guarantee fund coverage. They would make additional lines covered. They would raise the maximum claim limits of the guarantee funds. and they erode the deductible that I referred to. And again some of these bills have passed this year as well. Also on the NAIC level, there's a great amount of interest in the guarantee funds system. There's a number of committees that are looking into the Guaranteed Fund Act and again it shows this dichotomy of interest again. There's one committee that has been asked to look into the capacity problem and to consider additional lines for exclusion from cutting out of/from within the protected scope of the guarantee fund system. Thus, this group has put before the NAIC a bill which would eliminate guarantee fund

coverage for financial guarantee coverages, for all bonding obligations, for D&O coverage, for directors of profit entities, a certain type of professional liability, professional liability for actuaries probably, you don't need that anyway. They would exclude coverage of punitive damages and a couple of other factors. On the other hand, there's a group that is asking the same committee to see about increasing the scope of guarantee fund coverage to include surety. I don't know how this is going to come out. Right now we're sort of at an impass. And the two factions are kind of balancing each other out. But as the solvency situation goes on, we'll see how these trends fill out. I think that should about conclude my remarks.. I just want to add one mor thing. Those of us who are working in the guarantee fund system seem to be operating under the powers of that very strong Chinese curse that we should live in interesting times. And expensive times. And I think its encumbered upon you all to be aware of the guarantee fund system because in the future it could mean some very, very big bucks for your company.

There is a theory I wish I could claim for my own, but I can't I'll share it with you, and that is that the financial solidity of insurance company is inversely related to the high sounding name that the insurance company has. Things like Granted and Ideal automatically denotes some sort of financial trouble. I suppose that theory will be with us until such time that something like the "Sinking Ship Insurance Company" goes under. We have about fifteen minutes before lunch and if you have questions, these gentlemen have laid out a picture of some real large pots of money that somebody's going to have to pay for one of these days. If you have questions we would certainly entertain them to anyone of them.

I'll start if you want. I have a question for Richard. There's a lot of excluded minds in guarantee funds situations, how are you able to determine that one of those excluded lines isn't the line that causes the company to go insolvent, and yet you end of paying or assessing other companies for that companies for that company's insolvency because it writes included lines.

The answer to that question is TAPE INTERFERENCE...at least try that much. I'm not sure I can answer that except to say it really doesn't matter why the company went insolvent, the fact that the matter is its dead and you're required to pick up the pieces anyway. "On the included lines". On the included lines exactly. All you can hope for though is that your company, there is a rainbow here, if that company wrote primarily the excluded lines and then well obviously there might not be as many claims arising on the included lines. Also, there's the possibility that the company wrote lines, wrote significant amount of lines that your company did not and if you're in a state that has these separate accounts, you may find yourself being absolved from having to make any contributions to the assessment pot.

Jim Watt from Florida Insurance Department. To Ollie. Considering all the diverse ways that states have come up with mechanicisms for funding, second injury funds. Is there such a way as an ideal way to do? Or is there a way that companies would perfer it to be done?

I think ideal probably depends on your prospective. The easiest way to handle it and collect the money for it is on a premium basis. But that's not equitable if the intent is to pay losses. The most equitable way to assess it is on a loss base. The problem with that is that it creates the other

problems of how does a company handle the reserving for it and how do you include it in the rate structure. I think the premium basis is the simplest in the most easily handled.

Gerry Shibold, ?Wausaun? Insurance. Same guy, following up on that question injury funds are also financed by self insurers, and when you're talking about using a premium base you're running into a problem. I serve on the boards of the Kentucky Reinsurance Association and I agree with you. I don't know why that thing is organized. And also on board of the Minnesota Reinsurance Association. We have run into that problem in both cases, but Florida for instance, you said, was based on premium. I'd like to know how to handle the self insurers in that case.

The self insureds are handled by having a caluclation to determine what the premium base would have been if they had purchased commercial insurance.

Does anyone audit that?

Probably not. The problem is that there's problem to any way that you come up with funding it. It's just a question of which serves the best purpose for the most people. The problem with open rating is the real problem when you have a premium basis as in Minnesota. So its just a question of determining which mechanicism -- I don't think we found a mechanicism yet that addressed each of those problems.

I think Kentucky right now is probably the worst of all possible bases where they use the known case reseves for the last accident and the development on reserves for the prior 4 or 5 years and of course they simply ask the self insurers to report those numbers to us and we'll accept anything that you give us. Well of course you can't...

Insurers can play games with that calculation too. You can start off/ if you have a situation like in Kentucky and you the assessment rate is increasing the most prudent thing to do is get your case reserves up early so that you'll have negative development on those cases later when the assessment rate goes down. So that you actually recoup some of the assessment money that you pay.

And in Kentucky, there's quite of bit of a game playing when it comes to switching from self insured to insured status and back again. Every time your coal mine has a lot of losses you become insured for the next year or two so you don't have your assessment based on those losses. Then you can go back to being self insured again, later on.

The interesting thing about Kentucky is that the whole assessment is generated by the coal industry and all the other businesses in Kentucky is subsidizing the coal mining industry.

That's right and the bulk of the claims that are paid under the second injury fund ar in Kentucky are black lung claims because black lung in most cases is considered a second injury and the fund is obligated to pay 75% of that claim.

Other questions.

I'd like to point that we have by no means exhausted all the partially funded mechanicisms that have been around. Last year on this podium we talked about medical malpractice funds. There are those working out there that are funded on a pay as you go basis. Talk is that the federal goverrment is going to step out of the federal crime insurance program and I guarantee you that if that ends up on a state level that it will likewise be a partially funded insurance menchanism. Alot of these little nuances that really impact your financial statements after you've done all of your standard reserve type analysis. I have a question I guess for Tom. And Tom you might not want to address this a little. It goes to the accounting treatment of excess. -- funds. In particular, one of they/its interesting/Tillinghast recommended the accounting treatment for New Jersey that you put on the board which basically everybody ought to put up an assessment reserve in effect equal to your current assessment rate times the total unfunded liability. We have some competing philosophy in our firm and of course we find ourselves in argument a lot about these things. That its reasonable to assume that a company could stop writing today and only pay assessment for two more years. And therefore only needs a reserve equal to the anticipated percentage on the next two years premium. Would you comment briefly for us on the/one of those is ?Dextry? One of those Gap I think but I never remember which one.

By the way since I paid $10 for those things. Opps see it still doesn't work. I thought they fixed that. We've argued that back and forth in our own company because the situation we now have in New Jersey and maybe I can comment on both. The UCJF and the Joint Underwriting Association. Because there's another unfunded liability situation in that the all assigned risk policyholders that are now JUA insured in the state of New Jersey are producing more losses than the subsidy on the entire industry will cover, so the JUA is running at about a 300,000 million statutory loss a year. Another unfunded situation. We have felt that our results ought to reflect our ultimate liability in that state. And we looked at both of these situation in terms of establishing reserves for them for the eventual assessment that we are going to have to pay. And in the new UCGF situation you can argue it in two pieces. Number 1, you know you're going to be on the hook for the two years you alreadyb written business in that stat and you know what your market share was so you can pretty accurately calculate what that two year assessment will be. What you can't anticipate is whether the fund itself may limit the assessment to less than the two year reserve level which they have done in the past. But in terms of the amount beyond that/for your current year or for your next year's writings, you can argue that maybe that ought to be/if you reserve for it, you reserve for it on a gap basis, which is on the going concern basis. Because if you go out of business you will not have to pay those assessments. We looked at that and said that we know we're going to be in th marketplace in New Jersey, we know we're going to continue to be in the marketplace, so we ought to hold that reserve. And we've done it, I think to again try and show New Jersey in the light that it should be shown. And that is that it is not profitable and our results are now starting to show it as it being a profitable state because all of a sudden this tremendous assigned risk loss is gone and that you can't reserve for. We've argued that one with our lawyers and accountants and the law does not provide an assessment provision for the JUA losses. Its all suppose to be self sufficient through the residual market equalization charge or a subsidy. So we've attempted to establish reserves for the full amount of our share of what we think our share of the unsatisified claim and judgment fund. And we have not been able to do

anything in terms of the JUA, and will not do anything for the JUA until there is assessment provision till the law is changed and the assessment provision comes in. That answers your question, but you get into an accounting and legal argument on both of those positions.

Well its about time for lunch, if there are no other questions I'd like to thank the panelist, it makes it easier for a moderator when the speakers are as good as these gentlemen have been. Would you please join me in giving these guys a round of applause. And let me remind you once again, this isn't in the instruction but I'll do it anyway to fill out your evaluation forms and turn them in. Thank you very much.

1985 CASUALTY LOSS RESERVE SEMINAR

2E PARTIALLY FUNDED INSURANCE MECHANISMS

by

Charles W. McConnell

PARTIALLY FUNDED INSURANCE MECHANISMS

Two aspects of partially funded or underfunded liability

Recognition and Accounting for (Reserving)

Source of Funding (Pricing)

Reasons for Underfunded Liabilities

Inability to Measure the Liability

Ignorance - Lack of Information

Intentional - Economics Associated with Full Funding

Background

Establishment of WC System

Need for Cost Sharing Mechanisms

- Reinsurance Pools - Unlimited Medical
- Assigned Risk Pools - Undesirable Risks
- Second Injury Funds - Encourage Hiring Disabled Workers

Second Injury Fund

- Participation Mandatory (Insurers and Self-Insurers)
- Payments Made by the Fund
- Funding Mechamism

Different Approaches to Funding (Examples of Each)

- Lump Sum Payment for Certain Individual Cases
- Written Premium
- Calendar Year Paid Losses

Minnesota Reinsurance Association

- Purpose
- Funding

Kentucky Reinsurance Association

- Purpose
- Funding

FUNDING OF - SPECIAL STATE WORKERS' COMPENSATION FUNDS
LARGE WORKERS' COMPENSATION STATES

EXAMPLE 1: SPECIAL SITUATION CLAIM PAYMENTS

STATE	FUND NAME	METHOD OF ASSESSING FUND REQUIREMENTS	RATEMAKING TREATMENT
CALIFORNIA	SECOND INJURY	$70,000 (OR UNPAID BALANCE) IN EACH NO-DEPENDENCY DEATH CASE	PAYMENTS TO FUND ARE INCLUDED AS INCURRED LOSSES FOR CALCULATING RATE INDICATIONS.
TEXAS	SECOND INJURY	FULL DEATH BENEFITS (UP TO 360 WEEKS MAXIMUM) IN EACH NO-DEPENDENCY DEATH CASE	

NEED FOR CARRIER ASSESSMENT RESERVE: PROBABLY NONE

FUNDING OF - SPECIAL STATE WORKERS' COMPENSATION FUNDS
LARGE WORKERS' COMPENSATION STATES

EXAMPLE 2: CALENDAR YEAR WRITTEN PREMIUM ASSESSMENT

STATE	FUND NAME	ASSESSMENT BASE	1984 ASSESSMENT RATE	RATEMAKING TREATMENT
FLORIDA	SPECIAL DISABILITY	CALENDAR YEAR WRITTEN PREMIUM	2.0%	FULL RATE INCLUDED IN TAX COMPONENT
	ADMINISTRATIVE FUND	CALENDAR YEAR WRITTEN PREMIUM	3.0%	FULL RATE INCLUDED IN TAX COMPONENT

NEED FOR CARRIER ASSESSMENT RESERVE: NONE

FUNDING OF - SPECIAL STATE WORKERS' COMPENSATION FUNDS
LARGE WORKERS' COMPENSATION STATES

EXAMPLE 3: CALENDAR YEAR PAID LOSS ASSESSMENT
INSURANCE RATES FULLY REFLECT FUTURE COSTS

STATE	FUND NAME	ASSESSMENT BASE	1984 ASSESSMENT RATE	RATEMAKING TREATMENT
NEW YORK	SPECIAL DISABILITY	CALENDAR YEAR PAID INDEMNITY LOSSES	7.8%	LATEST PAID INDEMNITY RATE CHARGED TO INCURRED INDEMNITY LOSS PROVISION
	REOPENED CASE	CALENDAR YEAR PAID* INDEMNITY LOSSES	2.6%	
	WC BOARD EXPENSE	CALENDAR YEAR PAID INDEMNITY LOSSES	7.5%	NEXT YEAR'S BUDGET COMPARED TO PAID INDEMNITY LOSSES - CHARGED TO INCURRED INDEMNITY LOSS PROVISION
CONNECTICUT	REHABILITATION	CALENDAR YEAR PAID LOSSES	2.0%	LATEST PAID LOSS RATE CHARGED TO INCURRED LOSS PROVISION
	SECOND INJURY	CALENDAR YEAR PAID LOSSES	3.5%	
	ADMINISTRATION	CALENDAR YEAR PAID LOSSES	1.1%	
	WORKER EDUCATION	CALENDAR YEAR PAID LOSSES	0.2%	

NEED FOR CARRIER ASSESSMENT RESERVE: EXPECTED FUTURE ASSESSMENT RATE APPLIED TO TOTAL APPROPRIATE LOSS RESERVES (INDEMNITY OR TOTAL)

*PLUS $3,000 PAID TO STATE FOR EACH NO-DEPENDENCY DEATH CASE

FUNDING OF - SPECIAL STATE WORKERS' COMPENSATION FUNDS
LARGE WORKERS' COMPENSATION STATES

EXAMPLE 4: CALENDAR YEAR PAID LOSS ASSESSMENT
INSURANCE RATES MAY NOT FULLY REFLECT FUTURE COSTS

STATE	FUND NAME	ASSESSMENT BASE	1984 ASSESSMENT RATE	RATEMAKING TREATMENT
MINNESOTA	SPECIAL COMPENSATION	CALENDAR YEAR PAID INDEMNITY LOSSES*	25.0%	?? OPEN COMPETITION RATES
NEW JERSEY	SECOND INJURY	CALENDAR YEAR PAID INDEMNITY LOSSES	10.6%	RATE CHARGED AGAINST EXPECTED PAID LOSSES
MICHIGAN	SECOND INJURY	CALENDAR YEAR PAID LOSSES EXCLUDING ALL MEDICAL, REHABILITATION AND FUNERAL PAYMENTS	3.4%	?? OPEN COMPETITION RATES
	SILICOSIS, DUST, LOGGING		1.3%	
	SAFETY BOARD	CALENDAR YEAR PAID INDEMNITY LOSSES	0.5%	
PENNSYLVANIA	ADMINISTRATION	CALENDAR YEAR PAID LOSSES	1.2%	RATE CHARGES AGAINST EXPECTED PAID LOSSES
ILLINOIS	SECOND INJURY	CALENDAR YEAR PAID INDEMNITY LOSSES	0.1%	?? OPEN COMPETITION RATES

NEED FOR CARRIER ASSESSMENT RESERVE: EXPECTED FUTURE ASSESSMENT RATE APPLIED TO TOTAL APPROPRIATE LOSS RESERVES

*PLUS $25,000 PAID TO STATE FOR EACH NO-DEPENDENCY DEATH CASE.

$ 1 BILLION

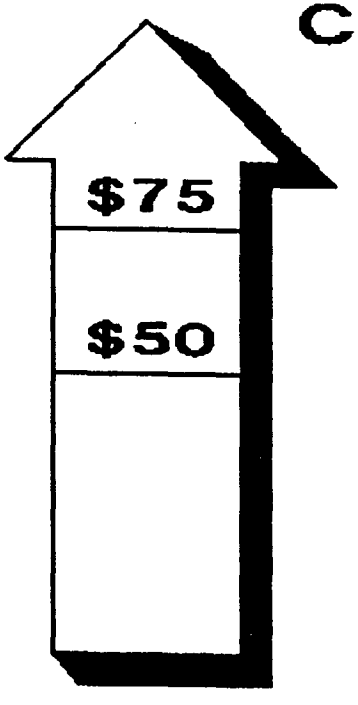
Unfunded Liability
NEW JERSEY UCJF
($ Millions)

	12/84	12/85
Case Reserve	$ 287	
IBNR	+ 565	
Total Liability	$ 852	$1,183
Assessment Reserves	- 128	- 165
Unfunded Liability	$ 724	$1,018

UCJF Operation

CLAIM NOTICES

($ Thousands)



Request for Reimbursement Plus Update of Reserves

Report Estimated 2-Yr. Payments and Ultimate

Report of Potential Claim

UCJF Operation

ASSESSMENT DETERMINATION

- Determination of Ultimate Losses
- Determination of 2-Yr. Reserve
- Add in Unsatisfied Claims and Judgments
- Allocate to Companies

NO-FAULT STATES WITH UNLIMITED MEDICAL BENEFITS

New Jersey	● UCJF >$75,000 ● Medical Benefits Only ● Partially Funded
Michigan	● MCCA >$250,000 ● Medical, Wages, Essential Servs. ● Fully Funded
Pennsylvania	● Private Reinsurance

RECOMMENDED ACCOUNTING INSTRUCTIONS

- Direct Losses Reflect Ultimate Liability
- Reinsurance Recoverable Established for Excess Above $75,000 Per Claim
- Anticipated Assessment Reserve Established for Share of Unfunded Liability

Unfunded Liability
ÆTNA SHARE
($ Millions)

Total Unfunded Liability	$1,010
Market Share	X 3.42%
Maximum Anticip. Assmts	$ 34.8
JUA Share	- $ 16.8
Probable Assessments	$ 18.0

OTHER ISSUES/CONCERNS

- Ratemaking Implications
- Alternate Methods of Full Funding
- Reserve Considerations
  - -GAAP vs. Statutory
  - -Allocation Issues
  - -JUA Share

1985 CASUALTY LOSS RESERVE SEMINAR

2E PARTIALLY FUNDED INSURANCE MECHANISMS

Post Assessment Property & Casualty

Guaranty Fund System

by

Richard J. Marcus

Post Assessment Property & Casualty Guaranty Fund System

I. INTRODUCTION - A few preliminary words of explanation

A. Focus of presentation on the "property and casulaty post-assessment guaranty fund" system.

1. A mechanism created under state law for pooling money of solvent insurers in order to pay certain claims against an insolvent property/casualty insurance company. The system is funded by assessments levied after an insurer has been determined insolvent. The assessments are based on estimates of the oustanding claims the guaranty fund is expected to pay.

2. In place in Puerto Rico, Washington D.C., and all states except New York.

3. New York has a pre-insolvency assessment fund. Operates in manner distinct from post-assessment system.

4. Property and casualty guaranty fund system separate and distinct from the life/health guaranty fund system. Significant differences between major provisions of the two systems.

5. Improper to make any generalities regarding the post assessment property and casualty system based on experience with either the New York pre-assessment fund or the life/health guaranty funds.

6. Throughout my discussion, when I refer to a "guaranty fund" I am referring to a post-assessment property/casualty guaranty fund.

B. NAIC Model Act - All but two of the state guaranty fund laws are based upon the model guaranty fund act adopted by the NAIC in 1969. California and Wisconsin have statutes enacted prior to 1969 but which resemble the model. Because of the close similarities of state guaranty fund laws with the NAIC model, I am able to base my remarks on provisions in the model act keeping this will also give a generally accurate picture of the provisions in the various state guaranty fund status. I will, however, point out some of the significant state-by-state variations which ahve occurred.

II. GUARANTY FUND OPERATION UNDER THE MODEL ACT

A. Involuntary, not for profit - The model provides sfor the creation of an involuntary, not-for-profit association consisting of all licensed companies writing the lines of insurance covered by the guaranty fund.

B. Lines Covered - The model act provides guaranty fund coverage for claims arising out of all direct insurance except:

- life; - disability; -ocean marine
- title; - credit;
- surety; - mortgage guaranty;

C. Board of Directors - The association acts through a board of directors consisting of insurance company representatives.

D. Guaranty Fund Coverage - Basically, the association pays insurance claims and refunds the unearned premium of insolvent insurers within the following prescribed limits:

1. Covered Claims - guaranty fund need only pay "covered claims," defined as an unpaid claim arising out of the coverage and not in excess of the applicable limits of the insured's policy.

2. Situs of Claim - One seeking payment from a state guaranty fund must either reside in the state at the time of the insured event or the claim must involve property permanently located in the state.

3. Licensed Insurers - The model act only applies to licensed insurers. Surplus lines carriers and claims arising from their insolvencies are excluded.

4. Claims of Insurers or Reinsurers Excluded - The model excludes claims of insurers or reinsurers, as to subrogation or otherwise.

5. Caps and Deductibles -

   a. Covered claims under the model are covered up to a $300,000 cap, less a $100 deductible.

   b. These limitations do not apply to workers' compensation claims.

E. Assessments - Funds for the payment of covered claims and the expenses of the guaranty fund are derived from assessments against licensed companies writing the covered lines. These amounts are collected as needed. For years in which no covered claims are paid and expenses incurred, no assessments are made. 1982 figures indicated that if the 49 state guaranty funds along with the District of Columbia funds assess the maximum from their member insurers, $1.2 billion could be collected. Major points of the assessment mechanism are:

1. Pro rata Basis - Assessments are made on a pro rata basis, based on the volume of net direct written premiums of licensed companies on policies in covered lines of insurance.

2. Assessment Limits - The model act provides that assessments in any year are limited to 2% of net direct written premiums. While most states have adopted the model's suggested assessment cap, a significant number, 19, have a 1% cap. Ohio has a cap of 1-1/2%.

3. Assessment Accounts - The model act suggests states may wish to create separate assessment accunts. Thirty four states have done so. For example, 20 jurisdictions assess companies separately for covered claims in three accounts: automobile lines; workers' compensation; and all other. Thus, in a state with these separate accounts, a company writing solely workers compensation coverages would not be assessed to pay claims arising out of automobile coverages.

4. Recoupment - Most states provide for recoupment of assessments through rates. New Jersey and California provide for recoupment through a surcharge on policyholders. Fifteen states recoup assessments through a premium tax offset mechanism.

F. Other Sources of Funding

1. Assets of Insolvent Company - In addition to funding through assessments, guaranty funds have rights to reimbursement out of the assets of insolvent companies. Two provisions in the model act, adopted by most states, enhance the ability of guaranty funds to share in the assets of an insolvent insurer.

a. Early Access - Under "early access," the liquidator is directed to provide for distribution of funds from the insolvent insurer to the guaranty funds as soon as practicable after the company has been put into liquidation. These funds can then be used to pay covered claims thus reducing the need for assessing member insurers. Without early access, guaranty funds would not be entitled to a share of the insolvent estate until the estate is actually wound up in the claim of the guaranty fund and the estate is settled. Often, the settlement of an insurance company estate requires 8 to 10 years.

b. Priority - Priority moves the guaranty funds' claim against the estate ahead of claims of general creditors. Thus, guaranty funds as a representative of the insurance consuming public, is given a high priority in collecting any money available from the assets of the insolvent insurer.

2. Borrowing - If claims and expenses are greater than total assessments for any year, the model act permits guaranty funds to borrow necessary amounts and to repay the indebtedness out of future assessments.

III. COSTS TO THE INDUSTRY

A. Past Costs -

1. NCIGF Assessment Report (Handout)

2. $527,784,672 collected by guaranty funds through assessments from November of 1969 through December 1984.

3. $74.1 million assessed in 1984 alone.

4. $134,574,891 refunded to member companies since 1969. $28.6 million refunded to members in 1984.

5. Through 1984, guaranty funds have made assessments to cover the insolvency of 104 companies. Twenty of these were declared insolvent in 1984. The 104 insolvent companies were domiciled in 32 states. Sixty two of these companies, or almost 60%, were domiciled in just six states:

   - Pennsylvania (15)
   - New York (13)
   - California (11)
   - Florida (8)
   - Illinois (8)
   - Texas (7)

B. Future Costs

1. Dependent upon future fortunes of the industry.

2. Factors companies should consider in predicting guaranty fund costs.

   a. The number of future insolvencies
   b. States in which the insolvent insurers were licensed

c. The mix of business of the insolvent insurers

d. Size of the insolvent insurer and nature of its operation

e. States of domicile of the insolvent insurers

f. Legislative future:

i. Deterioration of caps and limits

ii. Use of guaranty funds to rehabilitate

iii. Claim cutoff dates

iv. Expansion of lines and types of insurance covered

Panel Session 2F

CHANGING CONCEPTS OF TORT LIABILITY

Growing Litigation Expense (Including Complexity of Multi-Party Lawsuits)

Floyd H. Knowlton

1985 Casualty Loss Reserve Seminar

Kansas City, Missouri

I would like to begin by suggesting that the problem with litigation in the United States and its growing costs and complexities is not a problem of issues in a case and resolving those issues. Rather, it is one of simple motivation.
Let me illustrate:

- o During the period of 1973-1982, the U.S. Census Bureau reports that the number of law firms in the U.S. increased 50%.

- o Over roughly the same period, not surprisingly, the number of lawyers went from 350,000 to 650,000 - and is expected to reach 1 million in the 1990's.

- o We have 2/3 of the world's lawyers in the United States but only 5% of the world's population.

- o During the past decade, our population increased 10% but the filing of suits in federal courts alone more than doubled.

- o A Rand Study of 24,000 lawsuits filed by asbestos victims shows that 63¢ of <u>every</u> dollar paid by manufacturers and insurers to settle claims went to lawyers fees and court costs.

- o While only 10% of general liability cases ever have a litigation identification, that number approaches 100% in environmental claims. In typical-insurance related litigation, including environmental claims, well over 90% of all caes are settled.

Yet, between 1978 & 1983, according to a report prepared by the ISO Executive Committee, defense expense grew 79% in the general liability line of insurance and the report predicted if this trend continued, $19 billion woud be incurred for general liability defense costs over the 5-year period 1987-91.

In a word, then, the motivation is <u>money</u>. Why do I bring this perspective to you at this seminar? Because I believe understanding it can lead to two things: Predicting the future (and planning for it) and working to control these costs.

Now, I'm not here to blame the lawyers or point the finger at them as the cause of this, the people engaged in the practice of law and their associates are really merely responding to a demand created by our attitudes as a society. These attitudes include and involve a number of things:

SLIDE 2

1. A change in the social concept of correcting wrongs. We are a society that demands technological advances but if something "wrong" happens, that wrong must be redressed - usually according to a standard of who can best afford it - the "deep pocket" (more on this later) - rather than who committed the wrong if, indeed, a wrong was committed in the first place.

2. Significant and rapid advances in the areas of knowledge and technology. This not only leads to advances demanded by society such as the development of improved methods of insulation but also devices to better measure contaminants in theambient air and medical opinion on the effects of that air.

3. New responsibilities, according to Chief Justice Warren Burger, for the courts, because of the decliming influence of the church, family and neighborhood, which has forced individuals to turn the courts "for relief from a range of personal distresses and anxieties," just look at one episode of Night Court TV to demonstrate this.

4. A belief that it is all right to tag a person or corporation with a loss if it has "plenty of money" - the deep pockets conept. Once reserved for specific situations of redress based on a legal relationship to a person who actually committed the wrong (such as an employer being held responsible for the acts of its employees), the concept now has a life of its own and redress is based on financial feasibility rather than a relational concept.

5. A social belief that the best way to solve a problem is to create a law or regulation to prevent the problem from recurring. Although a system of law is the foundation of a constitutional government, an excess of law ends in additional litigation and eventual paralysis of the system. We see that in the Superfund law and its requirement - not able to be met - that all clean-up contractors be certified for financial responsibility. A very close and direct example is the increasing tendency of courts to expand the defense obligation in the casualty insurance contract and the response of thedrafting of the 1986 CFL Policy to include defense in the overall policy limits - who among us doesn't believe this will add to additional litigation? While such a provision may have a perceived and arguable benefit, don't be misguided into thinking it can or will overcome all the problems and contra-motivations I have referred to earlier.

SLIDE 3, SLIDE 4, SLIDE 5

Let's look at some data a little more closely, in the defense or private passenger liability claims, defense expenses average 4.8% of losses whereas in general liability it is up to 34.3%. In the late 1950's, that figure was as low as 15% but is growing at a rate of 12% per year. If we were to remove calendar year statistical cut-offs, it may be even higher. Contrary to public belief, the large defense bill is not limited to any particular type of general liability insurance or to any particular policy size.

While the increae use of staff counsel by insurance carriers has slowed down the escalation of fees, 90% of all allocated expenses are legal fees according to ISO study. As the basis for fees has moved over the years from an accomplishment result to hourly rates, the now-more-tradesman-than-artisan lawyer has become more comfortable in working with aprocess which has become increasingly slow-moving, overly massive in assembling information, unfocused and not good at communicating the issues.

Complexity of Multi-Party Lawsuits

These cases illustrate very well the point I have just made. Class action and multi-party lawsuits have been called "engines of destruction", a form of "legalized blackmail" or, on the other hand, "one of the most socially useful remedies in history" for the small consumer or private person or even individual school district to realize a benefit at a shared cost.

Such actions started with a flurry in the mid-1960's and seemed to die out until the advent of mass toxic tort, discrimination and other wide-spread types of litigation. Perhaps more popular than true class actions because of difficulties in agreeing to a

proper class of parties is the multiple-plaintiff action and certainly the multiple-defendant lawsuit. While a class action requires commonality of interest in questions of law and fact (and this, too, can lead to extensive litigation in and of itself - witness the Philadelphia class action of school districts in the asbestos rip-out cases), the multiple plaintiff case simply requires a plurality of plaintiffs alleging injuries or damages as a result of one accident or a similar set of facts. A multiple-defendant case is likewise self-explanatory - It involves one or more plaintffs alleging that a number of defendants are responsible for injuries or damages.

SLIDE 6

Generally the same rules of law otherwide apply to these cases and the same considerations in terms of liability, coverage and financial obligations. The problems and differences are administrative in nature:

1. There is usually a multiplicity of insurance carriers, some of whom may insure more than one defendant. Separate supervision ad legal firms must be established to prevent conflicts of interest among the parties.

2. Legal tasks become redundant and multiple.

3. Disagreement will exist over sharing defense and indemnity costs, both among the defendants and the insurers. This can and does lead to separate lawsuits.

4. Since these cases can involve wide geographical and political areas, multiple counsel will be required and perhaps liaison or coordinating counsel to supervise local counsel will be considered or mandated even by typical situations.

5. With multiple parties in the case, it takes longer to get at issues - there are more depositions, more motions, more hearings, more paper, more court involvement - and everything is longer.

6. There is a greater need for communication, among and between the parties and this in and of itself, leads to increased costs in terms of meetings, correspondence and travel expenses.

Are we going to see more of this type of litigation? I believe so and it will happen primarily in the areas of mass types of claims. Notwithstanding the perception of both sides in the Agent Orange litigation, there were also perceived benefits which will undoubtedly lead others to pursue similar litigation in the future, including the judiciary itself which, as you know, set up that litigation under the concept of the multi-district litigation process.

Conclusion

What is the future to be? Can we change societal attitudes and beliefs? Probably not or, if so, very little. Can we affect the way lawyers behave and the system works? We haven't done very well so far and it's really only gotten worse.

On the bright side, there have been some improvements:

1. The use of alternative dispute resolution methods and their significant decreae in cost and time to resolution.

2. Increaed use of staff counsel by major carriers.

3. A recognition by various trade groups and other organizations that problems exixt which must be solved.

4. The 1986 CGL Policy proposal that would include defense costs within an overall policy limit. Recall my earlier comments though that this is not necessarily a panacea for the problem.

And there are other ideas tha have promise:

1. A result-oriented fee for defense attorneys, similar to the Japanese fee - contingent fee system. An alternative system that also acts as a disincentive to prolonging cases, especially with the majority winding up in settlement anyway, might also be suggested.

2. Strong litigation management problems instituted and monitored by the entity paying the legal bill in conjunction and in harmony with the entity paying the indemnity bill.

    - o Decrease unneeded discovery.
    - o Cut out redundancy in work.
    - o Eliminate the use of paralegals where the only justification for their effort is that they are cheaper than attorneys.
    - o Concentrate on real issues and not each and every peripheral issue that imagination can summon up.
    - o And other similar ideas.

3. Be sure the attorney is a communicator and an effective one. They must understand the facts and reduce them to propositions that the deciders can understand.

4. Develop and maintain efficient processes in the civil justice system - streamlined pleadings and telephone conferences rather than court appearances being examples.

But such remedies should not mislead us. Any reduction in the role of the lawyer will do little to address thelarger issue of over-legalization in the country as q hole - from school prayer to products liability. Only the day when - and if- we decide that the cost of legal remedies is greater than the remedy itself will the role of the law and the layer be effectively decreased - that day is probably not yet on the horizon.

THE PROBLEM

- INCREASE IN LAW FIRMS: 50%
- INCREASE IN LAWYERS: 350,000 TO 650,000 TO 1 MILLION
- U.S. LAWYERS - 2/3 OF THE WORLD'S LAWYERS
- FEDERAL COURT SUITS: DOUBLED
- ASBESTOS COSTS: $2.71 TO DELIVER $1.00

SOCIAL ENVIRONMENT

- PERFECT SOCIETY
- KNOWLEDGE & TECHNOLOGY ADVANCEMENT
- NEW COURT RULES
- DEEP POCKETS
- LEGISLATION

RATIO OF ALLOCATED LOSS ADJUSTMENT EXPENSE INCURRED TO LOSSES INCURRED

CALENDAR YEAR 1983

- PRIVATE PASSENGER AUTOMOBILE LIABILITY - 4.8%
- COMMERCIAL AUTOMOBILE LIABILITY - 6.4%
- MEDICAL PROFESSIONAL LIABILITY - 33.3%
- GENERAL LIABILITY OTHER THAN PROFESSIONAL - 34.3%

SOURCE: DEFENSE COST CONTAINMENT STUDY, JUNE, 1983, ISO, INC.

RATIO OF ALAE INCURRED TO LOSSES INCURRED
GENERAL LIABILITY
CALENDAR YEAR DATA FOR SELECTED DATA

1956	12%
1960	17%
1965	22%
1970	24%
1975	27%
1980	27%
1983	34%

SOURCE: DEFENSE COST CONTAINMENT STUDY, JUNE, 1983, ISO, INC.

Slide 4

PERCENTAGES OF ALAE PAID IN CALENDAR YEAR 1984

GENERAL LIABILITY

Insurer Staff Attorneys	11%	
Non-Staff Legal Fees	79%	
Total Legal Expense		90%
Medical Examinations		2%
Expert Witnesses		7%
Miscellaneous Expenses		1%
		100%

Source: Defense Cost Containment Study, June, 1983, ISO, Inc.

MULTI-PARTY SUITS

1. Multiple Parties, Including Insurers
2. Redundant Legal Tasks
3. More Areas for Disagreement
4. Geographical Problems
5. Delays
6. Communication

CONCLUSION

IMPROVEMENTS

- ALERNATIVE DISPUTE RESOLUTION
- STAFF COUNSEL
- PROBLEM RECOGNITION
- NEW CGL POLICY

IDEAS

- RESULT-ORIENTED FEE
- LITIGATION MANAGEMENT PROGRAMS
- COMMUNICATION
- EFFICIENT JUDICIAL PROCESSES

Panel Session 3D

GENERAL LIABILITY AND PROFESSIONAL LIABILITY

Moderator: Gregory N. Alff, Associate Actuary
Wausau Insurance Companies

Panel: F. James Mohl, Senior Actuarial Officer
St. Paul Fire & Marine Insurance Company
Terrence M. O'Brien, Senior Consultant
Coopers & Lybrand
Kevin B. Thompson, Associate Actuary
Insurance Services Office, Inc.

1985 Casualty Loss Reserve Seminar

Kansas City, Missouri

INTRODUCTION FOR RESERVE SEMINAR PANEL 3D, SEPTEMBER 19, 1985

General Liability and Professional Liability

By Gregory Alff, FCAS, MAAA

The industry is in a time of turmoil regarding both general liability and professional liability.

1. Two different GL coverage forms will soon be competing in the marketplace.

2. Changes in coverage and limits structure in addition to Claims Made vs. Occurrence will call for restructuring reserving practices.

3. Tort reform activity is accelerating as root problems are being attached for both general liablity and professional liability.

In the period of 1½hours, we can do little more than scratch the surface - so let's get at it with the goal of presenting some helpful ideas, but more importantly, raising questions for us all and heightening awareness of the task ahead!

I am pleased today to introduce a panel of Fellows in the CAS who have a great deal of experience working with the general liability and professional liability lines of insurance.

Kevin Thompson - Associate actuary in the commercial casualty actuarial division of ISO. Kevin heads the unit responsible for ISO general liability and professional liability rate calculations and rate filings.

James Mohl - Senior actuarial officer at the St. Paul Fire and Marine Insurance Company. Jim has for several years been responsible for recommending professional liability reserves for St. Paul companies.

Terry O'Brien - Senior consultant for Coopers & Lybrand in Chicago. Terry has wide experience in liability claims reserving problems.

With out further adieu, I would like to start with Kevin and let him begin with the presentation.

Kevin: Good afternoon. This after noon before I get into the body of my presentation, I'd just like to start off by the defining a few terms which are peculiar to claims made and particularly to general liability claims made.

By the way, any overheads that I put up are contained in the hand-outs that were in the back of the room, so you may find it easier to follow them there.

To begin with, a "Claims-Made" coverage trigger means that the general liability policy containing this trigger will respond to bodily injury and property damage claims first made during the policy term. In addition, the bodily injury or property damage does not have to have occurred during the policy period, however, it does have to have occurred after the "retroactive date" stated in the policy. In other words, a claim first presented during the policy period for injury which occurred prior to the "retroactive date" is not covered.

The next term to be defined is the "Extended Reporting Period Endorsement", more popularly known as "Tail" Coverage. This endorsement states that future claims for

injury that has occurred subsequent to the policy retroactive date and prior to the date of cancellation or non-renewal of the policy will be treated as if they were reported during the policy term. In other words, this "tail" coverage provides an unlimited time period to report claims under the claims-made policy, and is intended for use on risks that are leaving the "claims-made" program.

The final concept I wish to describe is Year in "Claims-Made". This refers to the number of years a risk has been in the "Claims-Made" program. A risk that has been in the "Claims-Made" program four years or fewer will be considered an "immature" risk while a risk that has been in the program 5 or more years will be considered mature. In general, this is measured by the number of years between the retroactive date and the policy inception date, plus one year.

Now that we have disposed of these concepts that are unique to the "Claims-Made" policy, I would like to focus your attention on what a shift by your General Liability book of business from an "Occurrence" coverage trigger to a "Claims-Made" coverage trigger will mean to the actuary. In doing this, I would like to highlight two areas: financial reporting and reserving.

In financial reporting, defined to mean the Annual Statement or Convention Blank, there are two important schedules that will be effected by a shift in general liability risks from "occurrence" coverage to "claims-made" coverage. These are Page 14 and Schedule P. With respect to Page 14, companies will have a reduction in the size of the incurred losses and the unpaid losses under "claims-made" than would otherwise be the case under "occurrence" coverage. This is the result of two phenomena associated with "claims-made" policy. The first is that for the initial few years under "claims-made", fewer claims are to be expected than under "occurrence". This is due to the dual limitations that the injury must occur after the retroactive date, and that the claims must be first reported during the policy term. Since fewer claims are expected, incurred losses will be lower. In addition, unpaid losses will be lower since the "claims-made" reserves will only contemplate reserves on known losses. There are essentially no IBNR reserves under "claims-made" except for those instances where "tail" coverage has been purchased.

For Schedule P, the Other Liability line of insurance will be impacted by a shift to "claims-made". This is because the incurred losses on "claims-made" policies will display a markedly different development pattern than losses incurred on "occurrence" policies. This impact on Schedule P for Other Liability will impact the IRIS tests that use Schedule P:

(i) One year reserve development to surplus
(ii) Two year reserve development to surplus
(iii) Estimated current reserve deficiency to surplus

This shift to "claims-made" will have similar impacts on other loss reserve and solvency analyses. The impact will vary by company as a function of the company's volume of "claims-made" business. The initial impact on the 1986 Annual Statement should be limited since reserves for "claims-made" policies will represent a small percentage of the current reserves for all Schedule P lines.

In turning our attention to the area of reserving, there are several questions that the actuary must answer when analyzing reserve needs for a mixed "claims-made" and "occurrence" book of business. The first question that needs to be answered is "Is there any IBNR?" The popular wisdom is that , by definition there is no IBNR with a "claims-

made" policy, and strictly speaking this is true. However, if we define IBNR relate to claims received by the company's loss reserving reporting system, then a "claims-made" policy can have IBNR losses represented by claims reported to the company and working their way through the company's systems. Depending upon how each individual company operates, the size and importance of IBNR will be different.

Another important question that needs to be answered is should "occurrence" and "claims-made" data be segregated or aggregated? As a general rule, losses incurred under "claims-made" policies will be older than losses incurred under "occurrence" policies. This is because the "claims-made" policy will respond to claims reported this year for injuries that occurred this year and in prior years, whereas the "occurrence" policy will respond to claims for injury that occurred this year, whether they are reported this year or in future years. The "claims-made" data would be expected to display significantly different loss development patterns, average claim size, claim severity trend and claim frequency. For these reasons, "claims-made" and "occurrence" data should be segregated.

The final question that needs to be asked is "Should "claims-made" data be segregated by Year in Claims-Made?" Once again looking at the expected behavior of the data by Year in Claims-Made should provide some insight.

First Year in "Claims-Made" policies will respond to injuries that occur and are reported during the first year. The second year in claims-made policies would respond to claims reported in that year for injuries tha occur during that year and the prior year. Since claim severities tend to rise over time, and since faster reported claims tend to be less severe, claim severities will be different by year in claims-made. Also, since the "claims-made" policy will be responding to different sets of claims as an insured moves from being an immature "claims-made" insured towards a mature one, the claim frequencies will differ by Year in "Claims-Made". Let's take a look at a simple example where over a 5 year period, 1,000 risks come into claims-made during each of the years, and all risks remain in the program once they enter it.

As we can see, the assumptions lised on page 2 of the handout carry directly on to page 3. In order to clarify how the numbers on this page were calculated, I will explain how values for the second year in "claims-made" for year Y+1 were calculated.

First, the 1,000 risks are the same risks as in 1st year in "claims-made" for year Y, which follows directly from assumptions (1) and (2).

The number of claims (5) is a function of assumptions (4) and (6). To see how this is arrived at, we must remember that the second year in "claims-made" contract will cover claims reported during the second year for injuries which occurred during the first year or the second year in claims-made. Using assumption (6), 100 injuries (10% of 1,000 Risks) occurred during the first year and another 100 during the second year. Of the 100 injuries that occurred during the 1st year, assumption (4b) says that 25 of them (25%) are reported during the second year. In addition, of the 100 injuries that occurred during the second year, assumption (4a) says that 30 of them (30%) are reported during the second year, giving a total of 55 claims reported during the second year.

The claim severity is a function of the number of claims by year of occurrence calculated about and the claim severities implied by assumptions (3) and (5). The $1,000 claim severity for 1st year in "claims-made" for Year Y is a selected number for

illustrative purposes. Using this, assumption (3) says that an injury that occurs in year Y+1 and is reported in year Y+1 has a value of $1,100 ($1,000 x 1.1 1). There are 30 of these claims out of the 55 total claims. Assumption (5) says that an injury that occurs in year Y and is reported in year Y+1 has a severity of $1,150 ($1,000 x 1.15 1). There are 25 of these claims. Therefore the 55 claims in the second year in "claims-made" for year Y+1 have an average severity of $1,123 ((30 x 1,100 + 25 x 1,150)/55).

From this example you can see that while the statistics behave very well when we look at them by year in "claims-made", this is not the case when all years in "claims-made" are combined. The underlying severity trend of +10% per year appears to be +11.3% per year when the all years combined data is analyzed, while the constant frequency per policy of 10% on an "occurrence" basis appears to be increasing dramatically over time from 3% to 7% when the all years combined data is used. This demonstrates the necessity of segregating "claims-made" data by year in program.

Looking at the need to segregate "claims-made" data from occurrence data and by year in "claims-made", the actuary might encounter situations where such a segregation would be impractical. This could especially be true where the separate pieces of data are not large enough to be used independently. In this situation there is a practical alternative which has been used by ISO in reviewing "occurrence" and "claims-made" data for medical malpractice. This method combines the "claims-made" and "occurrence" data and reviews claim severity and claim frequency trend simulataneously. This method utilizes a loss ratio at present rate trend. This is similar to pure premium trend, except it takes into account different loss expectations (frequency and severity) between classes, geographical location, policy forms, etc. to the extent these differences are reflected in the current rates. It does not depend on the adequacy of the overall premium level, but it does rely on reasonable relativities in premium level across the aforementioned variables.

To demonstrate how this would work, let's take another look at the previous example, and add the Loss Ratio at present rates in the following manner.

1st Year in "Claims-Made" Premium of $ 50 per Risk
2nd Year in "Claims-Made" Premium of $ 90 per Risk
3rd Year in "Claims-Made" Premium of $135 per Risk
4th Year in "Claims-Made" Premium of $160 per Risk
5th Year in "Claims-Made" Premium of $175 per Risk

On Page 4 of the material, the loss ratio at present rates has been added. I will quickly explain how these were calculated by using the same "cell" as previously. The premium at present rates for the 1,000 risks is $90,000 ($90 per risk x 1,000 risks). The losses for these 1,000 risks is 61,750 (30 x 1,100 + 25 x 1,150). The loss ratio then is 61,750/90,000 = .686.

The key to what is occurring on this exhibit is that the premiums for all policies are being calculated using the lastest rates. Therefore the change in loss ratios over time is due to changes in losses due to severity or frequency changes and is not affected by changes in rate level.

As you can see, this results in an indicated trend in losses of approximately 10%, whereas the aggregated data on page 3 showed an 11% severity trend and an astronomical frequency trend. These results are very reasonable in spite of the fact that the premiums were not calculated using exactly appropriate rates by year in "claims-made".

One other area that I would like to touch on quickly is loss development. As I mentioned earlier, theoretically, there is no IBNR for a "claims-made" policy, but as a practical matter there could be some. However, evaluating claims a month or so after the close of the year should eliminate any IBNR, so that development for "claims-made" losses will represent only development on case reserves. This certainly not true of occurrence policies, especially for a line like general liability which has such a long reporting lag.

If a company has been capturing claim report date as well as occurrence date, then reserve setting and analysis can be accomplished by arranging the data as so that the claims and dollars of loss are displayed by report year and occurrence year. This will allow the combination of "claims-made" and "occurrence" data and enable you to project the future reporting of past occurrences as well as the future development of already reported losses.

At this time I would like to spend a few minutes answering any questions that you might have before proceeding to the next panelist.

Question: I have a question on, I guess the exhibit that showed the development of losses. I may have been calculating too much here

That says for the 2,000 risk that were in the claims made program that year, 1,000 were in second year in claims made and 1,000 were first year in claims made. The average severity for those 85 claims that came in the entire claims made program was 1,115 dollars.

Audience: So there are..., just to my clarification there were 30 at 1,000, there were 30 at 1100 and there were 25 at 1150.

Kevin: No there was 30 at 1100, not 1000. The 30 at 1100....,

Audience: In other words you're pulling in the first year claims at 1000.

Kevin: The first year claims are coming in at 1100. Thats just a total of that column. If you look down the column there are 1000 risks with 30 claims and an average severity of 1100 dollars. And then there is 1000 risk with 55 claims with an average severity of 1123 dollars.

Audience: But the 55 claims at 1123 create an average of 30 at 1000 plus 25 at 1150.

Kevin: No its 30 at 1100.

Audience: Well aren't you doubling up, I guess that's my question, it seems to that you were doubling up at getting your total.

Kevin: No, because there are 2 separate policies. There are 1000 risks for the first year in claims made and they have 30 claims coming in on them, then you have 1000 risks for the second year in claims made they have 55 cliams coming in of which 30 are incurred this year, in other words they are on occurences from this year and 25 are from occurrences last year.

"CLAIMS-MADE" TRIGGER - POLICY WILL RESPOND TO BODILY INJURY AND PROPERTY DAMAGE CLAIMS FIRST MADE DURING THE POLICY TERM.

RETROACTIVE DATE - THE BODILY INJURY OR PROPERTY DAMAGE CLAIMS FIRST MADE DURING THE POLICY TERM ARE COVERED ONLY IF THE BODILY INJURY OR PROPERTY DAMAGE OCCURRED AFTER THE RETROACTIVE DATE STATED IN THE POLICY.

EXTENDED REPORTING PERIOD ENDORSEMENT (TAIL COVERAGE) - THIS ENDORSEMENT STATES THAT ALL CLAIMS FIRST MADE SUBSEQUENT TO THE DATE OF CANCELLATION OR NON-RENEWAL OF THE CLAIMS-MADE POLICY FOR BODILY INJURY OR PROPERTY DAMAGE THAT OCCURRED SUBSEQUENT TO THE POLICY RETROACTIVE DATE AND PRIOR TO THE DATE OF CANCELLATION OR NON-RENEWAL WILL BE TREATED AS IF THEY WERE REPORTED DURING THE POLICY TERM.

YEAR IN "CLAIMS-MADE" - REFERS TO THE NUMBER OF YEARS A RISK HAS BEEN IN THE "CLAIMS-MADE" PROGRAM.

SAMPLE "CLAIMS-MADE" DATE BASE
ASSUMPTIONS

(1) 1000 Risks enter the "Claims-Made" program in each of 5 years.

(2) All Risks remain in the program once they enter it.

(3) There is a constant 10% inflation in claim severity over time.

(4) Claims are reported according to the following pattern:
   (a) 30% in the year that they occur.
   (b) 25% in the first year following.
   (c) 20% in the second year following.
   (d) 15% in the third year following.
   (e) 10% in the fourth year following.

(5) Claims reported in years subsequent to the year in which they occurred increase in severity exponentially by 15% for each year between the year in which they occurred and the year they are reported.

(6) Frequency of injuries that occur in a year is constant over time at 10% per policy.

	YEAR OF POLICY ISSUANCE				
	Y	Y+1	Y+2	Y+3	Y+4
1st Year in "Claims-Made"					
# of Risks	1000	1000	1000	1000	1000
Claims	30	30	30	30	30
Claim Severity	1000	1100	1210	1331	1464
2nd Year in "Claims-Made"					
# of Risks		1000	1000	1000	1000
Claims		55	55	55	55
Claim Severity		1123	1235	1359	1494
3rd Year in "Claims-Made"					
# of Risks			1000	1000	1000
Claims			75	75	75
Claim Severity			1258	1384	1523
4th Year in "Claims-Made"					
# of Risks				1000	1000
Claims				90	90
Claim Severity				1407	1548
5th Year in "Claims-Made"					
# of Risks					1000
Claims					100
Claim Severity					1568
All Years in "Claims-Made"					
# of Risks	1000	2000	3000	4000	5000
Claims	30	85	160	250	350
Claim Severity	1000	1115	1241	1380	1533

	YEAR OF POLICY ISSUANCE				
	Y	Y+1	Y+2	Y+3	Y+4
1st Year in "Claims-Made"					
# of Risks	1000	1000	1000	1000	1000
Claims	30	30	30	30	30
Claim Severity	1000	1100	1210	1331	1464
Loss Ratio	.600	.660	.726	.799	.878
2nd Year in "Claims-Made"					
# of Risks		1000	1000	1000	1000
Claims		55	55	55	55
Claim Severity		1123	1235	1359	1494
Loss Ratio		.686	.754	.831	.913
3rd Year in "Claims-Made"					
# of Risks			1000	1000	1000
Claims			75	75	75
Claim Severity			1258	1384	1523
Loss Ratio			.699	.769	.846
4th Year in "Claims-Made"					
# of Risks				1000	1000
Claims				90	90
Claim Severity				1407	1548
Loss Ratio				.791	.871
5th Year in "Claims-Made"					
# of Risks					1000
Claims					100
Claim Severity					1568
Loss Ratio					.896
All Years in "Claims-Made"					
# of Risks	1000	2000	3000	4000	5000
Claims	30	85	160	250	350
Claim Severity	1000	1115	1241	1380	1533
Loss Ratio	.600	.677	.722	.793	.879

RESERVING FOR CLAIMS-MADE INSURANCE POLICIES

by F. James Mohl, FCAS

(Presented to the Casualty Loss Reserve Seminar, Sept. 19, 1985)

Introduction

The problems the loss reserve specialist faces when dealing with claims-made coverage are less extensive than under occurrence, yet no less challenging. Errors are likely to be smaller but, because they show up sooner, are likely to be even more embarassing. The same tools employed in occurrence contract loss development analysis will work here. In fact they should work better, because the loss development pattern has been purified by (almost) eliminating the IBNR. More on that later. But in my view those traditional tools are not enough anymore.

Loss development for occurrence policies involves using information about known claims paid in the past and open in the present to project unknown (IBNR) claims in the future. Loss development for case reserves only under a claims-made contract is, in principle, much simpler. All it requires us to project is the ultimate value of known claims currently open. Their count is known; only their value is uncertain. And the value is in principle knowable (rather than unknown) in the sense that we can theoretically gather as much information as we want about these claims, and each piece of information should give us greater confidence in our ability to predict the ultimate value. We can never reach absolute certainty, of course. There is always the possibility of a "runaway jury" giving a multi-million dollar award for the loss of a little toe. But such events are still extremely rare, and that's where the Law of Large Numbers comes to our aid. Given a large enough number of case reserves and enough information about each, it should be possible to narrow our confidence interval to less than any required tolerance. In contrast, that won't work for IBNR projection; there is no way to gather more information on unknown claims.

At the risk of belaboring the obvious, I have spent considerable time on this point for an important reason. Loss development techniques should be developed to respond to the different needs at hand. Just as you wouldn't want a neurosurgeon to use a chainsaw, so we as reserve analysts must be prepared to use different tools. Dealing with the unknown under occurrence policies leads to broad aggregations of the data, since there is no way to know the characteristics of future IBNR claims. Dealing with the knowable under claims-made leads to careful segregation of the data by claim characteristic.

The first and most obvious segregation of known claims is between

closed and open, or paid and outstanding.* That is the basis for the backward recursive loss development approach which will be the primary focus of this presentation.

From there we will go on to discuss other possible segregations of the data which could be used to further refine our case reserve estimates. Later we will return to the Great Unknown to see why we haven't entirely rid ourselves of IBNR by going to claims-made and what we can do about it. Finally, we'll tie it all together (including tail coverage) by suggesting that perhaps claims-made reserving isn't really so different from occurrence after all! But first let's look at a few numbers.

The Backward Recursive Method: An Irreverant (not Irrelevant) Example

Consider the following loss development triangle on a reported (not accident or policy) year basis, simulating claims-made experience (Exhibit 1). I have deliberately chosen to use downward development in my illustration so that no one could possibly mistake this for accident year data, and to remind you that it is still theoretically possible to get savings on reserves. (For those of you who have never worked with reported year data I hasten to add that it is rarely this well-behaved, even on claims-made policies.) You don't need an FCAS or MAAA to complete this triangle! You don't even need a PC.

But wait! All is not as it seems. In the midst of apparent stability there is change. Nothing too dramatic, just a modest lengthening of the payout pattern (Exhibit 2). Given this new information, would we want to change our opinion?

First we need to decide how to make use of this new data. One way would be to do a traditional paid-to-paid loss development analysis. Here are the development factors (Exhibit 2A).

It's amazing how nicely these numbers work out. Now all that remains is to apply our factors to the paid and we have our ultimate losses:

1981	750 x 1.00	=	750
1982	400 x 1.25	=	500
1983	100 x 2.50	=	250
1984	0 x 5.00	=	0

---

* In this paper, I will treat these terms as interchangeable, even though they are not. Some open claims have partial payments, closed claims reopen, and many claims close without loss payment (rarely without loss expense). These distinctions are important but will not make a great deal of difference in most long-tailed liability lines. I would not recommend these techniques for Worker's Compensation, however.

It appears we have a trend. Anyone care to bet that the 1985 losses will be negative?

Of course this is phony data made up to prove a point. But changes in the payout pattern do happen in the real world.

I realize there are a number of techniques for "fixing up the data" to deal with this problem. That's not my purpose here. Indeed, my intent is to show that such fixing is unnecessary.

To understand the rationale behind "backwards recursive case reserve development" it is necessary to accept the fact that once a claim has been closed, it is a thing of the past. It no longer has any power to influence the future. Only outstanding claims have any effect on future development. But the paid development method which failed us so badly assumes just the opposite: namely, that only the paid-to-date tells us anything about future development. The outstanding is ignored completely!

The traditional incurred development method does better, but makes a different error in its underlying assumptions. It uses the outstanding in the development triangle, but it treats it as if it were indistinguishable from the paid. Whatever development factor we get is applied equally to both components, even though we know closed/paid losses don't develop, only open claims do.

So what should we do? Forget about what has already been paid; merely develop the outstanding. It's not quite as simple as with ordinary loss development, however. We must develop the losses in two parts: 1) the incremental increase in the paid from age-to-age, and 2) the ending outstanding, both expressed as a percentage of the beginning outstanding. Let's illustrate this with the development from age 12 to 24 months (Exhibit 3). That is, out of the beginning reserve of $850, $150 or 17.6% was paid one year later and $600 or 70.6% was still outstanding, producimg case savings of $100 or 11.8%. Compare the .882 combined development factor to the .900 factor calculated under the traditional incurred method. The only difference is that the paid-to-date (in this case, the paid through age 12 months) has been subtracted from both numerator and denominator.

Now let's complete the table of Age 12 to 24 development factors (Exhibit 3A). Note that even though the combined development factors are nearly constant, their component pieces are very different. This doesn't matter as long as we are developing only as far as age 24, but it makes a great deal of difference as we go beyond.

Now we have the opportunity to apply our judgment. What would we predict for the 1984 factors? We could assume the apparent trend will continue and fit a line through the factors. But that would forecast a negative incremental paid for 1984 during 1985! Or we could assume there is no trend, only random fluctuation, and take a simple average. The answer (.113) seems high in light of recent experience. In this situation I prefer to take a weighted

average by summing the numerators and denominators (Exhibit 4). This puts more weight where there is more data, usually the most recent years. The effect is reduced here because I have assumed a "no growth" scenario. If you wish to put even more weight on the recent experience, use the technique known as "regression through the origin", which is really a doubly weighted average. In this case the two techniqeus produce about the same answer. That would not necessarily be the case if the reserve inventory was growing more rapidly.

Here is the complete table of age-to-age factors, together with the two averages (Exhibit 5).

We are now ready to develop the losses to ultimate. The development of the outstanding-to-outstanding is straightforward compounding of the age-to-age factors, just as with the traditional total incurred loss development method. In this case, age 24 to 48 is .467 x 0 = 0 and age 12 to 48 is .779 x .467 x 0 = 0. (Of course, if we were really doing an analysis on this data, we would have to decide if we believe all claims would be closed by age 48 based on the flimsy evidence of one year's development and in light of a lengthening payout pattern. That goes beyond the scope of our hypothetical data and this presentation.)

Now at last we come to the backwards recursive part of the method. Algebraically, it may be expressed as follows (Exhibit 6).

The reason for the name "backwards recursive" now becomes clear. To compute the factors it is necessary to start at ultimate and work backwards, using the result of the calculation at each stage (in this case, Δ Pd(24,48)) as an input to the calculation at the next stage (here, Δ Pd (12,48)). In our example, the paid between ages 24 and 48 is given by the paid between 24 and 36 (.380) plus the remaining outstanding at age 36 (.467) times the paid after age 36 as a percentage of the age 36 outstanding (.750). The factor to go from age 12 to 48 follows in a similar fashion.

Since the residual outstanding at age 48 is 0, all we need to do is apply these paid factors to the current outstandings and add the paid-to-date to get our ultimates (Exhibit 6A). Note that in every case we get lower estimates than we did when our development factors were based on total incurred. This is a result of 1) the lengthening payout pattern and 2) a higher savings rate on older cases.

Are these ultimates necessarily better than the traditional ones? Yes, in the sense that they 1) make use of all the information available, 2) recognize that subsequent development comes from outstanding claims, not those already paid, and 3) force us to make judgments where the other method made it appear none were necessary. As to the accuracy of those judgments, only time will tell.

Other Segregations of the Data

In theory, any characteristic of the insured, the claimant or the claim itself could be used to further segment the data. It should improve the accuracy of the reserve estimate if it results in more homogeneous subsets of the data. Of course there is always a tradeoff between the homogeneity of the data and the size (and therefore the credibility) of the data base. Slice the cake too thin and all you have are crumbs. Nevertheless, a small but homogeneous data base may have more credibility than a large but heterogeneous one. In the limited time available here I can only suggest a few of the segmentations we are looking at; I'm sure you can think of many more.

1. Risk state: legal climates vary tremendously between states, especially in malpractice. Many states enacted tort reforms during the last malpractice "crisis". Some of those are still intact, others have been eroded in varying degrees, while still others have been overturned entirely. Now many states are contemplating reforms again. Even without tort reform, the propensity to sue and the likelihood of a large settlement or award varies tremendously. There are still a few states ten years or more behind the rest of the country with regard to their legal climate. And of course we read about those states leading the rest of the country every day.

2. Claims office: unless reserving practices are tightly controlled from the home office, expect to find wide variation between offices as to how a given case is to be reserved, wehther or not to make a settlement offer and even the timing of when the claim file is opened. (More on this in the IBNR section). To the extent the risk state and claim office distinctions overlap, look for interactions between them. For example, if a large award is given on a type of case where the company had previously been winning or settling for modest amounts, don't be surprised to see the reserves on all similar cases in that office go up, often accompanied by a rush to settle all such claims.

3. Severity of injury: The value of any claim can be thought of as the product of the probability of the defendant being held liable times the damages suffered by the claimant. Damages are not always well-defined, of course. They can include non-economic damages such as "pain and suffering" and, in some jurisdictions, punitive damages, as well as economic damages such as medical costs and wage loss. Yet, there has always been a high correlation between economic damages and awards or settlements. And there is also a high correlation between economic damages and the severity of injury. As a result of the medical malpractice closed claim studies of the 1970's, we began to code injury severity on every liability claim. If you do not capture this information now, I strongly urge you to do so. It's value goes far beyond reserve analysis, but it more than pays for

itself in that area alone. For example, modest reserves on high severity claims are an invitation to disaster, even if the probability of liability is small. (Remember, it only takes one of those cases to turn out bad and suddenly the reserves will shoot up on all of them.) On the other hand, large reserves on low severity claims indicates either 1) over- reserving, 2) bad coding or 3) a unique situation that bears looking into. In our data we find all our savings coming from the less severe injuries. The most serious cases just keep going up in value.

4. Claim status: the closed claim studies also classified claims by where they stood in the legal process when they were closed out: incident report; claim made but not in suit; suit, pre-trial; trial; post-trial appeal. Not surprisingly, the cost of a claim increases each step of the way, both as to settlement value and legal expense. This is hard to use as a segmentation criteria because during its life a claim may move through all of these categories. Each time it does, the reserve should be re-evaluated.

   Other possible segmentations are: class of business, age and sex of claimant, and whether or not other defendants or plaintiffs are involved. In short, try to think like a plaintiff's attorney!

IBNR

Up until now we have been assuming that IBNR does not exist under a claims-made policy. Unfortunately this is not quite true. The extent of the IBNR pipeline will depend to a large extent on contract wording. For example, The St. Paul's claims-made policy provides that a claim will be considered "made" if the insured reports to the company or its agent an incident which might result in a claim in sufficient detail for an investigation to be made. (A doctor sending us a copy of his appointment book for the last year does not meet this standard.) If the company decides after the investigation not to establish a claim file and the claimant later brings the claim, the claim is treated as IBNR. If the agent decides not to even report the incident to the company, but simply sticks the report in his files, an IBNR claim could result. As I understand the language in the new CGL policy, these incident reportings would not be treated as claims-made until the claimant actually brought the claim. This reduces but does not eliminate the IBNR potential. IBNR can still result from normal delays in processing the claim. Sometimes a claim may be brought before the premium has been booked! In that case the loss must wait for the premium. In our system we distinguish between the Date of First Notice to the Company (or its agent) and the Recorded Date (i.e., the date the loss was entered into our computer system). The lag between the two can be measured in months, weeks or even days, with an ordinary loss development

factor analysis being a reasonable measure of its magnitude. Here again there can be wide swings over time, and big differences between offices.

At The St. Paul, we invented another kind of claims-made IBNR which is technically not IBNR at all. We call it "high limits IBNR". We know that a (hopefully) small percentage of our losses will blow up through our primary limits (generally $1,000,000) to the excess layer. It is impossible to predict which cases it will be. One way this might be handled is to assign a tiny probability to each case with excess potential and set up a corresponding excess reserve. This would be cumbersome, time-consuming and of doubtful value. Instead we set up an IBNR reserve as a percentage of our excess premium, the percentage based on our assessment of the expected loss ratio for the layer. This "IBNR" is then run off over time in accordance with the expected (not actual) loss development pattern. Neither one of these IBNR reserves need be large, and if the case reserves have a sufficiently large margin in them, it may not be necessary to establish the IBNR reserves at all. But one should never forget that the liability is there.

The final way in which IBNR can enter the claims-made carrier's experience is through reporting endorsements, or so-called tail policies. These cover losses reported after the termination of the insured's last claims-made policy arising out of incidents occurring while claims-made was in force. These policies may be treated in several different ways. They can be thought of as extensions of the last claims-made policy, in which case the earned premium can be extended over a number of years until the great majority of claims had been reported. Only then, when all the premium had been earned, would it be necessary to establish a token IBNR. Alternatively, the reporting endorsement could be viewed as "retroactive" coverage on an occurrence basis. In that case, all the premium could be earned immediately and, after deducting expenses, put into IBNR reserve for release as the claims come in. These are the two extremes. Obviously compromises between them are possible.

Which brings us back to occurrence coverage. Remember that an occurrence policy is nothing more than a first-year claims-made policy plus a reporting endorsement written one year later. Viewed from that perspective, why should it be reserved differently? The answer, in my opinion, is that it shouldn't be. Accident year loss development can easily be broken down into its component pieces - case development, and IBNR emergence. First, organize the data by reported year to develop the case reserves to ultimate, just as you would with claims-made data. Second, organize the reported losses (developed to ultimate) in an accident year/report year lag matrix to project future IBNR emergence, either through development factors or trending, just as you would do in pricing tail coverage. The same techniques really do work for occurrence as well as claims-made.

Exhibit 1

Hypothetical Report Year Incurred Loss Development

Report Year	Age in Months 12	24	36	48
1981	1000	900	800	750
1982	1000	900	800	
1983	1000	900		
1984	1000			

	12:24	24:36	36:48
1981	.900	.888	.938
1982	.900	.888	
1983	.900		
Average	.900	.888	.938
Cumulative	.750	.833	.938

Exhibit 2

Hypothetical Report Year Loss Development
Split Between Paid and Outstanding

Report Year		Age in Months 12	24	36	48
1981	Pd	150	300	600	750
	OS	850	600	200	0
	Total	1000	900	800	750
1982	Pd	100	200	400	
	OS	900	700	400	
	Total	1000	900	800	
1983	Pd	50	100		
	OS	950	800		
	Total	1000	900		
1984	Pd	0			
	OS	1000			
	Total	1000			

Exhibit 2A

Hypothetical Report Year Loss Development Split Between Paid and Outstanding

Report Year		Age in Months 12	24	36	48
1981	Pd	150	300	600	750
	OS	850	600	200	0
	Total	1000	900	800	750
1982	Pd	100	200	400	
	OS	900	700	400	
	Total	1000	900	800	
1983	Pd	50	100		
	OS	950	800		
	Total	1000	900		
1984	Pd	0			
	OS	1000			
	Total	1000			

Paid-to-Paid Development Factors

	12:24	24:36	36:48
1981	2.00	2.00	1.25
1982	2.00	2.00	
1983	2.00		
Average	2.00	2.00	1.25
Age-to-Ultimate	5.00	2.50	1.25

Exhibit 2B

Hypothetical Report Year Loss Development Split Between Paid and Outstanding

Report Year		Age in Months 12	24	36	48
1981	Pd	150	300	600	750
	OS	850	600	200	0
	Total	1000	900	800	750
1982	Pd	100	200	400	
	OS	900	700	400	
	Total	1000	900	800	
1983	Pd	50	100		
	OS	950	800		
	Total	1000	900		
1984	Pd	0			
	OS	1000			
	Total	1000			

Paid-to-Paid Development Factors

	12:24	24:36	36:48
1981	2.00	2.00	1.25
1982	2.00	2.00	
1983	2.00		

	12	24	36	48
1981				
1982			400 x 1.25 = 500	
			400	
			800	
1983		100 x 2.00 x 1.25 = 250		
		800		
		900		
1984	0 x 2.00 x 2.00 x 1.25 = 0			
	1000			
	1000			

Exhibit 3

Illustration of Backwards Recursive Case Reserve Development

Report Year	---Age in Months-- 12	24	Development Factor 12:24
1981 Δ Pd	150	300-150=150	150/850 = .176
OS	850	600	600/850 = .706
Total	1000	750	750/850 = .882

Exhibit 3A

Illustration of Backwards Recursive
Case Reserve Development

Report Year		---Age in Months--- 12	24	Development Factor 12:24
1981	Δ Pd	150	300-150=150	150/850 = .176
	OS	850	600	600/850 = .706
	Total	1000	750	750/850 = .882
1982	Δ Pd	100	200-100=100	100/900 = .111
	OS	900	700	700/900 = .778
	Total	1000	800	800/900 = .889
1983	Δ Pd	50	100- 50= 50	50/950 = .053
	OS	950	800	800/950 = .842
		1000	850	850/950 = .895

Exhibit 4

Illustration of Weighted Average and Regression through the Origin on Age 12 to 24 Development Factors

Weighted Average

$$\Delta \text{Pd: } (150 + 100 + 50)/(850 + 900 + 950) = 300/2700 = .111$$

$$\text{OS: } (600 + 700 + 800)/(850 + 900 + 950) = 2100/2700 = .778$$

$$\text{Total: } (750 + 800 + 850)/(950 + 900 + 950) = 2400/2700 = .889$$

Regression through the Origin

$$\Delta \text{Pd: } (150 \times 850 + 100 \times 900 + 50 \times 950) \,/\, [(850)^2 + (900)^2 + (950)^2] =$$

$$265{,}000/2{,}435{,}000 = .109$$

$$\text{OS: } (600 \times 850 + 700 \times 900 + 800 \times 950) \,/\, [(850)^2 + (900)^2 + (950)^2] =$$

$$1{,}900{,}000/2{,}435{,}000 = .780$$

$$.889$$

Exhibit 5

Illustration of Backwards Recursive Case Reserve Development (Continued)

Report Year		Age in Months 12:24	24:36	36:48
1981	Δ Pd	150/850 = .176	300/600 = .500	150/200 = .750
	OS	600/850 = .706	200/600 = .333	0/200 = 0
	Total	750/850 = .882	500/600 = .833	150/200 = .750
1982	Δ Pd	100/900 = .111	200/700 = .286	
	OS	700/900 = .778	400/700 = .571	
	Total	800/900 = .889	600/700 = .857	
1983	Δ Pd	50/950 = .053		
	OS	800/950 = .842		
	Total	850/950 = .895		
Wgtd. Avg:	Δ Pd	.111	.384	.750
	OS	.778	.462	0
	Total	.889	.846	.750
Reg. thru Origin:	Δ Pd	.109	.376	.750
	OS	.780	.471	0
	Total	.889	.847	.750
Avg. of Avgs.:	Δ Pd	.110	.380	.750
	OS	.779	.467	0
	Total	.889	.847	.750

Exhibit 6

Illustration of Backward Recursive Case Reserve Development (Concluded)

$$\Delta \text{ Pd } (24,48) = \Delta \text{Pd } (24,36) + \text{OS } (24,36) \times \Delta \text{ Pd } (36,48)$$

$$= .380 + .467 \times .750 = .730$$

$$\Delta \text{ Pd } (12,48) = \Delta \text{Pd } (12,24) + \text{OS } (12,24) \times \Delta \text{Pd } (24,36)$$

$$= .110 + .779 \times .730 = .679$$

Exhibit 6A

Illustration of Backward Recursive Case Reserve Development (Concluded)

$$\Delta Pd\ (24,48) = \Delta Pd\ (24,36) + OS\ (24,36) \times \Delta Pd\ (36,48)$$

$$= .380 + .467 \times .750 = .730$$

$$\Delta Pd\ (12,48) = \Delta Pd\ (12,24) + OS\ (12,24) \times \Delta Pd\ (24,36)$$

$$= .110 + .779 \times .730 = .679$$

1982	400	x	.750	+	400	=	700
1983	800	x	.730	+	100	=	684
1984	1000	x	.679	+	0	=	679

Mohl: I had 3 topics to discuss with you today. I'm going to cut it down to 2 in the interest of time and I just briefly suggest what the 3rd one was going to be. If you want to get into it in the question and answers session you can.

Speaker: General liability is the topic of my talk and general liability is probably one of the most challenging and nasty reserving problems we have today.

Unquestionably there are other very interesting techinical issues with other lines but with general liability every other problem is compounded because we don't know what type of business we're dealing with initially.

For example, as a consultant, it isn't uncommon for me during a preliminary review of the resolves with a client to have some one question how we treat particuarly difficult piece of business, such as the 25 motor cycle helment claims that we had from a particular manufactor, that were reserved for one dollar. And after I picked my self off of the floor and asked why wasn't that mentioned before then I wondered what else is in the data that he hasn't mentioned.

For most companies, general liability is simply a poorly monitored collection of dissimilar coverages which I'd thrown together in a catch all grouping.

Few companies specialize in general liability so relatively little effort is usually taken to understand its composition. The reserve analyst's knowledge about the composition is usual limited to a list of coverages and a distribution associated with them that has probably been developed from 5 or 4 year old data. In fact its not unpresidented for the reserve analyst to be the first person in the company to call attention to a shift in mix by coverage.

Unfortunately, this usual occurs after an adverse development on the reserve that had been set the previous year.

The situation for companies that specialize in general liability is really not that much better. These companies will separately analyz the one or two largest sublines and will neglect the residual coverages.

The message that I will try to comunicate today, is that the composition by coverage for general liability is extremely important when setting loss reserves. If the volume in any particular subline is large enough to stand on its own, then it should be analyzed and reserved separately, however, even when no subline is large enough to make separate analysis meaningful, the mix should be regularly monitored and subjectively factored into the reserve analysis as a whole.

The decision of when a subline is large enough to deserve separate analysis cannot be made in a vaccum. The three most important criteria are total general liability premium volume, the degree of concentration in any subline and the relative importance of general liability reserves to the overall income and surplus position of the company.

Premium volume may even understate the impact of general liability, because recently we've had sharply discount rates and it hasn't been uncommon to have 200 and 300 percent loss ratios.

There are many reason for prefering disaggregate data for reserve analysis. The most obvious is that each coverage tends to have its own distinctive development pattern for paid and incurred losses, report and closed claims and allocated expenses. If the mix by

coverage remains constant, the aggregate development pattern will remain comparable from year to year. But when the mix varies, the aggregate history is no longer representative of the expected future development.

Of course, a one time shift in mix will have the most dramatic inpact if it's a large one and if the historical developments are naively applied without any adjustment. Fortunately large shifts are usual discovered very soon, on the other hand a gradual shift may have a large dollar impact if the shift is misdiagnosed and not recognized for some years.

With a gradual shift development factors which vary by a minimal amount of expectations are likely to be mistaken for just statistical fluctuation. Even when a sequence of minor deviations, all in the same direction emerge during alternative explanations change and mix may not be looked into.

Ignoring a gradual shift will have a particularly pronounce effect if the coverage with the increasing percentage has a significantly larger tail than the rest. In such a case the reserves will be consistently understated until the shift has stablelized at a new equilibrium or the reserve analysist recognizes a trend in the development.

Even if development patterns are not materially different by coverage there are other reasons to prefer disaggregate data.

Loss ratios and rate activity vary by coverage generally. Because general liability development patterns can be volatile, especially at low premiums volumn, it is prudent to check projected ultimate losses against expected losses ratios. To avoid seat of the pants estimates, which can be leading, expected loss ratios must recognize recent rate activity. It should not be assumed that a good first approximation to the expected loss ration is a break even loss or a permissible loss ratio. This type of short cut I believe has contributed to the recent horrendous underwriting results in general liability.

The shortcoming of such an approach would have been readily apparent if a company had taken into account the shift in rate activity from consistently dropping rates. An analysis of rate activity would have gotten closer to the original answer of a dropping rates and would have kept the company on line. Only by working with disaggregate data which recognize the varing rate levels by coverage can one come to an accurate reflection of a change in rate activity.

A final feature about loss ratio and disaggregate data is that stability and predictability of loss ratio vary by coverage. Only by addressing each piece separately can the magnitude of movement in a loss ratio be evaluated as reasonable or not. For the most volatile coverages, there will always remain a broad range of possible loss ratios. But for the most stable coverages loss ratios which move too sharply from the past lends are good indicators of a change in some other area which is causing a distorted projection.

Rate deterioration may not be fully reflected in formal rate activity. Consideration may have to be given to various discretionary underwriting tool such as schedule rating. One way to measure the entire impact of both formal and discretionary rate activity, is to calculate the change in average premium per exposure.

It would be impossible to develop meaningful exposure information on an aggregate basis when different exposure basis are involved. By work with this aggregate information by coverage, stable relationships based on average premiums per exposure units are most likely to be present.

A final reason for preferring disaggregate data is that each coverage has a typical frequency severity and size of loss distribution. As with the average premium per exposure, these relationships are more likely to be stable and meaningful on a coverage basis, separately, than on an aggregate basis.

Counter balances all of these reasons for disaggregating data are two disportionately influential reason for using aggregate data.

The first is that when data or too finely segmented the underlying patterns, which we are trying to observe, will be overwhelmed by statistical fluctuations.

The second is that using disaggregate data is more work. More detailed information is not helpful, if the time is not available to carefully analyze it.

The pro's and con's of working with disaggregate data must be evaluated separately by each company, but remember that you can always add disaggregate data together, together back to the total, but the reverse is impossible.

I've created a little example which is composition of three coverages, premises, products and professional liability. The data are vaguely disguised actual data from several different companies. I've naturely constructed the examples so that the mixed business shift from year to year.

Exhibit I shows incurred losses in the incurred loss development below it by accident year. If the accident year is going down the column and the development periods across the roads.

The incurred loss development factor is simply the ratio of the consecutive columns. I've assumed for purposes that there is no development beyond 48 months, of course this is unrealistic assumption but we'll soon see that this simple problem still gives us distortion when we work with aggregate data.

The estimated ultimate losses are based only on the average development factors, which is the method that I've used to select factors throughout this example. With such large variances in the development factors by column, I think we would all want to get more information on how representative the average factors are of our expectation. Perhaps a paid losses development would help.

Exhibit II shows cumulative paid losses at the top and the paid loss development factors at the bottom. Again I've selected the average factors. The factor to go from 48 months which is the last point in the triangle to ultimate was calculated based on the ratio of incurred losses to paid losses at 48 months and throughout this example I'll use the same technique.

These factors are no less varible than the incurred losses development factors. They produce a reserve over 30 million higher than the incurred losses development. We have a problem there, we certainly wouldn't want to stop our analysis here.

Exhibit III shows the cumulative reported claims projected to ultimate based on the average development again. On the right, we see the estimated ultimate counts and on the extreme right something called the implied average incurred loss which is based on the estimated ultimate count and the estimated ultimate incurred losses from Exhibit III. With average losses dropping by 40% from 1981 to 1982 and then jumping by about

50% from 1983 to 1984, I don't have much confidence in the incurred loss projections as they stand.

Exhibit IV show closed claims projected to ultimate. On the right, we see the implied average ultimate paid loss where, as in Exhibit III, we had the implied average incurred loss. The averages show a more acceptable pattern of inflation going from year to year. If we had to stop the analysis here we would have to favor the paid loss development over the incurred loss development because the average losses appear better for the paid loss projection, however, if we knew more about the individual coverages, we may get different results.

What I would suggest is that the most fruitful next step would be to analyze each piece separately. The first piece is premises which is probably the most common of the general liability coverages. Typically, the severity for premises is low compared to other types of general liability. The frequency is relatively high because many of the claims are generated from mudane occurences such as slips and falls.

The claims are usual reported fairly fast and settled at a moderate rate similar to automobile liability. The major classes of business are restuarants, stores, malls, hotels, apartments and offices.

Exhibit V shows the incurred losses developed in the same fashion as in Exhibit I. The link ratios or the incurred loss development factors are somewhat more stable at 12 months then they were for the total. At 12 months thought they are trending down. A total of 9.4 million dollars is projected across all years.

Exhibit VI shows a paid loss development for premises. The 12 months factors are trending up here (this is actual data). As you can see the paid loss projection is somewhat higher at 10.7 million dollars. Perhaps the implied averages will help us decide what ultimate losses will be.

Exhibit VII provides the reported loss development with the implied average incurred losses. The implied average inflation rate by year is 9.0, 11 and 6% going from 1980 to 1984. Considering the general inflation rate over these periods, the ultimate incurred losses certainly looked reasonable.

Exhibit VIII shows the closed claim development and the implied average ultimate paid losses for premises. The ultimate counts for 1984 based on the closed claims is $1,943 verses what was on the previous exhibit $1,856 based on the reported counts. This implies a speed in claims settlement which means that paid losses would tend to overestimate the ultimate losses. These averages inflate at somewhat eratic rates of 26%, 22% and minus 18%. These inflation rates are certainly less palatable than the incurred loss inflation rates. Based on the data available it would appear that the total ultimate loss of 9.4 million estimated by the incurred loss projection is the more reasonable projection.

The second piece of business included in our compositon is products liability. Typically the level of frequency and severity varies by type of product.

In Exhibit IX we see that we have product exposure in only 2 years 1982 and 1983. This particular insurer only insured products which had a tendency to produce high frequency but low severity types of claims, which is common among certain household goods manufacture. The incurred loss estimate is $503,000.

Exhibit X shows the paid losses development in the same fashion. We have a slightly higher total ultimate of $531,000.

Exhibit XI shows that the average incurred losses dropped from 1982 to 1983 going from $469 to $417 which is contrary to what we would have expected if we had a large and predictable volume of losses in each year.

Exhibit XII shows that the implied average paid loss development dropped less then the incurred losses. Based on this information alone we would want to select a total ultimate incurred loss slightly greater than $530,000 which was the base on the paid losses. Perhaps something like the $545,000 which would keep 1983 average losses at least as great as 1982's.

So far the data the has been fairly tamed and the choices have not been too difficult. The final piece of business is professional liability which covers a host of sins. Many professional liability policies such as medical malpractice and lawyers liability have been offered on both claims made basis and occurence basis.

In this case, I have included data from an occurence policy only. If both types of data were present, we would want to analyze each separately.

Exhibit XIII shows the incurred losses development which gives ultimate incurred losses across all years of $32 million dollars.

You should notice that the link ratios along the last diagonal are lower than those above. This might be an indication of a change in claim adjustment practices.

Exhibit XIV shows an outrageous set of projections based on paid losses. Again this is somewhat disguised but actual data. With so few dollars paid in the early years of development erratic projections can be expected which makes this sort of projection meaningless.

Exhibit XV shows the reported count development and the implied average incurred loss. While there are a few claims, it is still unlikely that average losses were dropped from 1981 to 1982 and from 1983 to 1984. Assuming that there were no unusually large claims in 1981, we might conclude there was a general weakening of case reserves which would be supported by the loss development factors along the diagonal being lower. The ultimate number of claims has only risen slightly during the last 3 years, indicating a certain degree of stability there at least.

Exhibit XVI shows the implied average paid losses. The projections are so extreme that the average loss may exceed the companies retain policy limits. It seems the right answer must lie in between the two estimates but much closer to the incurred loss estimates than the paid loss estimates. If we relied on the projected number of ultimate claims based on the reported claims and an average claim of about $25,000 we would get an ultimate cross all years of about $52 million.

Obviously we have not gone through a very rigorous analysis of the data either on total or by subline, but it should be evident how much more meaningful the analysis is by subline. In total, our initial estimates were between $47 million and $78 million. But by looking at the individual coverages we were able to zero in pretty well for two of the coverages and make a reasonable approximation for professional liability to come up with an alternative estimate of about $62 million.

For professional liability at least, we are aware of the data anomalies now. If we had incorporated premium exposure, rate level, and frequency information, which would only be available and meaningful on a coverage basis, we would probably have had a good deal more confidence in the results select.

NOTES FOR RESERVE SEMINAR PRESENTATION OF SEPTEMBER 19, 1985

GENERAL LIABILITY AND PROFESSIONAL LIABILITY, PANEL 3D

BY GREGORY ALFF, FCAS, MAAA

TERRY HAS DISCUSSED THE NEED TO DISAGGREGATE DATA OF VARIOUS SUBLINES OF GENERAL LIABILITY BECAUSE OF DIFFERENCES IN FREQUENCY AND SEVERITY. DIFFERENT PATTERNS OF LOSS DEVELOPMENT EXIST, AND IT IS IMPORTANT TO RECOGNIZE SUCH DIFFERENCES IN ATTEMPTING TO ESTABLISH REASONABLE LOSS RESERVE ESTIMATES.

BUT I URGE YOU NOT TO GET TRAPPED INTO DISAGGREGATING DATA BY SUBLINE! THAT IS TO SAY, NOT USING SUBLINE AS THE SOLE BASIS FOR DISAGGREGATION. TERRY'S EXAMPLES ARE SOLID. IN MANY CASES A SPLIT OF DATA BY SUBLINE WILL SUFFICE. HOWEVER, IN SOME CASES IT WILL NOT. WE AS INDIVIDUALS SEARCHING FOR AN EVER BETTER APPROACH TO RESERVE ANALYSIS MUST BE AWARE OF THE NEED FOR DISAGGREGATION OF DATA EVEN WITHIN SUBLINE.

NOTHING CAN MAKE SUCH A POINT BETTER THAN AN ACTUAL EXAMPLE.

I HOPE THAT MOST OF YOU HAVE PICKED UP A PAPER COPY OF THIS EXAMPLE AS YOU CAME IN. IF NOT, PLEASE FOLLOW ALONG ON THE OVERHEAD AND GRAB A COPY ON THE WAY OUT.

THIS PARTICULAR EXAMPLE DEALS WITH PRODUCTS LIABILITY AND IS NEARLY UNALTERED DATA FROM AN ACTUAL RESERVE SITUATION.

BECAUSE OF THE TIME CONSTRAINTS, THE EXHIBITS CONCENTRATE ON CLAIM COUNTS, BUT IT SHOULD NOT BE HARD FOR ANY EXPERIENCED RESERVE ANALYST TO IMAGINE WHAT THE EFFECTS WOULD BE ON INCURRED OR PAYMENT RESERVE METHODS.

EXHIBIT I SHOWS THE FOUR MOST CURRENT DATA DIAGONALS OF A CLAIM COUNT DEVELOPMENT TRIANGLE FOR AGGREGATED PRODUCTS BODILY INJURY LIABILITY. UPON A BRIEF REVIEW, THE MAIN OBSERVATION MIGHT BE THAT SOMETHING UNUSUAL HAS CAUSED AN ABNORMAL VOLUME OF CLAIMS IN ACCIDENT YEAR 1976.

PERHAPS EXHIBIT II, SHOWING CLAIM COUNT DEVELOPMENT FACTORS, WILL BRING THAT AND OTHER QUESTIONS INTO VIEW. THIS EXHIBIT SHOWS THE DEVELOPMENT FACTORS IN THE TRIANGLE FORMAT AND THEN ALSO AT THE BOTTOM OF THE PAGE IN A REVISED, MORE COMPACT FORMAT. IN THIS FORMAT WE CAN NOTICE THE OBVIOUS OUTLIERS IN THE TAIL OF THE DATA, THOSE FROM THE 1976 YEARS, PLUS ALSO INDIVIDUAL FACTORS FROM 1975 AND 1979. IF WE GLANCE AGAIN AT EXHIBIT I, WE CAN SEE THE DRAMATIC INCREASE IN COUNTS IN THE 1976 YEAR AND ALSO TO A LESSER DEGREE IN 1975 AND 1979. WE KNEW THAT THIS COMPANY HAD BEEN INDEXING SOME LARGE BLOCKS OF CLAIMS FOR ASBESTOSIS. WE DECIDED TO SEGREGATE ASBESTOSIS AND ADJUST OUR CLAIM COUNTS AND LOSS DEVELOPMENT TRIANGLES.

EXHIBIT III SHOWS OUR CLAIM COUNT DEVELOPMENT TRIANGLE AND THE RESULTING DEVELOPMENT FACTORS AFTER THE EXCLUSION OF ASBESTOSIS CLAIMS. WE SEE THAT AFTER ELIMINATING THE ASBESTOSIS, THE DEVELOPMENT PATTERNS FOR THE INDIVIDUAL LINKS OR 12-MONTH DEVELOPMENT PERIODS REALLY FALL INTO PLACE AND MAKE MORE SENSE. BUT WAIT, WHAT ABOUT 12-24, IT LOOKS LIKE IT'S TRENDING

STRONGLY UPWARD WHEN OTHER LINK RATIOS ARE CONSTANT. IF WE LOOK UP AT THE COUNTS WE SEE WHAT SEEMS TO BE A RATHER STRANGE PATTERN FROM 1978 THROUGH 1983, WITH THE VOLUME OF CLAIM COUNTS BEING QUITE UNSTABLE.

AT SUCH A POINT ONE NEEDS TO THINK ABOUT WHAT HE KNOWS ABOUT EXPOSURES DURING SUCH A PERIOD. MY UNDERSTANDING WAS THAT THE EXPOSURE IN THIS SUB-LINE DECREASED FROM 1976 THROUGH 1978 AS THE COMPANY REUNDERWROTE THEIR BOOK OF BUSINESS. BUT I HAD UNDERSTOOD THAT EXPOSURES WERE BASICALLY FLAT FOR YEARS 1978 THROUGH 1981, AND THEN BEGAN TO GROW AGAIN IN 1982 AND 1983. THESE COUNTS CERTAINLY DON'T SEEM TO SHOW THAT.

TO MAKE A LONG STORY SHORT, WE FOUND THAT THIS COMPANY HAD PUT NINE ACCOUNTS ON THE BOOKS CONCENTRATED IN THE PERIOD FROM 1978 THROUGH 1981 WHICH WERE BASICALLY INVOLVED IN THE FOOD PRODUCTS INDUSTRY. THESE ACCOUNTS MANUFACTURED VARIOUS FOOD PRODUCTS FOR PUBLIC CONSUMPTION. THEIR EXPERIENCE TENDED TO HAVE RATHER HIGH FREQUENCY, AND AT THE SAME TIME, LOW SEVERITY.

WE ALSO FOUND THAT ONE LARGE ACCOUNT HAD BEEN SWITCHED FROM A HIGH DEDUCTIBLE TO A FULL COVERAGE BASIS. THIS PARTICULAR ACCOUNT MANUFACTURED AUTOMOBILE BATTERIES WITH A WELL-DOCUMENTED FREQUENCY AND SEVERITY PATTERN.

BOTH THE NINE FOOD PRODUCTS ACCOUNTS AND THE ONE BATTERY MANUFACTURER HAD THEIR DATA EMBEDDED IN THE LARGER BLOCK OF DATA CALLED PRODUCTS LIABILITY BODILY INJURY. WE DECIDED TO ALSO SEGREGATE THE DATA FOR THESE PARTICULAR FOOD PRODUCTS AND BATTERY MANUFACTURER ACCOUNTS. WE THEN ARRIVED AT THE

PATTERN SHOWN AT THE BOTTOM OF EXHIBIT IV. THIS PATTERN IS MUCH MORE STABLE AND AGREES WITH OUR APRIORI KNOWLEDGE OF THE EXPOSURE CHANGES FOR THIS PERIOD OF TIME.

EXHIBIT V SHOWS THREE SETS OF DEVELOPMENT FACTORS. FIRST WE SEE THE FACTORS EXCLUDING ASBESTOSIS, FOOD PRODUCTS, AND THE BATTERY MANUFACTURER. THESE ARE THE FACTORS THAT WE FINALLY ARRIVED AT TO BE USED FOR THE BASIC BOOK OF PRODUCTS LIABILITY FOR THIS COMPANY. HAD WE EXCLUDED ONLY THE ASBESTOSIS AND USED A THREE-YEAR AVERAGE OF FACTORS, WE WOULD HAVE UTILIZED THE FACTORS IN THE MIDDLE OF THE PAGE. YOU CAN SEE HOW THIS MIGHT HAVE MISLED US, ESPECIALLY WHEN ESTIMATING CLAIM COUNTS AND RESERVES FOR THE TWO MOST RECENT YEARS. AT THE BOTTOM OF THE EXHIBIT YOU SEE THE FACTORS FOR TOTAL AGGREGATED PRODUCTS LIABILITY INCLUDING THE ASBESTOSIS LATENT INJURY DEVELOPMENT.

IN ORDER TO GET A BETTER UNDERSTANDING OF HOW WE MIGHT HAVE BEEN MISLED WITHOUT THIS DISAGGREGTION, I HAVE SHOWN SOME ESTIMATES OF ULTIMATE CLAIM COUNTS AND ULTIMATE SEVERITIES FOR THE NINE FOOD PRODUCTS ACCOUNTS, THE BATTERY MANUFACTURER, AND ALL OTHER PRODUCTS, EXCLUDING ASBESTOSIS. HERE YOU CAN SEE HOW MAJOR DIFFERENCES IN FREQUENCY AND SEVERITY BETWEEN ACCOUNTS WITHIN ONE SUBLINE COULD EASILY LEAD AN ENTIRE RESERVE ANALYSIS ASTRAY.

I URGE YOU ALL TO BE AWARE AND BEWARE OF UNUSUAL MOVEMENTS OR CHANGES SHOWING UP IN DEVELOPMENT PATTERNS. THERE IS OFTEN AN UNDERLYING REASON WHICH MAY LEAD TO THE NEED TO DISAGGREGATE DATA BEING REVIEWED.

Summary Before Final Questions

Kevin Thompson concentrated on the conversion from occurrence to claims made. He points out that we need to be aware of changes in the magnitude of dollars that will appear in financial statements resulting from early claims made years. Developments patterns on Schedule P will be significantly affected. Along these lines, mixtures of occurrence and claims made data are likely to appear in most company annual statements, which will make development patterns extremely difficult to monitor and analyze. Kevin has discussed disaggregation of occurrence and claims made data, but also looked at one possibility for analyzing combined loss data from these two different coverage approaches.

Jim Mohl's presentation gets to the report year heart of claims made reserve analysis. He describes one important method of analyzing report year data. Many of us will need to change mind set from accident year analysis to the different approaches and requirements of report year reserving. Jim also points to the need not to fall asleep on the concept of IBNR just because of claims made coverage. He reminds us of very real differences in risk caused by differences in state tort laws. Currently malpractice is most affected, but what about latent injury and the growing specter of pollution liability? How will tort reform or lack thereof show up in differences in loss potential by state jurisdiction?

JERRY O'BRIEN'S PRESENTATION MAKES US ALL AWARE OF THE VERY REAL DIFFERENCES IN FREQUENCY, SEVERITY AND LOSS DEVELOPMENT PATTERNS FOR SEGMENTS OF BUSINESS WITHIN THE GENERAL LIABILITY LINE. WITH THE CGL POLICY THERE ARE ESSENTIALLY TWO SUBLINES, PRODUCTS AND ALL OTHER, EACH ON A COMBINED SINGLE LIMIT BASIS. WHAT KIND OF FURTHER SEGREGATION OF LOSSES MIGHT YOU NEED FOR YOUR RESERVE ANALYSIS? WHAT ABOUT CLAIMS MADE VERSUS OCCURRENCE? MAYBE YOU WILL WANT TO MAINTAIN A BODILY INJURY AND PROPERTY DAMAGE SPLIT FOR LOSS ANALYSIS, EVEN THOUGH PREMIUMS ARE NO LONGER SPLIT.

CONCLUDING STATEMENT

THE CHALLENGES IN THE MONTHS AHEAD WILL BE MANY, AS THE INDUSTRY MOVES VOLUNTARILY OR INVOLUNTARILY TOWARD CLAIMS MADE. WE HOPE THIS SEMINAR SESSION HAS SPURRED YOUR THINKING ON WHAT WILL BE NECESSARY TO DO THE JOB IN YOUR PARTICULAR CIRCUMSTANCES. I WISH TO ONCE AGAIN THANK THE PANELISTS FOR STIMULATING OUR THINKING.

GREG ALFF
HO 60

General Liability and Professional Liability

Panel 3D

EXAMPLE OF NEED TO DISAGGREGATE SUBLINE DATA

by Gregory Alff, FCAS

Products Bodily Injury
Aggregated Claim Count Development
For Claims With Incurred Cost

Exhibit I

Accident Year	Months of Development								
	12	24	36	48	60	72	84	96	108
1974								1,926	1,930
1975							2,126	2,110	2,608
1976						3,356	6,770	10,919	12,229
1977					971	970	956	948	
1978				916	890	909	909		
1979			1,031	1,166	1,175	1,389			
1980		1,107	1,188	1,232	1,247				
1981	1,029	1,048	1,130	1,189					
1982	718	850	908						
1983	843	1,012							

Exhibit II

Products Bodily Injury
Aggregated Claim Count Development Factors
For Claims With Incurred Cost

Accident Year	Development for Months 12:24	24:36	36:48	48:60	60:72	72:84	84:96	96:108
1974								1.00
1975							.99	1.23
1976						2.02	1.61	1.12
1977					1.00	.99	.99	
1978				.97	1.02	1.00		
1979			1.13	1.01	1.18			
1980		1.07	1.04	1.01				
1981	1.02	1.08	1.05					
1982	1.18	1.07						
1983	1.21							

Revised Format

2nd Prior	1.02	1.07	1.13	.97	1.00	2.02	.99	1.00
1st Prior	1.18	1.08	1.04	1.01	1.02	.99	1.61	1.23
Latest	1.21	1.07	1.05	1.01	1.18	1.00	.99	1.12
Avg. Annual	1.14	1.07	1.07	1.00	1.07	1.34	1.20	1.12

Products Bodily Injury Excluding Asbestosis
Claim Count Development and Factors
For Claims With Incurred Cost

Exhibit III

Accident Year	Months of Development								
	12	24	36	48	60	72	84	96	108
1974								1,649	1,647
1975							1,455	1,458	1,457
1976						1,146	1,137	1,134	1,139
1977					945	944	944	944	
1978				886	862	862	862		
1979			937	978	975	976			
1980		1,092	1,164	1,200	1,218				
1981	1,023	1,033	1,110	1,139					
1982	702	792	838						
1983	841	1,011							

	Development for Months							
	12:24	24:36	36:48	48:60	60:72	72:84	84:96	96:108
2nd Prior	1.01	1.07	1.04	.97	1.00	.99	1.00	1.00
1st Prior	1.13	1.07	1.03	1.00	1.00	1.00	1.00	1.00
Latest	1.20	1.06	1.03	1.02	1.00	1.00	1.00	1.00
Avg. Annual	1.11	1.07	1.03	1.00	1.00	1.00	1.00	1.00
Cum. Avg.	1.22	1.10	1.03	1.00				

Exhibit IV

Food Products and Battery Manufacturer
Claim Count Development
For Claims With Incurred Cost

Accident Year	Months of Development								
	12	24	36	48	60	72	84	96	108
Nine Food Products Accounts									
1977					57	57	56	56	
1978				139	139	139	139		
1979			265	265	262	261			
1980		521	514	512	510				
1981	486	427	413	410					
1982	47	39	38						
1983	58	50							
One Battery Manufacturer									
1982	18	55	58						
1983	158	222							
Count Development Excluding Asbestosis, Food Products, and Battery Manufacturer									
1974								1,649	1,647
1975							1,455	1,458	1,457
1976						1,146	1,137	1,134	1,139
1977					888	887	888	888	
1978				747	723	723	723		
1979			672	713	713	715			
1980		571	650	688	708				
1981	537	606	697	729					
1982	637	698	742						
1983	625	739							

Products Bodily Injury
Comparison of Claim Count Development Factors

Exhibit V

	Development for Months							
	12:24	24:36	36:48	48:60	60:72	72:84	84:96	96:108
Excluding Asbestosis, Food Products, and Battery Manufacturer								
2nd Prior	1.13	1.14	1.06	.97	1.00	1.01	1.00	1.00
1st Prior	1.10	1.15	1.06	1.00	1.00	1.00	1.00	1.00
Latest	1.18	1.06	1.05	1.03	1.00	1.00	1.00	1.00
Avg. Annual	1.14	1.12	1.06	1.00	1.00	1.00	1.00	1.00
Cum. Avg.	1.36	1.19	1.06	1.00				
Excluding Only Asbestosis								
2nd Prior	1.01	1.07	1.04	.97	1.00	.99	1.00	1.00
1st Prior	1.13	1.07	1.03	1.00	1.00	1.00	1.00	1.00
Latest	1.20	1.06	1.03	1.02	1.00	1.00	1.00	1.00
Avg. Annual	1.11	1.07	1.03	1.00	1.00	1.00	1.00	1.00
Cum. Avg.	1.22	1.10	1.03	1.00				
Total Aggregated Products								
2nd Prior	1.02	1.07	1.13	.97	1.00	2.02	.99	1.00
1st Prior	1.18	1.08	1.04	1.01	1.02	.99	1.61	1.23
Latest	1.21	1.07	1.05	1.01	1.18	1.00	.99	1.12
Avg. Annual	1.14	1.07	1.07	1.00	1.07	1.34	1.20	1.12
Cum. Avg.	2.52	2.21	2.07	1.93	1.93	1.80	1.34	

Corrected
Exhibit VI

Products Bodily Injury
Indicated Ultimate Incurred Losses

Accident Year	Current Claim Counts	Count Development Factor	Estimated Ultimate Counts	Estimated Ultimate Severity	Estimated Ultimate Incurred Cost	Implied Average Severity
			Nine Food Products Accounts			
1980	510		510	$ 400	$ 204,000	
1981	410		410	440	180,400	
1982	38		38	500	19,000	
1983	50		50	500	25,000	
1984	0		0		0	
			One Battery Manufacturer			
1982	58		60	6,000	360,000	
1983	222		260	6,500	1,690,000	
1984	131		260	7,000	1,820,000	
			All Other Products (Excluding Asbestosis)			
1980	708	1.00	708	14,700	10,407,600	
1981	729	1.00	729	14,100	10,278,900	
1982	742	1.06	787	15,400*	12,120,000	
1983	739	1.19	879	16,800*	14,767,200	
1984	499	1.36	679	18,300*	12,425,700	

*Projected using a 1.09 trend after 1981.

			Total Products Excluding Asbestosis			
1980			1,218		10,611,600	8,712
1981			1,139		10,459,300	9,183
1982			885		12,499,000	14,123
1983			1,189		16,482,200	13,862
1984			939		14,245,700	15,171

EXHIBIT I

TOTAL

ACCIDENT YEAR	MONTHS OF DEVELOPMENT				
	12	24	36	48	
	CUMULATIVE INCURRED LOSS ($000's)				ESTIMATED ULTIMATE LOSSES
1981	1638	5185	7685	10202	10201
1982	1358	5622	7095		9414
1983	3821	7145			13007
1984	2663				14821
					47443
	INCURRED LOSS DEVELOPMENT				
1981	3.165	1.482	1.327		
1982	4.139	1.262			
1983	1.870				
AVG.	3.058	1.372	1.327	1.000	

EXHIBIT II

TOTAL

ACCIDENT YEAR	MONTHS OF DEVELOPMENT				
	12	24	36	48	
	CUMULATIVE PAID LOSS ($000's)				ESTIMATED ULTIMATE LOSSES
1981	225	485	1581	4952	10201
1982	328	1281	2805		18103
1983	546	1527			26846
1984	456				23706
					78856
	PAID LOSS DEVELOPMENT				
1981	2.160	3.259	3.133		
1982	3.911	2.190			
1983	2.799				
AVG.	2.957	2.724	3.133	2.060	

EXHIBIT III

TOTAL

ACCIDENT YEAR	MONTHS OF DEVELOPMENT					
	12	24	36	48	ESTIMATED ULT. COUNTS	IMPLIED AVG. ULT. INCURRED
	CUMULATIVE REPORTED CLAIMS					
1981	896	1350	1443	1484	1484	6874
1982	1395	2173	2299		2363	3984
1983	2270	3050			3333	3902
1984	1532				2459	6027
	REPORTED COUNT DEVELOPMENT					
1981	1.507	1.069	1.028			
1982	1.558	1.058				
1983	1.344					
AVG.	1.469	1.063	1.028	1.000		

EXHIBIT IV

TOTAL

ACCIDENT YEAR	MONTHS OF DEVELOPMENT					
	12	24	36	48		
	CUMULATIVE CLOSED CLAIMS				ESTIMATED ULT. COUNTS	IMPLIED AVG. ULT. PAID
1981	649	1028	1238	1361	1484	6874
1982	947	1658	1971		2362	7664
1983	1450	2343			3361	7988
1984	1172				2744	8546
	CLOSED COUNT DEVELOPMENT					
1981	1.504	1.204	1.099			
1982	1.751	1.189				
1983	1.616					
AVG.	1.650	1.197	1.099	1.090		

EXHIBIT V

PREMISES

ACCIDENT YEAR	MONTHS OF DEVELOPMENT				
	12	24	36	48	
	CUMULATIVE INCURRED LOSS ($000's)				ESTIMATED ULTIMATE LOSSES
1981	780	1028	1342	1403	1403
1982	1253	1532	2029		2121
1983	1707	2079			2858
1984	1776				3061
					9443
	INCURRED LOSS DEVELOPMENT				
1981	1.319	1.305	1.046		
1982	1.273	1.324			
1983	1.218				
AVG.	1.253	1.315	1.046	1.000	

EXHIBIT VI
PREMISES

ACCIDENT YEAR	MONTHS OF DEVELOPMENT				
	12	24	36	48	
	CUMULATIVE PAID LOSS ($000's)				ESTIMATED ULTIMATE LOSSES
1981	220	365	603	1022	1403
1982	311	728	1059		2463
1983	453	1012			3660
1984	420				3153
					10679
	PAID LOSS DEVELOPMENT				
1981	1.657	1.655	1.694		
1982	2.338	1.456			
1983	2.234				
AVG.	2.076	1.555	1.694	1.373	

EXHIBIT VII

PREMISES

ACCIDENT YEAR	MONTHS OF DEVELOPMENT					
	12	24	36	48		
	CUMULATIVE REPORTED CLAIMS				ESTIMATED ULT. COUNTS	IMPLIED AVG. ULT. INCURRED
1981	838	1046	1070	1090	1090	1287
1982	1179	1455	1489		1517	1398
1983	1447	1763			1838	1555
1984	1444				1856	1649
	REPORTED COUNT DEVELOPMENT					
1981	1.248	1.023	1.019			
1982	1.234	1.023				
1983	1.218					
AVG.	1.234	1.023	1.019	1.000		

EXHIBIT VIII

PREMISES

ACCIDENT YEAR	MONTHS OF DEVELOPMENT					
	12	24	36	48		
	CUMULATIVE CLOSED CLAIMS				ESTIMATED ULT. COUNTS	IMPLIED AVG. ULT. PAID
1981	643	962	1623	1061	1090	1287
1982	879	1342	1420		1512	1629
1983	1138	1629			1841	1988
1984	1158				1943	1623
	CLOSED COUNT DEVELOPMENT					
1981	1.496	1.063	1.037			
1982	1.527	1.058				
1983	1.431					
AVG.	1.485	1.061	1.037	1.027		

EXHIBIT IX
PRODUCTS

ACCIDENT YEAR	MONTHS OF DEVELOPMENT				
	12	24	36	48	
	CUMULATIVE INCURRED LOSS ($000's)				ESTIMATED ULTIMATE LOSSES
1981	0	0	0	0	0
1982	105	163	150		150
1983	357	385			353
1984	0				0
					503
	INCURRED LOSS DEVELOPMENT				
1981	1.553	.916			
1982	1.081				
AVG.	1.317	.916	1.000	1.000	

EXHIBIT X
PRODUCTS

ACCIDENT YEAR	MONTHS OF DEVELOPMENT				
	12	24	36	48	
	CUMULATIVE PAID LOSS ($000's)				ESTIMATED ULTIMATE LOSSES
1981	0	0	0	0	0
1982	16	47	54		150
1983	87	119			381
1984	0				0
					531
	PAID LOSS DEVELOPMENT				
1981					
1982	2.866	1.161			
1983	1.370				
AVG.	2.118	1.161	2.759	1.000	

EXHIBIT XI
PRODUCTS

ACCIDENT YEAR	MONTHS OF DEVELOPMENT					
	12	24	36	48		
	CUMULATIVE REPORTED CLAIMS				ESTIMATED ULT. COUNTS	IMPLIED AVG. ULT. INCURRED
1981	0	0	0	0	0	-
1982	145	317	318		318	469
1983	723	843			846	417
1984	0					

REPORTED COUNT DEVELOPMENT

1981				
1982	2.186	1.003		
1983	1.166			
AVG.	1.676	1.003	1.000	1.000

EXHIBIT XII

PRODUCTS

ACCIDENT YEAR	MONTHS OF DEVELOPMENT					
	12	24	36	48	ESTIMATED ULT. COUNTS	IMPLIED AVG. ULT. PAID
	CUMULATIVE CLOSED CLAIMS					
1981	0	0	0	0	0	--
1982	61	225	270		318	469
1983	304	599			846	450
1984	0				0	--
	CLOSED COUNT DEVELOPMENT					
1981						
1982	3.689	1.200				
1983	1.970					
AVG.	2.829	1.200	1.178	1.000		

EXHIBIT XIII

PROFESSIONAL

ACCIDENT YEAR	MONTHS OF DEVELOPMENT				
	12	24	36	48	
	CUMULATIVE INCURRED LOSS ($000's)				ESTIMATED ULTIMATE LOSSES
1981	859	4157	6344	8798	8798
1982	929	3926	4916		6818
1983	1758	4680			9016
1984	886				7535
					32167
	INCURRED LOSS DEVELOPMENT				
1981	4.842	1.526	1.387		
1982	4.227	1.252			
1983	2.663				
AVG.	3.911	1.389	1.387	1.000	

EXHIBIT XIV

PROFESSIONAL

ACCIDENT YEAR	MONTHS OF DEVELOPMENT				
	12	24	36	48	
	CUMULATIVE PAID LOSS ($000's)				ESTIMATED ULT. LOSSES
1981	5	120	977	3930	8798
1982	3	507	1691		15224
1983	5	1295			66720
1984	36				260062
					350804
	PAID LOSS DEVELOPMENT				
1981	26.588	8.175	4.021		
1982	156.555	3.339			
1983	237.177				
AVG.	140.107	5.727	4.021	2.239	

EXHIBIT XV

PROFESSIONAL

ACCIDENT YEAR	MONTHS OF DEVELOPMENT					
	12	24	36	48		
	CUMULATIVE REPORTED CLAIMS				ESTIMATED ULT. COUNTS	IMPLIED AVG. ULT. INCURRED
1981	58	304	373	394	394	22,330
1982	71	401	492		520	13,111
1983	100	444			575	15,680
1984	88				582	12,947
	REPORTED COUNT DEVELOPMENTS					
1981	5.241	1.227	1.056			
1982	5.648	1.227				
1983	4.440					
AVG.	5.110	1.227	1.056	1.000		

EXHIBIT XVI

PROFESSIONAL

ACCIDENT YEAR	MONTHS OF DEVELOPMENT					
	12	24	36	48	ESTIMATED ULT. COUNTS	IMPLIED AVG. ULT. PAID
	CUMULATIVE CLOSED CLAIMS					
1981	6	66	215	300	394	22330
1982	7	91	281		515	29561
1983	8	115			668	99880
1984	14				1041	249819
	CLOSED COUNT DEVELOPMENT					
1981	11.000	3.258	1.395			
1982	13.000	3.088				
1983	14.375					
AVG.	12.792	3.173	1.395	1.313		

EXHIBIT XVII

ESTIMATED ULTIMATE LOSSES

BASED ON CASE INCURRED LOSSES

($000's)

AGGREGATE	PREMISES	PRODUCTS	PROFESSIONAL	TOTAL
$10,201	1,403	0	8,798	10,201
9,414	2,121	150	6,818	9,089
13,007	2,858	353	9,016	12,227
14,821	3,061	0	7,535	10,596
$47,443	9,443	503	32,167	42,113

BASED ON PAID LOSSES

AGGREGATE	PREMISES	PRODUCTS	PROFESSIONAL	TOTAL
$10,201	1,403	0	8,798	10,201
18,103	2,463	150	15,224	17,837
26,846	3,660	381	66,720	70,761
23,706	3,153	0	260,062	263,215
$78,856	10,679	531	350,804	362,014

SELECTED

PREMISES	PRODUCTS	PROFESSIONAL	TOTAL
9,443	545	51,775	61,763

Panel Session 3E

RESERVING FOR HEALTH INSURANCE

General Framework

Glenn J. Pruiksma

1985 Casualty Loss Reserve Seminar

Kansas City, Missouri

Introduction

We are all at this Loss Reserve Seminar because we recognize the importance of proper reserving. However, we have various backgrounds. Some are technicians; others managers. Some are very experienced; others relatively new. Some are solely involved with group health; others with casualty lines.

In addition, we all realize that there is no standard nomenclature and no universally accepted terminology within the group health reserving process. There are no statistical plans for group health insurance. Data elements used to identify group health data differ from company to company. Even when the same name is used, that term may have different meanings.

The objective of this session is to discuss the peculiarities and special considerations for five types of group health coverages. Therefore, we need to establish a common framework in which to satisfy the objective. This common basis will enable each of us to relate and communicate our procedures to those of our neighbor. This framework will also be simplified enough so that we won't be overwhelmed by the detail of such a broad topic.

We will use slides to help construct this framework. Handouts with more detail are available for your reference. These handouts incorporate the material and exhibits contained on the slides. There is notation to denote where the material for each slide begins. The plan of attack is to:

(slide 1)

1. briefly discuss general characteristics unique to group health reserving,

2. briefly consider source data requirements since analysis depends upon the kind and quality of the information, and

3. construct a framework for estimating incurred amounts and monitoring the results.

General Characteristics

These characteristics describe major differences between reserving for group health and casualty/liability lines of business.

(slide 2)

1. The "tail" denoting the pattern of payments for claims incurred in a particular period is shorter than liability lines of business. Generally, a period of 24 to 36 months is used to analyze and estimate reserves.

2. Experience is studied in terms of months rather than in one-year (or half-year) units. The bulk of the reserves depends upon estimates for claims incurred in the most recent 3 to 6 months, depending upon the type of benefit coverage.

(slide 3)

3. For most group health coverages, there is a seasonal pattern for incurred claims by calendar month. For example, the first quarter of the year tends to produce higher pure premium values than the other three quarters.

4. Group health experience exhibits high claim frequency and greater volume. Hence, modelling for reserving is not performed on the basis of assumed probability distributions like lognormal and Pareto. In addition, techniques using formula reserving rather than case reserves are employed.

(slide 4)

5. Group health reserves are very volatile because external forces can have an almost instantaneous effect upon the most recent 3 to 6 months. Reserving requires the knack to immediately recognize factors that change incurral and payment patterns. In particular, changes must be recognized in utilization, economic conditions, and product mix as well as coverage changes mandated by legislation.

6. No reserves for loss adjustment expenses are established.

Source Data Requirements

Reserving requires good, reliable data as does all analysis for management of risk. We'll categorize data as labels, dates, and amounts.

Labels

Labels identify the experience. Selected labels are used to categorize combinations of homogeneous data into credible risk cells for reserving purposes. Reserving cells reflect different claim payment patterns resulting from the benefit structures, attitude of the providers and insureds, and cash flow requirements of providers and insureds. For this panel, we will assume that these combinations are dependent upon four data elements.

(slide 5)

1. Major benefit category (also called line of business). This denotes the type of benefit coverage. Examples are hospital, surgical, dental, and major medical.

2. Actuarial level of benefit. This denotes a subdivision within a major benefit category, such as major medical deductibles and limits, or inpatient versus outpatient coverage for hospitals.

3. Type of business. This denotes characteristics of the contract holder. Examples are small group business, non-group business, FEP, and national/country-wide business.

4. Financial arrangement. This denotes how the coverage is financed. Examples are prospective, cost plus, etc.

Advantages result from denoting reserving cells by code combination of these four separate data elements rather than a single element attempting to comprise all four concepts. There is capability for more detailed reporting. Flexibility exists to readily redefine reserving cells.

Other labels are important to identify changes in assumed patterns and trends within a reserving cell. These labels will be discussed later as needed.

Dates

The following dates should be available by month and year.

(slide 6)

1. Incurred/earned date.

   a. For claims, this is the incurred date. Incurred date should be the date of admission for hospital benefits, and date of service for other services (physician, X-rays, etc.).

   b. For exposure and income, this is the earned date. Earned date denotes the statistical earned month for which there was risk for group health coverage.

2. Statistical Paid date.

   a. For claims, this is the date when the claim was adjudicated and the payment amount determined. This may not be the same as the date on which payment checks are cut.

   b. For exposure and income, this is the date when income was recorded on or after the incurred/earned date.

In addition, financial paid date is important to reconcile accounting and statistical data when checks are not cut daily.

Amounts

We will assume that there are three basic amounts for reserving purposes.

(slide 7)

1. Paid amount. This is the claim amount paid after application of appropriate deductibles, coinsurance, coordination of benefits, discounts, subrogation, and coverage limits.

2. Exposure. This denotes the number of subscriber contracts, or subscriber enrollments. Ideally, exposure should reflect the number of days at risk throughout a month. In many cases, this amount is a snapshot at the end of the month.

3. Income.

Other amounts are useful and will be addressed during discussion of types of coverage. These include number of claims (i.e., number of unique procedures or types of service); number of services; number of days, visits, or treatments (depending upon the major benefit category).

General Procedures

For each reserving cell, the general procedure is assumed to be as follows:

(slide 8)

1. Develop experience reports detailing paid claims and cumulative paid claims by incurred month and paid months. We will call these triangular reports.

2. Estimate ultimate incurred amounts.

    a. This is an iterative process of estimating, analyzing, revising the estimate, and repeating the process.

    b. Completion factors are determined on the basis of the "age" of the claim and historical patterns of claim payments observed in the cumulative paid claims triangle. Different completion factor approaches are utilized, and values are adjusted for projected trends and judgment.

3. Monitor and evaluate current and past estimates. Review financial condition.

Triangular Reports

1. Paid claims report. This report displays claim amounts paid by paid month for each incurred month in the study period.

(slide 9)

		INCURRED MONTH			
		1/85	2/85	3/85	4/85
	1/85	15			
PAID	2/85	45	12		
MONTH	3/85	30	43	14	
	4/85	10	30	45	14

2. Cumulative paid claims report. This report displays cumulative claims payments for each incurred month in the study period.

(slide 10)

		INCURRED MONTH			
		1/85	2/85	3/85	4/85
	1/85	15			
PAID	2/85	60	12		
MONTH	3/85	90	55	14	
	4/85	100	85	59	14

(slide 11)

Completion Factor Approach

Completion factor is defined for a particular incurred month to be dependent upon the number of months of claim payment runoff. A completion factor is the percentage of estimated incurred claims (ultimate claim amount) already paid through a particular paid date. A completion factor is applied to cumulative paid claims as a divisor to derive an estimate for incurred claims.

(slide 12)

INCURRED MONTH	PAYMENTS THRU 8/85	CF	EST INCURRED AMOUNT
1/85	105	.99	106
3/85	100	.95	105
6/85	80	.80	100
8/85	10	.11	91

e.g., for 3/85, EST INC = 100/.95 = 105

Completion factors are the reciprocal of the development factors commonly used for casualty reserving. Some people also use the term completion factor for the multiplier.

There are two general patterns assumed; duration pattern and seasonal pattern.

Durational Pattern

(slide 13)

Completion is assumed to be more dependent on the length of time between incurred date and paid date than the calendar month of incurral. The period between incurred date and paid date is called runout, runoff, or lag. For claims incurred in July, 1985 for example, 7/85 is lag month 0, 8/85 is lag month 1, etc. Completion factors are the products of completion ratios. Completion ratios denote paid/paid completion from a given paid month to the next paid month. The table below illustrates a claim pattern.

(slide 14)

LAG MON	CUMULATIVE PAYMENTS	CR	CF
0	5	.10	.05
1	50	.63	.50
2	80	.89	.80
3	90	.90	.90
4	100		1.00

e.g., for lag month 2, CR = 80/90 = .89

CF = (.89)*(.90)

Completion ratios are derived from the cumulative paid claims triangle using the most current data available for each ratio. The selected completion ratios are then used to calculate completion factors for each lag month. These are applied to the cumulative paid amount in each incurred month to generate an estimated incurred amount. The oldest incurred month in the study period is assumed to be complete (completion factor = 1.00).

1. Cumulative paid claims.

		INCURRED MONTH				
		1/85	2/85	3/85	4/85	5/85
	1/85	5				
PAID	2/85	51	5			
MONTH	3/85	79	53	6		
	4/85	90	80	50	5	
	5/85	100	90	80	50	5

2. Completion ratios.

(slide 15)

		INCURRED MONTH				
		1/85	2/85	3/85	4/85	5/85
	1/85					
PAID	2/85	.10				
MONTH	3/85	.65	.09			
	4/85	.88	.66	.12		
	5/85	.90	.89	.63	.10	

Selected completion ratios in this example are displayed in the last line of the completion ratio table above.

Seasonal Pattern

(slide 16)

Completion is assumed to be dependent upon the calendar month of incurral as well as the length of time between incurred date and paid date. Completion factors are developed using a ratio of (cumulative paid amount) to (estimated incurred amount) on a calendar month basis.

(slide 17)

INC MON	PAYMENTS THRU 8/84	PAYMENTS THRU 8/85	CF	EST INC AMOUNT
3/84	80	100	1.00	100
4/84	75	105	.99	106
:				
3/85		72	.80	90
4/85		78	.71	110

For 3/85, CF = $\frac{\text{payments thru 8/84 for inc in 3/84}}{\text{est incurred amount for 3/84}}$

= 80/100 = .80

Calculated completion factors are adjusted judgmentally before final application. The examples in this presentation use single incurred months. However, one may also use rolling or moving incurral periods such as quarters.

Special Considerations for the Most Recent Incurred Months

The credibility of completion factors may be questioned for the most recent 3-6 months. Rules of thumb state that completion factors less than 50% to 70% require further analysis. Completion factors are used for the "prior period." Whereas the most "recent period" generally requires additional investigation. Adjustment can be performed as follows:

(slide 18)

1. Use averaging to smooth out ratios. Adjust for seasonality. Use completion factors calculated and applied to 3-month periods in lieu of single months.

2. Use pure premium trending. A pure premium (also called net claim cost) is the (estimated incurred amount)/(earned exposure). The projected pure premium value for a recent month is multiplied by the recent month's exposure in order to estimate the incurred amount.

$$\text{Est inc amount for 8/85} = \text{projected pure premium for 8/85} * \text{exposure for 8/85}$$

$$\text{projected pure premium for 8/85} = \text{pure premium for 8/84} * \text{annualized trend factor}$$

   These trend factors reflect inflation, utilization shifts, and per diem changes. Trend factors are commonly determined by judgment, using regression on pure premiums, or reviewing pure premium trends to date. Here it is important to have proper exposure.

3. Adjust judgmentally after reviewing results from different methods.

(slide 19)

Monitoring Reserve Estimates

Monitoring reports provide feedback (1) to analyze current reserve estimates for adjustment and revision, and (2) to evaluate past reserving estimates and procedures.

1. Analyze current reserve estimates.

(slide 20)

a. Review hindsight completion factors by month. These are the completion factors that should have been used in the past, given that the latest incurred estimates are the best. One way to accomplish this is to divide each incurred month's cumulative payments in the cumulative paid claims report by the estimated incurred amount. Check that calendar year pattern assumptions are valid by reviewing the completion factors along the diagonals.

(slide 21)

		INCURRED MONTH			
		1/85	2/85	3/85	4/85
PAID MONTH	1/85	.15			
	2/85	.60	.13		
	3/85	.90	.59	.14	
	4/85	1.00	.91	.60	.15
EST INC		100	93	98	96

hindsight completion factor for incurrals in 1/85 paid through 2/85 = $\frac{\text{cum'l payments thru 2/85}}{\text{est inc amount for 1/85}}$

= 60/100 = .60

b. Compare hindsight completion factors with the completion factors selected for the current valuation month. Perform comparison of completion factors between calendar years for corresponding 1-month, 3-month, 6-month, and 12-month incurral periods at the same relative points of runoff.

(slide 22)

c. Review loss ratios.

d. Review trends for various indices. These are annualized trends for 1-month, 3-month, 6-month, and/or 12-month incurral periods. Valuation month is the month in which a reserve estimate is established for all incurrals through that month. The following indices are recommended.

(slide 23)

- o pure premiums
- o $\frac{\text{estimated incurred amount for incurred month MM/YY}}{\text{total payments in month MM/YY}}$
- o $\frac{\text{estimate incurred amount for incurred month MM/YY}}{\text{payments in month MM/YY for incurrals in MM/YY}}$
- o $\frac{\text{reserve as of valuation month MM/YY}}{\text{total payments in month MM/YY}}$
- o $\frac{\text{reserve as of valuation month MM/YY}}{\text{payments in month MM/YY for incurrals in MM/YY}}$
- o exposure

e. Convert completion factors to multipliers.

2. Evaluate past reserve estimates and procedures with restated estimates.

Compare past estimates with restated estimates. The restated estimate for reserve as of a specific valuation date is runoff since that time plus the estimated liability yet remaining. This restated estimate is also called recast reserve.

(slide 24)

a. Compare original booked reserves with recast estimates by valuation dates.

b. Compare current valuation month's reserve with the restated reserve for the valuation date one year earlier, after adjusting the latter for changes in exposure, inflation, and inventory.

c. Compare various indices over time.

- o $\frac{\text{current valuation month's reserve}}{\text{total payments in valuation month}}$
- o $\frac{\text{current valuation month's reserve}}{\text{estimated incurred amount for incurrals in valuation month}}$
- o $\frac{\text{current valuation month's reserve}}{\text{estimated incurred amount for incurrals in 3 months ending in valuation month}}$

Wrap-Up

We have established a common framework in which to discuss the perculiarities and special considerations for five types of group health coverages. To build our foundation, we did the following:

(slide 25)

1. Reviewed general characteristics unique to group health reserving.

2. Defined source data requirements since analysis depends upon the kind and quality of the information.

3. Employed completion factor approaches with special techniques for the most recent months to estimate incurred amounts and included monitoring of results.

(slide 26)

Now, let's use this framework as we all participate in the balance of the session.

Panel Session 3E

RESERVING FOR HEALTH INSURANCE

Coverages

Susan Comstock

1985 Casualty Loss Reserve Seminar

Kansas City, Missouri

Now that Glenn has covered the basics of reserving health coverages, we will discuss the different types of coverages. First, I will discuss hospital, physician, supplementary coverage and comprehensive major medical (CMM). Then, Emil will discuss dental and Medicare supplementary coverages.

In discussing these coverages, I will give some of my own experiences as well as covering the actuarial techniques. My background in health reserving has included acting as the in-house actuary for a medium sized life and health insurance company, acting as a consultant on health reserving techniques to HMOs and small to medium sized insurance companies, and acting as the actuary on numerous audits of insurance companies, HMO's and Blue's.

First, I'll cover the traditional approaches to the hospital, physician and supplementary coverages. Then, I'll describe a new approach to reserving these coverages that is tied to the recent changes in medical care cost containment. Finally, I'll discuss CMM, giving special attention to the small and medium sized operations, where there may be data limitations.

The techniques selected by a particular company will depend on the volume of business it transacts and the amount of information captured in their data collection system. If we have a large volume and good data systems, then we look at hospital claims in subcategories. The first dimension to consider is inpatient vs. outpatient care. Outpatient care has a slower payment pattern than inpatient care. Since the treatment mix today is shifting to outpatient care, separating the data into homogeneous categories is important. An additional dimension to consider is the type of business and financial arrangements. Some of the factors that may indicate the subgroups include: separate data on extremely large accounts, cost plus groups, experience rated groups, small groups, etc. Consideration should

also be given to claims administration when the insurance company allows the employer to use a special claims administrator. This can affect not only claim payment patterns but the timing and quality of financial reporting.

Typically, reserve analysis on one of the hospital subcategories begins with the completion factor approach. The completion ratios selected are not typically based on only the most recent month's payment pattern, but are the average of the latest 3-6 months' completion ratio, or alternatively, the ratio is based on the sum of the latest 3-6 months of payments. The completion factor approach can be applied to dollars, hospital days or hospital stays. The use of days and the average per diem is preferred over dollars, unless there is little stability in the per diem. The per diem could be based on the average paid during the last quarter or trended from historical data. With the recent emphasis on paying hospitals by DRG (Diagnostic Related Group), we may be using hospital admissions times the average cost per admission in the future. The outpatient completion factor is usually based on dollars.

Once the initial estimate is established using completion factors on hospital days and trending per diems, the challenge process begins. The challenge process is focused on the most recent months, typically three months, where there is the greatest uncertainty in reserves. Options in the challenge process include:

- Completion factor
  - Using the monthly or quarterly factors from last quarter's analysis
  - Using monthly or quarterly factors from the corresponding period in the prior year's analysis (seasonality)

- Testing ultimates for reasonableness - trend
  - Hospital days/1000 members
  - Hospital stays/1000 members
  - Average length of stay
  - Cost per diem
  - Cost per stay

- Ratios
  - Multiple quarter test
  - Incurred ratios
  - Multipliers

While reviewing the various completion factors and the reserves they generate, we keep in mind changes in the environment. If there has been a slow down in receiving or processing hospital bills, we know that the historical factors will understate current reserves. Statistics that assist in the review of processing changes are average processing time and counts of outstanding claim files.

In reviewing hospital trends the key trends to focus on are: hospital days/1000 members (utilization) and cost per diem. Do these trends look reasonable in light of changes in the marketplace, i.e., emphasis on utilization review, impact of DRG's, rising medical costs? For example, if the utilization rate is dropping rapidly, more rapidly than expected, then we increase the estimated ultimate days.

There are many ratios or relationships that can be reviewed through further testing the estimates of ultimate for reasonableness. Some of these are:

- Quarterly multipliers (rolling 12 month period could be used for seasonality)

$$\frac{\text{Current estimate of incurred losses for xQyy}}{\text{Total payments for xQyy made during xQyy}}$$

- Quarterly incurred ratios

3Q82/4Q81	3Q83/4Q82	3Q84/4Q83
3Q82/1Q82	3Q83/1Q83	3Q84/1Q84
3Q82/2Q82	3Q83/2Q83	3Q84/2Q84

- Multiple quarter tests

$$4Q84 = 4Q83 \times \frac{3Q84}{3Q83}$$

$$4Q84 = 4Q83 \times \frac{2Q84 + 3Q84}{2Q83 + 2Q83}$$

$$4Q84 = 4Q83 \times \frac{1Q84 + 2Q84 + 3Q84}{1Q83 + 2Q83 + 3Q83}$$

For physician services, medical and surgical, we begin the reserving process with the completion factor approach applied to dollars. The completion factor method is less certain for physician services than hospital services for the most recent incurred months, due to longer processing time, so the trend analysis and ratio tests are important for physician services. The trends to compare to events in the marketplace are the change in number of services per member per month and the change in average cost of services. The ratio tests may be used as a means of calculating the most recent quarter's incurred claims rather than just as a reasonableness test.

Supplemental coverages will most likely have the least stability in their patterns and the greatest processing lag. These services may be miscellaneous charges, charges extending

the basic coverage limits but not the major medical limits, extended care facilities, drugs, and so on. Usually there is not a sufficient volume of these coverages to be subdivided into homogeneous subcategories. So more judgment will be involved in estimating the ultimate incurred costs as we proceed with the reserve analysis. The emphasis will be on the completion factor approach applied to dollar amounts and trends and ratios.

Now, as I mentioned earlier, I would like to talk about a new approach that we are seeing used by some HMO's. The underlying cause of this new approach is active cost containment programs such as pre-admission certification and utilization review, which call for the collection of more detailed information and more up-to-date information. This information can then be used not only to control costs, but to improve reserve estimates for the hospital, physician, and miscellaneous coverages. This approach may be practical in the future for insurance companies as well as HMO's if we see a continued trend towards pre-admission certification and utilization review. Where insurance companies benefit from the experience of the HMO's is by the knowledge that the information collected for the cost containment program can be also used to improve reserving. The major difficulty we have seen with the new HMO reserve systems is that a separate computer system is used for the cost containment programs, and it is not well interfaced with the claim billing system. When these two systems have close controls and ties, then we have the maximum information available with which to reserve.

What I'm referring to here as the "new approach" is not really a new approach for the actuarial profession, but a modification of the approach that is usually referred to as average claim or case reserving. Currently, most health reserves are generated by the completion factor approach, where we estimate the ultimates and then subtract the paid to arrive at

the reserve. But if we have a great deal of information available on the pending claims, and there are very few incurred but unreported claims, then we can improve our estimates by directly calculating the reserves for each of these claims. Under a cost containment program using pre-admission authorization and utilization review, the major claims that we would be talking about are pending claims that are billed and authorized, pending claims that are billed but not authorized, pending claims that are authorized but the bill has not been received, and finally, a few claims where no knowledge of the claim exists at the end of the month.

Currently, HMO's have available considerable information about their unpaid claims. Therefore, their reserve systems can be tailored to minimize the places where estimates must be made. For example, where there are tight authorization controls, the HMO knows how many days of hospitalization they have authorized and incurred. If they are referring patients outside of the system for special treatments or services, they can also have good counts on the number of treatments authorized outside of the system. The HMO will have contractual arrangements with hospitals and other providers. The nature of these arrangements will indicate the best way to utilize information for reserving. For example, if the HMO has contractual arrangements with each hospital for a set rate per day based on cause of stay, the data collection for reserving will emphasize subdividing authorized days by hospital and by cause of stay. If, on the other hand, the contractual arrangements with the various hospitals are for a flat 15% discount, then separation of data by hospital is not as important in arriving at the average per diem. Two aspects of the average cost study that need emphasis are: first, good systems controls to relate actual historical paid dollars to the counts that are available for reserving; and secondly, subdivisions of the data. In selecting subdivisions of data we are trying to minimize the cost variation within each

subdivision. Possible subdivisions for hospital stays would be premature baby, boarder baby, adult medical, adult surgical, pediatric medical, pediatric surgical, psychiatric and other special stays.

The next three slides show a sample hospital calculation and some of the categories in which the days and dollars could be tracked for reserving. In the reserve calculation, we first take from the computer system the dollar sum of all pending bills for authorized treatment. We reduce that sum by the historical average amount for discounts, coordination of benefits, subrogation and so on. Next, we take the dollar amount in the computer system for all pending bills where the treatment is not authorized. An HMO often authorizes out-of-area service retroactively, but in some cases claims will be denied. We thus have a greater percentage reduction on these pending bills than on the pending bills for authorized treatment. The next category is the claims where the bill has not yet been received or entered into the computer system. Through the pre-authorization and utilization review system we will have counts of hospital days that have been authorized. We need to add to these authorized days some extra days that have not gone through the authorization system, but which will ultimately be authorized in a retroactive manner. Also, in the real world computer systems do not have completely accurate and up-to-date information, so our unrecorded days category would take up any consistent shortfalls in the days count coming from the authorization records. We then take the total number of days for services that have been incurred but the bill is not yet in the computer system and multiply it by an average cost per day. Finally, we total together the dollars generated for each of these pieces to get the total reserve for the January services. Similar calculations would be made for all of the other incurred months and for physician and miscellaneous services.

Because the basic idea of this approach is to maximize the information that is available through the computer systems that contain authorization/utilization records, claim records and accounting records, the particular categories that are used for the calculation will depend upon the individual situation. So it is possible that instead of having the three components shown here, there would simply be two components, services which have been billed and services which have not been billed. There could also be more categories. We might have a separate category for claims where a payment has been made but the file is not yet closed due to coordination of benefits or subrogation.

The next two slides demonstrate data collection for the calculation that we have just reviewed. On the hospital days chart you can see that a key to making this approach work is that out of the 10,000 hospital days that ultimately go through the claims system, we are assuming that the HMO is aware of 9,000 of these at the close of the month. As long as we can obtain good information on the average cost of a hospital stay, the new approach should be a significant improvement over approaches that project total hospital days or dollars based on historical trends. The hospital dollars history not only shows the dollar amounts used in the sample calculation, but also the need for collecting the total amount billed so that we can trace historical relationships between pending billed amounts and final dollars paid.

The last coverage I will discuss is CMM. A fair number of insurance companies write only comprehensive major medical coverage. They may be subdividing the business only by size of group or financing arrangement. Some of these insurance companies have had difficulties in producing reserves that prove to be close to the actual reserve needed. A number of factors have contributed to these difficulties and some can be corrected. Factors that are often dealt with through general

awareness are changed medical practices and costs. The average insurance company writing CMM probably wouldn't be able to produce statistics on utilization, cost per service or average length of stay for reserving. The only exposure measure collected may be earned premiums and not member months of coverage.

Other areas that have caused some insurers problems in the past can be improved internally. Examples here include processing changes and the coding of incurred dates. Often processing changes can be monitored through claim system statistics on average processing time, through counts of unprocessed files at the close of each month and through improved communication from the claims and systems departments regarding recent changes.

Disagreements regarding the definition of incurred date have arisen several times in my experience. One definition that does not work well in completion factor analysis is to allow only one incurred date per insured per year, usually the date the deductible is satisfied. It is surprising how often the actuaries, accountants and claims examiners all have different opinions on what the incurred date is and how it is coded in the reserve system. A common problem with incurred date coding is what date to use for one check that covers many small charges. One insurance company with limited claim system capabilities assigned the earliest incurred date of any service as the incurred date for all the services. This caused so much distortion in the ultimate claim cost by month of the year, that a special audit was called to determine the cause of the high costs in January through April. The coding shortcut for multiple service dates was found to the cause. Another shortcut for multiple services that works well is to separate out any large bills, and then have the computer system spread the remaining cost uniformly over the months from the earliest service date to the latest service date.

After performing the completion factor calculations and comparison to historical completion factors, the only trend test available may be loss ratios. Here it is important to separate groups by size of expense ratios, so the mix of business will not affect the analysis. Monthly, quarterly and 12 month rolling loss ratios may be reviewed. The ratio tests can also be used to establish ultimate costs for the most recent incurred quarter.

An additional complication in reserving CMM is that the deductible often stays the same while inflation marches on. We also find that the higher deductible plans are selected more often today, so that data for reserving needs to be separate by deductible.

COVERAGES

HOSPITAL

PHYSICIAN

SUPPLEMENTARY

CMM

DENTAL

MEDICARE SUPPLEMENT

HOSPITAL SUBDIVISIONS

INPATIENT vs. OUTPATIENT

TYPE OF BUSINESS

FINANCIAL ARRANGEMENT

HOSPITAL - COMPLETION FACTOR CHOICES

DOLLARS

DAYS

STAYS

REASONABLENESS TESTING

FOCUS ON LATEST

3 INCURRED MONTHS

COMPLETION FACTOR TESTING

REASONABLE TRENDS

RATIO TECHNIQUES

COMPLETION FACTOR TESTING

QUARTERS AS WELL AS MONTH

USE FACTORS FROM LAST QUARTER'S ANALYSIS

USE FACTORS FROM THE CORRESPONDING PERIOD IN LAST YEAR'S ANALYSIS (FOR SEASONALITY)

REASONABLE TRENDS

HOSPITAL DAYS (OR STAYS)/1000 MEMBERS

COST PER DAY (OR STAY)

AVERAGE LENGTH OF STAY

COMMUNITY RATED INPATIENT

		UTILIZATION											
		CASES			DAYS			AVG. LENGTH OF STAY		COST			
YEAR	MEMBERS	CASES	CASE/1000 MEMBERS	TREND	DAYS	DAYS/1000 MEMBERS	TREND	ALOS	TREND	PER DIEM	TREND	COST/CASE	TREND
80	1390164	33025	95.02		217480	625.77		6.59		201.67		1328.08	
80	1391730	32921	94.62		206706	594.10		6.28		207.79		1304.70	
80	1397005	32469	92.97		204120	584.45		6.29		209.27		1315.62	
80	1403809	31199	88.90		197560	562.93		6.33		245.05		1381.77	
	1394677	129614	92.87		825866	591.73		6.37		208.28		1327.13	
81	1411251	33619	95.29	0.28%	219895	623.26	-0.40%	6.54	-0.68%	239.48	18.75%	1566.38	17.94%
81	1423524	34363	96.56	2.05%	212119	596.04	0.33%	6.17	-1.69%	249.81	20.22%	1542.04	18.19%
81	1434115	33506	93.45	0.52%	208797	582.37	-0.36%	6.23	-0.87%	253.44	21.10%	1579.33	20.04%
81	1439955	32296	89.71	0.92%	200916	558.12	-0.85%	6.22	-1.76%	264.79	23.13%	1647.29	20.97%
	1427211	133784	93.74	0.94%	841727	589.77	-0.33%	6.29	-1.26%	251.59	20.79%	1582.90	19.27%
82	1447369	35728	98.74	3.62%	223801	618.50	-0.76%	6.26	-4.23%	279.55	16.73%	1751.12	11.79%
82	1412313	33530	94.96	-1.65%	202196	572.67	-3.92%	6.03	-2.31%	282.41	13.05%	1703.01	10.44%
82	1356419	32068	94.57	1.19%	195631	576.90	-0.94%	6.10	-2.10%	285.96	12.83%	1744.51	10.46%
82	1300303	29368	90.34	0.70%	179937	553.52	-0.82%	6.13	-1.51%	300.22	13.38%	1839.42	11.66%
	1379101	130694	94.77	1.10%	801565	581.22	-1.45%	6.13	-2.52%	286.48	13.87%	1757.00	11.00%
83	1269756	30450	95.92	-2.85%	187720	591.36	-4.39%	6.16	-1.58%	323.15	15.60%	1992.18	13.77%
83	1256024	29862	95.10	0.14%	182655	581.69	1.58%	6.12	1.43%	331.53	17.39%	2027.83	19.07%
83	1246854	29614	95.00	0.46%	175110	561.77	-2.62%	5.91	-3.07%	334.50	16.97%	1977.92	13.38%
83	1258196	27680	88.00	-2.59%	166711	530.00	-4.25%	6.02	-1.70%	340.90	13.55%	2053.18	11.62%
	1257708	117606	93.51	-1.33%	712196	566.27	-2.57%	6.06	-1.26%	332.24	15.98%	2012.00	14.51%

RATIO TECHNIQUES

MULTIPLIERS

INCURRED RATIOS

MULTIPLE QUARTER TEST

RATIO TECHNIQUES

- Quarterly multipliers (rolling 12 month period could be used for seasonality)

$$\frac{\text{Current estimate of incurred losses for xQyy}}{\text{Total payments for xQyy made during xQyy}}$$

- Quarterly incurred ratios

3Q82/4Q81	3Q83/4Q82	3Q84/4Q83
3Q82/1Q82	3Q83/1Q83	3Q84/1Q84
3Q82/2Q82	3Q83/2Q83	3Q84/2Q84

- Multiple quarter tests

$$4Q84 = 4Q83 \times \frac{3Q84}{3Q83}$$

$$4Q84 = 4Q83 \times \frac{2Q84 + 3Q84}{2Q83 + 2Q83}$$

$$4Q84 = 4Q83 \times \frac{1Q84 + 2Q84 + 3Q84}{1Q83 + 2Q83 + 3Q83}$$

PHYSICIAN AND SUPPLEMENTARY COVERAGES

COMPLETION FACTOR APPROACH APPLIED TO DOLLARS

REASONABLENESS TESTING MORE IMPORTANT DUE TO LONGER DEVELOPMENT TIME

NEW APPROACH

REASON: ACTIVE COST CONTAINMENT PROGRAMS, SUCH AS PREADMISSION CERTIFICATION AND UTILIZATION REVIEW, PROVIDF UP-TO-DATE DATA ON THE COST OF OUTSTANDING CLAIMS

USE: HOSPITAL, PHYSICIAN AND MISCELLANEOUS COVERAGES

NEW APPROACH

COMPLETION FACTOR APPROACH:

Obtains Reserves by Estimating Ultimates and Subtracting the Actual Paid

NEW APPROACH:

Obtains Reserves Directly for Each Piece: Pending, Unauthorized, Unbilled and Unreported

NEW APPROACH

MAXIMIZE KNOWN FACTS

- AUTHORIZED SERVICES
- COST CONTROLS
  - by hospital
  - by cause of stay
  - by discount rates
- COST STUDIES

JANUARY - INCURRED MONTH

HOSPITAL RESERVE CALCULATION ON 2/28

PENDING BILLS WITH AUTHORIZATION	
GROSS AMOUNT:	$ 1,325,000
AVERAGE PAYMENT LEVEL:	x .85
	$ 1,126,250
PENDING BILLS WITHOUT AUTHORIZATION	
GROSS AMOUNT:	$ 100,000
AVERAGE PAYMENT LEVEL:	.75
	$ 75,000
INCURRED BUT NOT BILLED	
AUTHORIZED DAYS	5,050
UNRECORDED DAYS	310
TOTAL DAYS	5,350
AVERAGE PER DIEM	x $1,000
	$ 5,350,000
GRAND TOTAL RESERVE	$ 6,561,250

HOSPITAL DAYS

JANUARY - INCURRED MONTH

STATUS AS OF:	JANUARY	FEBRUARY	MARCH	APRIL	MAY	ULTIMATELY
CLOSED - PAID	100	3,000	7,000	8,000	9,000	9,800
CLOSED - NO PAY	0	50	150	150	200	200
PENDING - BILL AND AUTHORIZED	200	1,100	750	650	650	-
PENDING - BILL	100	500	100	100	100	-
PENDING - AUTHORIZED	8,6000	5,050	2,000	1,050	50	-
TOTAL	9,000	9,700	9,900	9,950	10,000	10,000

HOSPITAL DOLLARS (THOUSANDS)

JANUARY - INCURRED MONTH

STATUS AS OF:	JANUARY	FEBRUARY	MARCH	APRIL	MAY	ULTIMATELY
CLOSED - PAID (ACTUAL PAID)	$ 94	$ 2,850	$ 6,790	$ 7,920	$ 9,000	$ 9,8000
PENDING - BILL AND AUTHORIZATION (BILLED AMOUNT)	235	1,325	820	750	770	-
PENDING - BILL (BILLED AMOUNT)	118	100	120	122	118	-
CLOSED - PAID AND DENIED (BILLED AMOUNT)	108	3,363	8,012	9,662	10,850	11,760

CMM
RESERVE ISSUES

LESS INFORMATION AVAILABLE

CHANGING MEDICAL PRACTICES

POTENTIAL PROCESSING PROBLEMS

POTENTIAL INCURRED DATE PROBLEMS

CMM
INCURRED DATE ISSUES

DEFINITION OF INCURRED DATE

GROUPING OF MINOR SERVICES IN ONE BILL

IMPACT OF INFLATION ON DEDUCTIBLE

Panel Session 3E

RESERVING FOR HEALTH INSURANCE

Dental and Medicare Supplementary Coverage

Emil J. Strug

1985 Casualty Loss Reserve Seminar

Kansas City, Missouri

RESERVING FOR HEALTH INSURANCE

Susan has ably and clearly defined and displayed the various approaches and techniques in establishing and evaluating ultimate claim liabilities for hospital, physician, supplementary and comprehensive major medical coverages. Inasmuch as these techniques and approaches are of such a universal nature, it would be redundant to repeat them as they apply to Dental and Medicare supplementary programs. It will be more productive and informative if I highlighted the differences in developmental patterns between these coverages and those analyzed by Susan. In addition, I will indicate some of the characteristics of the benefits within these coverages that impact the estimation of the liabilities in the early stages of development when historic patterns are inappropriate.

In this first slide (attachment 1), I've portrayed in graphical form the development pattern of hospital, physician, major medical, dental and medicare complimentary coverages for the first quarter of 1983 paid through June of 1985 with the estimated ultimates as of June of 1985. In the written handout you will find the numeric data contained in attachment 1A.

There are a couple of caveats relative to the data being presented. First, the data and factors displayed are for a mature portfolio of business; that is, renewals constitute more than 90% of the business. Secondly, hospital, physician and dental are provider submitted claims; Medicare Supplementary is predominately provider submitted with Major Medical being subscriber submitted claims. What does this all mean? A provider submitted claim means that the hospital or doctor sent the claim directly to the insurance company for reimbursement with the subscriber or patient being responsible for the non-covered services.

Except for dental, practically all benefits for hospital and physicians are payment in full programs. Subscriber submitted claims are those claims submitted to the company with the reimbursement generally going to the patient. I should clarify that subscriber is synonymous with contract holder.

As I've already mentioned, this slide portrays the development of the five coverages being discussed. Let us first concentrate on the dental. Dental is the green colored bar. You will note that it is the fastest developing of the coverages shown and that at the zero quarter that over 65% of all the claims dollars are paid.

Let us now look at Medicare Complimentary; the purple bar. It develops substantially faster than Major Medical but somewhat slower than the other three coverages with a decent payment base by the first quarter of development.

At this point we can certainly say that neither Dental nor Medicare Complimentary present any particular problems in terms of late development tails.

This slide (attachment 2) presents in detail the development of dental for each incurred quarter of 1983 at various stages of run-off. With one quarters worth of development, completion factors will produce very accurate estimates of ultimate liabilities. For the "0" period, the ratio method that Susan outlined would be most likely used. For companies that operate in more than one state and have a subscriber submit system will have a different development pattern than that displayed in the graph. The earlier periods would have a higher completion factor with the more developed cells being more comparable.

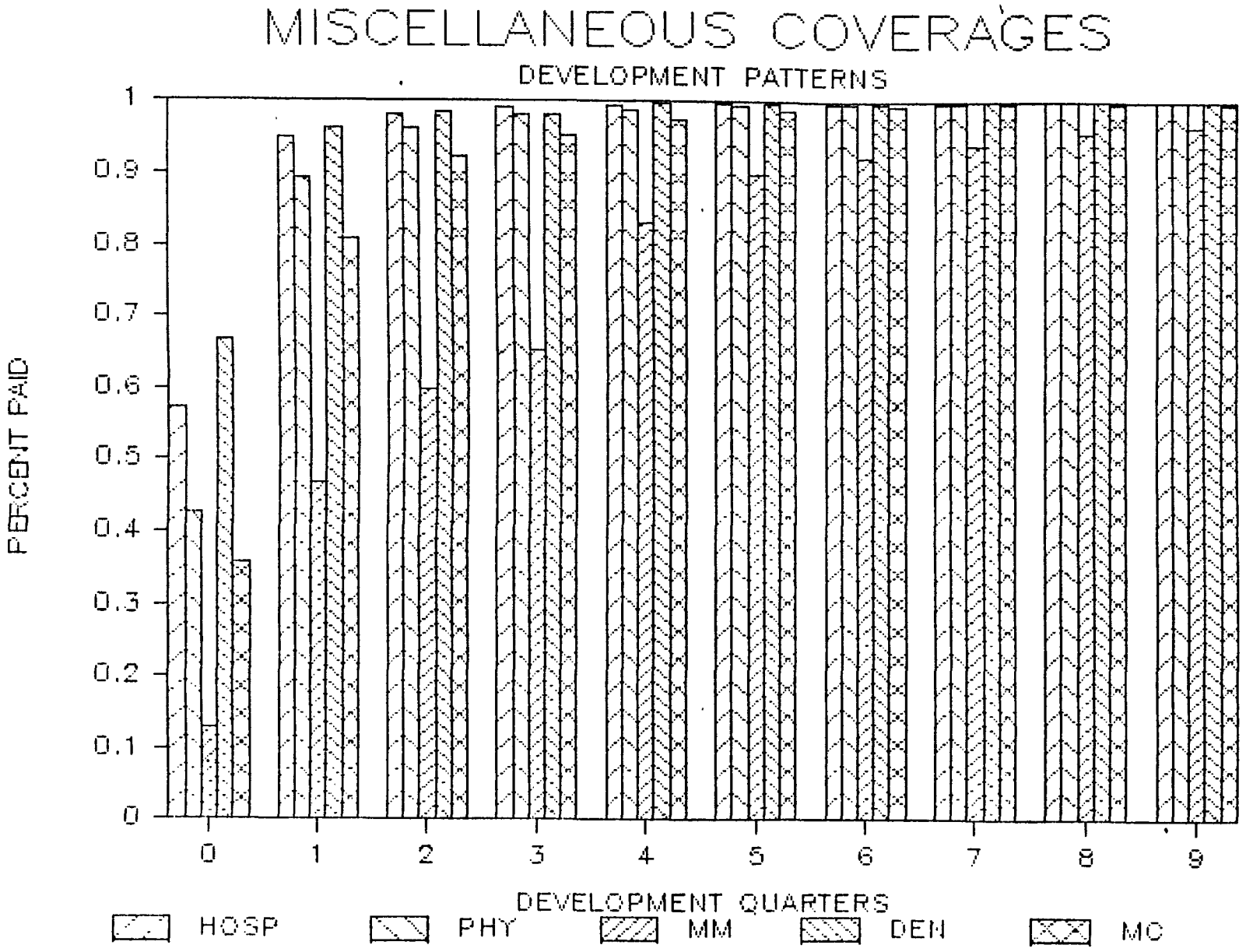
To test the reasonableness of the estimated ultimates an historic array of pure premiums (attachment 3) is a most helpful tool. This slide shows how one might array exposure, ultimates and pure premiums to evaluate and compare current estimates to historic trends and current expectations relative to cost and utilization.

One of the phenomenom of dental coverage is that the pure premium for the first year of coverage for a new account is 10 to 15% higher than the subsequent year. For a company with a growing portfolio of business appropriate adjustments have to be made when a large segement of new business is written initially and possibly in the following year if the growth pattern changes. This type of analysis allows for the identification of this peculiarity and for the development of appropriate adjustments. This slide (attachment 4) highlights the abberations that occur when there is a substantial change in exposure and which should be considered when initially establishing the estimated ultimate for that time period.

Let us now turn our attention to Medicare Complimentary coverage. This slide (attachment 5), as was the case for dental, presents the development for each incurred quarter for 1983 at different stages of run-off. A review of the graph would indicate that with two quarters of development the factor method should produce fairly accurate results. With one quarter worth of development, the factors could provide some indication of the reserve level. With three or more quarters of run-off the results should be very close to actual. Historically, we have found that at the zero and one quarter stage of development we rely heavily on the ratio method.

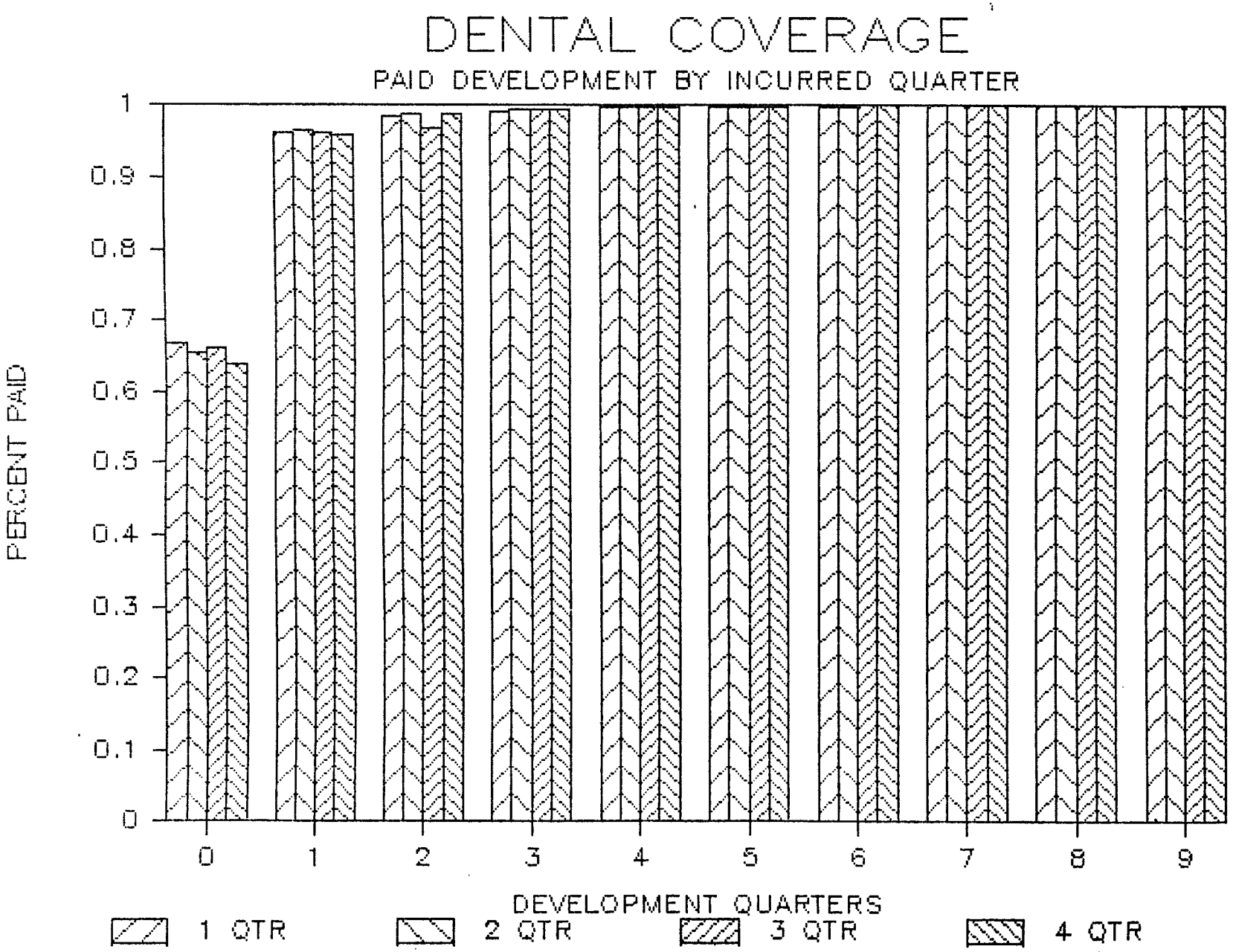
For those companies where claims are submitted by the Medicare beneficary it will be necessary to go beyond two quarters of development before completion factors produce fairly stable results. As was the case with Dental, arraying of pure premiums (attachment 6) is a good way to evaluate the reasonableness and adequacy of your estimates. This also serves as a vehicle to introduce changes in Medicare deductibles. Changes to Part A and Part B deductibles and coinsurances are published in the Federal Register. This allows for adjustments to pure premiums and ultimates in the early stages of development.

This concludes my portion of the presentation. We will now open the session for questions of the panelist.


MISCELLANEOUS COVERAGES
DEVELOPMENT PATTERNS
PERCENT PAID
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0
1
2
3
4
5
6
7
8
9
DEVELOPMENT QUARTERS
HOSP
PHY
MM
DEN
MC

DEVELOPMENT BY INCURRED QUARTER
(BASED ON THE FIRST QUARTER OF 1983)

DEVELOPMENT QUARTER	HOSP % PAID	PHYS % PAID	MAJ MED % PAID	DENTAL % PAID	MEDCOMP % PAID
0	57.3%	42.5%	13.0%	66.7%	35.8%
1	95.0%	89.3%	46.9%	96.3%	80.8%
2	98.3%	96.1%	59.9%	98.5%	92.4%
3	99.3%	98.1%	65.5%	98.2%	95.4%
4	99.6%	99.0%	83.2%	99.7%	97.5%
5	99.8%	99.5%	90.0%	99.9%	99.0%
6	99.9%	99.8%	92.3%	99.9%	99.4%
7	99.9%	99.9%	94.1%	100.0%	99.7%
8	100.0%	100.0%	95.7%	100.0%	99.8%
9	100.0%	100.0%	96.4%	100.0%	99.8%


DENTAL COVERAGE
PAID DEVELOPMENT BY INCURRED QUARTER
PERCENT PAID
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0
1
2
3
4
5
6
7
8
9
DEVELOPMENT QUARTERS
1 QTR
2 QTR
3 QTR
4 QTR

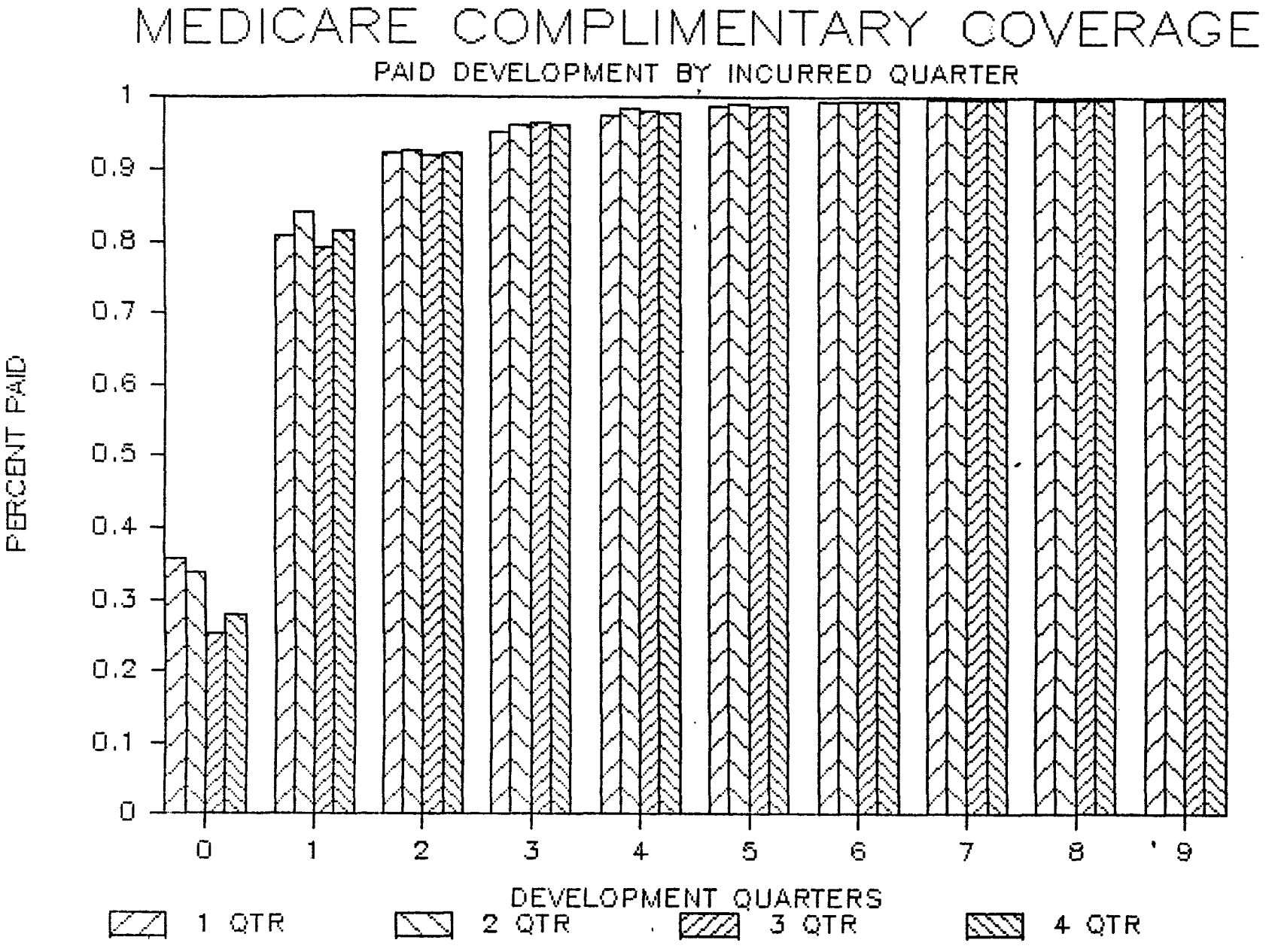
DENTAL COVERAGE
JUNE 1985

	Ultimates (000's)	EXPOSURE	Quarterly Trends: Pure Premium	Quarterly Trends: Prior Quarter Relationship	Quarterly Trends: Prior Year Relationship	Year Ending Trends *: Pure Premium	Year Ending Trends *: Prior Quarter Relationship	Year Ending Trends *: Prior Year Relationship
1Q79	$3,096	332203	$9.320	2.2%	30.4%	$8.450	6.9%	---
2Q79	3,150	346300	9.096	-2.4%	23.0%	8.840	4.6%	---
3Q79	3,099	367650	8.429	-7.3%	10.6%	8.976	1.5%	---
4Q79	3,612	402834	8.966	6.4%	-1.6%	8.942	-0.4%	13.2%
	$12,957	1448987						
1Q80	$4,184	427963	$9.777	9.0%	4.9%	$9.092	1.7%	7.6%
2Q80	4,404	441824	9.968	2.0%	9.6%	9.327	2.6%	5.5%
3Q80	4,113	456560	9.009	-9.6%	6.9%	9.434	1.1%	5.1%
4Q80	4,572	468852	9.751	8.2%	8.8%	9.622	2.0%	7.6%
	$17,273	1795199						
1Q81	$5,300	493789	$10.733	10.1%	9.8%	$9.881	2.7%	8.7%
2Q81	5,783	521807	11.083	3.3%	11.2%	10.184	3.1%	9.2%
3Q81	5,543	551512	10.051	-9.3%	11.6%	10.412	2.2%	10.4%
	6,188	567440	10.905	8.5%	11.8%	10.688	2.7%	11.1%
	$22,814	2134548						
1Q82	$6,553	590772	$11.092	1.7%	3.3%	$10.785	0.9%	9.1%
2Q82	6,804	606073	11.226	1.2%	1.3%	10.833	0.4%	6.4%
3Q82	6,681	617475	10.820	-3.6%	7.7%	11.011	1.6%	5.8%
4Q82	7,245	624169	11.607	7.3%	6.4%	11.188	1.6%	4.7%
	$27,283	2438489						
1Q83	$7,441	626577	$11.876	2.3%	7.1%	$11.385	1.8%	5.6%
2Q83	7,906	639963	12.354	4.0%	10.0%	11.671	2.5%	7.7%
3Q83	7,287	651622	11.183	-9.5%	3.4%	11.753	0.7%	6.7%
4Q83	7,934	658329	12.052	7.8%	3.8%	11.864	0.9%	6.0%
	$30,568	2576491						
1Q84	$8,520	665241	$12.807	6.3%	7.8%	$12.101	2.0%	6.3%
2Q84	8,835	679574	13.001	1.5%	5.2%	12.271	1.4%	5.1%
3Q84	8,125	678896	11.968	-7.9%	7.0%	12.458	1.5%	6.0%
4Q84	8,870	691532	12.827	7.2%	6.4%	12.651	1.5%	6.6%
	$34,350	2715243						
	$9,500	701296	$13.546	5.6%	5.8%	$12.841	1.5%	6.1%
[illegible]	9,800	712000	13.764	1.6%	5.9%	13.038	1.5%	6.3%

* 2Q85 Exposure is a rounded estimate.

DENTAL COVERAGE
DECEMBER 1984

	Ultimates (000's)	EXPOSURE	Quarterly Trends: Pure Premium	Quarterly Trends: Prior Quarter Relationship	Quarterly Trends: Prior Year Relationship	Year Ending Trends: Pure Premium	Year Ending Trends: Prior Quarter Relationship	Year Ending Trends: Prior Year Relationship
1Q78	$1,724	241142	$7.149	---	---	---	---	---
2Q78	1,918	259420	7.393	3.4%	---	---	---	---
3Q78	2,110	276758	7.624	3.1%	---	---	---	---
4Q78	2,926	320989	9.116	19.6%	---	7.901	---	---
	$8,678	1098309						
1Q79	$3,096	332203	$9.320	2.2%	30.4%	$8.450	6.9%	---
2Q79	3,150	346300	9.096	-2.4%	23.0%	8.840	4.6%	---
3Q79	3,099	367650	8.429	-7.3%	10.6%	8.976	1.5%	---
4Q79	3,612	402834	8.966	6.4%	-1.6%	8.942	-0.4%	13.2%
	$12,957	1448987						
1Q80	$4,184	427963	$9.777	9.0%	4.9%	$9.092	1.7%	7.6%
2Q80	4,404	441824	9.968	2.0%	9.6%	9.327	2.6%	5.5%
3Q80	4,113	456560	9.009	-9.6%	6.9%	9.434	1.1%	5.1%
4Q80	4,572	468852	9.751	8.2%	8.8%	9.622	2.0%	7.6%
	$17,273	1795199						
1Q81	$5,300	493789	$10.733	10.1%	9.8%	$9.881	2.7%	8.7%
2Q81	5,783	521807	11.083	3.3%	11.2%	10.184	3.1%	9.2%
3Q81	5,543	551512	10.051	-9.3%	11.6%	10.412	2.2%	10.4%
4Q81	6,188	567440	10.905	8.5%	11.8%	10.688	2.7%	11.1%
	$22,814	2134548						
1Q82	$6,552	590772	$11.091	1.7%	3.3%	$10.785	0.9%	9.1%
2Q82	6,804	606073	11.226	1.2%	1.3%	10.833	0.4%	6.4%
3Q82	6,679	617475	10.817	-3.6%	7.6%	11.010	1.6%	5.7%
4Q82	7,245	624169	11.607	7.3%	6.4%	11.187	1.6%	4.7%
	$27,280	2438489						
1Q83	$7,438	626577	$11.871	2.3%	7.0%	$11.383	1.8%	5.5%
2Q83	7,905	639963	12.352	4.1%	10.0%	11.669	2.5%	7.7%
3Q83	7,288	651622	11.184	-9.5%	3.4%	11.751	0.7%	6.7%
4Q83	7,935	658329	12.053	7.8%	3.8%	11.863	1.0%	6.0%
	$30,566	2576491						
1Q84	$8,550	665241	$12.852	6.6%	8.3%	$12.113	2.1%	6.4%
2Q84	9,000	679574	13.244	3.1%	7.2%	12.345	1.9%	5.8%
3Q84	8,200	678896	12.078	-8.8%	8.0%	12.559	1.7%	6.9%
4Q84	9,100	691532	13.159	9.0%	9.2%	12.935	2.2%	8.2%
	$34,850	2715243						


MEDICARE COMPLIMENTARY COVERAGE
PAID DEVELOPMENT BY INCURRED QUARTER
PERCENT PAID
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0
1
2
3
4
5
6
7
8
9
DEVELOPMENT QUARTERS
1 QTR
2 QTR
3 QTR
4 QTR

MEDICARE COMPLIMENTARY COVERAGE
GROUP PREMIUM AND DIRECT BILLED
PURE PREMIUM TRENDS
@ JUNE 30, 1985

	ULTIMATE (000's)	EXPOSURE	Quarterly Trends: Pure Premium	Quarterly Trends: Prior Quarter Relationship	Quarterly Trends: Prior Year Relationship	Year Ending Trends: Pure Premium	Year Ending Trends: Prior Quarter Relationship	Year Ending Trends: Prior Year Relationship
1080	$23,663	1,142,425	$20.713	---	---	---	---	---
2080	22,496	1,136,585	19.793	-4.4%	---	---	---	---
3080	21,293	1,154,936	18.437	-6.9%	---	---	---	---
4080	23,396	1,164,411	20.093	9.0%	---	19.757	---	---
	$90,848	4,598,357						
1081	$26,703	1,158,375	$23.052	14.7%	11.3%	$20.347	3.0%	---
2081	25,805	1,155,826	22.326	-3.1%	12.8%	20.977	3.1%	---
3081	24,920	1,176,308	21.185	-5.1%	14.9%	21.660	3.3%	---
4081	26,809	1,186,051	22.604	6.7%	12.5%	22.289	2.9%	12.8%
	$104,237	4,676,560						
1082	$33,935	1,185,857	$28.616	26.6%	24.1%	$23.696	6.3%	16.5%
2082	33,002	1,182,401	27.911	-2.5%	25.0%	25.085	5.9%	19.6%
3082	31,641	1,186,661	26.664	-4.5%	25.9%	26.448	5.4%	22.1%
4082	34,490	1,213,065	28.432	6.6%	25.8%	27.909	5.5%	25.2%
	$133,068	4,767,984						
1083	$41,988	1,212,641	$34.625	21.8%	21.0%	$29.432	5.5%	24.2%
2083	40,390	1,209,901	33.383	-3.6%	19.6%	30.797	4.6%	22.8%
3083	36,840	1,208,992	30.472	-8.7%	14.3%	31.728	3.0%	20.0%
4083	38,216	1,205,527	31.701	4.0%	11.5%	32.547	2.6%	16.6%
	$157,434	4,837,061						
1084	$46,455	1,211,629	$38.341	20.9%	10.7%	$33.478	2.9%	13.7%
2084	44,252	1,216,979	36.362	-5.2%	8.9%	34.226	2.2%	11.1%
3084	40,800	1,225,194	33.301	-8.4%	9.3%	34.927	2.0%	10.1%
4084	43,300	1,219,992	35.492	6.6%	12.0%	35.867	2.7%	10.2%
	$174,807	4,873,794						
1085	$52,800	1,188,218	$44.436	25.2%	15.9%	$37.348	4.1%	11.6%
2085	50,300	1,183,564	42.499	-4.4%	16.9%	38.863	4.1%	13.5%

LUNCHEON ADDRESS

by Kevin M. Ryan

1985 Casualty Loss Reserve Seminar

Kansas City, Missouri

Speech Given by
Kevin M. Ryan
at the
CASUALTY LOSS RESERVE SEMINAR
September 19, 1985

It is very much an honor to have this opportunity to speak to you today and share some observations regarding loss reserves and the expanding role the loss reserve technician plays in the insurance process. We will review the importance of loss reserves in four areas: insurance company, regulatory agency, consulting firm and rating organization.

At the outset, I would like to stress something you have already heard at this seminar, but is worth mentioning again. The true nature of the loss liability often remains hidden from both the casual observer and the loss reserve technician who relies on the limited tools of arithmetic calculations. As we become more adept with the mechanical tools for establishing loss reserves, we should be concerned that we do not lose sight of the very necessary broad experience, diligence and often creative thinking that proper loss reserving requires. It is not sufficient to have the mathematical or mechanical abilities to establish formula loss reserves when faced with changes in coverage, laws and societal relationships. What is required is a much more extensive knowledge of the company, its products and its markets. You cannot establish proper loss reserves if you do not first develop a complete understanding of the insured exposure-- and in these times not only as the product was marketed, but, more importantly, how liability can attach to contracts which were terminated long ago.

The first area of review is loss reserving in the insurance company. Jack Byrne, Chairman of Fireman's Fund, but then Chairman of GEICO, addressed a group such as this not too long ago and made the observation that his management philosophy consists of: (1) having discipline in the balance sheet, (2) writing to an underwriting profit, (3) investing for the highest return and (4) operating with the lowest expenses. The first principle, discipline in the balance sheet, means, primarily, accuracy in the loss reserves. This requirement is also evident in the second principle. If you do not accurately reflect your liabilities, your evaluation of whether or not you have achieved your underwriting target is impossible. Today, these principles are in danger because of loss reserve inaccuracies.

Loss reserves for all lines have been estimated by some to be 15% deficient. If this is true and it appears to be, it is safe to assume that some companies could be 20% or more deficient. Such deficiencies have potential impacts on both combined ratios and, ultimately, surplus.

To give you an idea of the impact of this condition and its potential influence on company results, the outstanding loss reserves as a multiple of written premium have gone from less than one in the 1960's to over 1.14 times the written premium in 1985. As a result, a 10% misstatement in the loss reserves estimate means that you would have to take almost twelve cents out of every dollar of written premium to offset the deficiency.

Can those companies with a 20% loss reserve deficiency regain discipline in their balance sheets by using 24% of their current year's earned premium to fund that shortage? This cannot be done with the current combined ratios in excess of 125%.

Obviously, as this condition persists, it is important to note that the statutory solvency of some companies writing long tail lines of insurance is questionable because of the misstated loss reserves. The multiplier effect that exists for premium also exists for surplus. If we look at the loss reserve inadequacy as a percentage of surplus, the problem is acute. Industrywide, surplus size is equal to about one half of loss reserves. That means that funding a 25% inadequacy in loss reserves would deplete surplus by 50%. As an indication that this condition exists, we have had eleven insolvencies in 1985 already. There were fifteen in 1983 and nineteen in 1984.

The importance of proper loss reserving is not subject to debate. But what may not be as obvious is the degree of expertise needed beyond the ability to manipulate the numbers, completing the triangles and estimating the loss development. The needed expertise has, in my estimate, been understated. I will cite just two examples of the many situations in the past that have had significant impacts on loss reserves and which point to the need for broad expertise in setting loss reserves.

When no-fault automobile insurance was introduced, several states included mandatory, unlimited medical benefits. Awareness of that condition and estimating its effects on the loss reserves goes beyond the ability to diagnose loss reserve adequacy from a review of past loss reserving efficiencies or deficiencies. A similar condition exists when a company ventures into a state whose workers compensation benefits are indexed. The usual loss development patterns do not translate very well in such an environment. As a result, knowledge of the product is needed in order to properly fulfill the reserving function. The objective of each of you should be to continue to expand your knowledge of developments in the broadest sense.

Not only is the expanded knowledge necessary for performing the reserving function, but it becomes a major asset to the company. The loss reserve technician is in the best position to describe payout patterns, assisting management to better understand the nexus between investment opportunity and inflation-sensitive extended payouts. The role is therefore important not only in the need for accuracy in the balance sheet-- the underwriting results-- but the knowledge imparted to the other

disciplines within the organization when the technician has an in-depth knowledge of the product, the exposure and the marketplace.

The second main area is the regulatory function. Today, loss reserve adequacy, because of its relationship to the solvency issue, is one of the most important functions of a regulator. This concern has not been obviated by guaranty funds. The problem is exceptionally difficult for many reasons-- lack of expertise in the insurance department, budgeting constraints, uniqueness of each company and data that is difficult to deal with. The regulator is dealing with numbers that he has no direct control over-- reserves he has no role in establishing. He reviews annual statement statistics and in some cases special reports, but he is not directly involved with the reserving function.

As with the insurance company reserve technician, the regulator must be familiar with the product. What is the exposure? What are the peculiarities in coverage? What are the reinsurance implications? What is the operating philosophy of the company? These and other questions make it difficult to believe that insurance departments have, as now constituted, the capability to monitor this function. Certainly the NAIC has attempted to address the problem with increasing efficiency in the examination process and its solvency tests. But the magnitude of the task is several degrees more difficult than the resources available to the departments.

Because the loss reserving role in the solvency problem is so important and because the issue crosses state boundaries, perhaps a solution is for the NAIC to develop the loss reserving expertise to address the singular issue of adequacy in reserves. Such a group would require extensive resources and would have to have those capabilities needed to establish proper reserves-- knowledge of the techniques, of the market, the exposure and the peculiarities of each company-- certainly no easy task. When the certification of loss reserves was first discussed in Illinois, the major attack on the idea came from those who were concerned about the costs of this type of program. To be done correctly, such a program is costly. In Illinois, a program, if carried out with due regard for all aspects, could cost as much as $40 million. To do it properly on a national basis could cost perhaps as much as $150 million, or one tenth of one percent of total premium. But keep in mind that the Ideal Mutual insolvency alone is estimated to cost $200 million. Because loss reserving plays such a major role and because the NAIC is the only facility able to handle such a program, an NAIC loss reserve adequacy office may be the answer.

Probably the area where the need for loss reserving expertise is clearest is in the domain of the consulting actuary. Because many of the clients are unfamiliar with the more intricate side of loss reserves or are so small they have little professional staff experience, the requirement on the loss reserve technician can be very onerous. Again, it is not just knowledge of what the previous loss reserving patterns have been, but in most cases what the underlying exposure is and what the expected incurred developments and the anticipated loss payments are.

As a consultant, you could be faced with an experience similar to that of the Florida Patients' Compensation Fund. The Florida Patients' Compensation Fund was established by the Florida legislature in the throes of the first medical malpractice crisis in the 70's. Its purpose was to develop an actuarially sound fund through contributions from hospitals and doctors in order to pay for that portion of medical malpractice claims in excess of $100,000. With escalating judgments and the significant delays characteristic of large claims, the loss reserve task was more understanding the exposure through ratemaking material than it was of testing the adequacy of the loss reserves by reviewing payout patterns and the development of incurred losses. In their first two years of existence, the Fund had made no claim payments, but had significant loss reserves set aside. Based upon an analysis of the pertinent ratemaking data, the loss reserves should have been many, many times the funded level despite the fact they had not paid a loss or received notice of any pending large judgments. Unfortunately, proper loss reserving is often short circuited the overly optimistic management. As a result, the Florida Patients Compensation Board was unwilling to guided by anything more than a look at what their past experience had been. The organization is bankrupt and a legal morass has ensued. Not all cases will present the loss reserving technician with similar demands. But the case points to the importance of possessing knowledge of what the exposure is in establishing loss reserves.

I would now like to turn to ratemaking. You cannot make proper rates without good data and you cannot have good data without an accurate reflection of incurred losses. When talking about loss reserves in ratemaking, the observation that those responsible for setting loss reserves should know the ratemaking function has a corollary: those making rates must know the loss reserving function. The potential impact on pricing from improperly stated loss reserves can be substantial. Loss reserves that are 15% inadequate means ratemaking data as filed with the rating bureau is subject to major distortion. Recognition of that condition and its impact on the ratemaking process requires knowledge of and review of the adequacy of loss reserves. In effect, the ratemaker is, out of necessity, a loss reserve technician. He must be able to discern the ways in which loss reserves can be mishandled, ways in which changes in the adequacy level can impact data.

At the National Council on Compensation Insurance, we have developed monitoring devices for estimating loss reserves and the changing adequacy levels. This system has resulted in modifications to the ratemaking system. A change in adequacy level of nearly three-quarters of a billion dollars was built into the ratemaking system in 1984. The ratemaking problems can be extensive when the liabilities are not truly reflected; it can be a disaster for the ratemaker not to understand the reserving discipline.

In conclusion, it is important to have a broad basis of understanding of the extent to which the ratemaking technician must expand his expertise in order to efficiently set loss reserves.

Two additional concerns are worth mentioning before concluding these remarks-- discounting loss reserves and uncontracted liabilities. If loss reserves should be discounted, a significant higher solvency risk for an insurance company occurs. The undiscounted loss reserve not only protects the insurance company from adverse development, but absorbs the expected variation of what is a mathematical estimate. To reduce this margin by discounting increases risk. The existence of this heightened risk mandates the inclusion of some form of reserve for risk avoidance-- a reserve so that the risk of insolvency is minimized. If you discount loss reserves, some argue that the regulator you must require companies to build back an amount in reserve that reflects this additional risk. It would be ironic if the amount generated by a discount approximates the required special surplus or risk avoidance fund. Before those proponents of discounting have their way, it is important to realize that the lack of discounting does establish some of the necessary avoidance of ruin which the insurance mechanism must have.

The other item-- real, but uncontracted liability-- is one form of the ever present unexpected and unpredictable. The black lung retroactive increase by the Federal Government in its 1977 Act is an example of that. Through that program, the Government imposed expanded liabilities on insurance contracts that were unintended when the contracts were entered into. Uninsured liabilities were attached to contracts that had already expired. Even without this retroactivity, occupational disease is an area that makes the predictability of workers compensation loss reserves most difficult. As loss reserve technicians, you must have a concern and be sensitive to developments in this area. Occupational disease can develop an enormous liability that is currently unreflected in either rates or reserves. The loss reserve specialist must be continuously aware of the past seemingly liquidated liabilities which may return to the balance sheet, monitor developments and be ready to add to reserves when needed.

I want to thank you for this opportunity and will leave you with one request: Do the complete, professional job when setting loss reserves. Don't become one of your own hard-to-set reserves through the liability of an incomplete performance.

Panel Session 4E

DISEASE AND TOXIC TORT CLAIMS

Moderator: Robert S. Miccolis, Consultant
Towers, Perrin, Forster & Crosby

Panel: Jim Tozzi, Director
Multinational Business Services Corporation

1985 Casualty Loss Reserve Seminar

Kansas City, Missouri

This is the session on Disease and Toxic Tort Claims. I'm Bob Miccolis from TPF&C. I'm your moderator and also a speaker for today. The other speaker is Mr. Jim Tozzi here at the table. I looked at some of the transcripts from prior seminars on this topic, and they tended to concentate on what was happening in the legal area, what legal precedents were being set, what the overall scope of the problem was, and some of the medical research that had been done on some toxic substances. What both Jim and I are going to try to do is go a little bit further along those lines and talk about estimating the costs which comes closer to estimating the liabilities. So, Jim Tozzi will go first. Jim is currently a Director of Multi-national Business Service Corporation in Washington, D.C. and he's also an economic consultant for the law firm of Beverage and Diamond. His firm represents, his clients, which are mostly multi-national corporations, before federal government agencies in the U.S. and in foreign governments. He is also involved in joint ventures between U.S. companies and firms in the Far East. Jim has had an experience of over 20 years in the U.S. Government in the Department of Defense and just before he left the Government, in the Office of Management and Budget. And so, he has a lot of background on some of the legislation in the super fund area and the federal cause of action. So with that introduction, I'll have Jim come up.

Tozzi

Thank you, Bob. The last time somebody introduced me as having worked for the Government for 20 years was around three weeks ago. I was in Washington, I had to make one of those cream chicken speeches which I thought that when I left Government I wouldn't have to make anymore, and it happened to be that one of the many forecasts that I made in twenty years came out right. Not very many but one of them did. The Times asked me one time right before the transition from the Ford Administration to the Carter Administration what I thought was if there was a change in Administration what would happen on certain funding for some housing programs and I happened to guess right which was counter to the current economic trend. In any event, my recommendations got public and some people listened to it and some people didn't. So there was this meeting around three years later, or fours or eight years later, I guess it was a couple of months ago, and they introduced me and they said , "This is Jim Tozzi, twenty years of govenrment" and there was winners and losers in the audience. And after the introduction, one gentlemen in the back said (I think he was a loser, too), cause "Mr. Tozzi," he said, "if you're so damn smart, why did you work for the government for twenty years." So, you're going to have to take what I say in that light knowing that most economists and many economists miss as many things as we hit. If I were to put labels on things, you kow the decades of the sixties in terms of some social movements and movements to the judicial system, what might be characterized as a decade of Civil Rights. And we're somewhat in the mid-eighties and if I had to predict what one might term in the same analogy as a decade of the eighties, it might be the decade where you are going to see some substantial changes in tort law--both by statute and the way it's implemented. None, I think, affects the insurance industry any more than the topic Bob and I'll be discussing today. I'm sure you are all aware that the classic definition of tort would suggest some type of wrongdoing by which the injured party is permitted to seek through either administrative tribunals or through some judicial system some type of relief has its foundings in English common law. What has happened though and what is happening, is those very foundations have been changed and I think quite apart from hungry lawyers or hungry consultants, that part of the problem is that the national economic picture is changing. The very strong competitive position the United States has held for many years is dwindling and a number of people in society are taking relief in a variety of ways. Not the name of which is a neighborhood child came up to me the other day and he and some 19 year old teenager got in some raucus, I think it was really too much of that Canadian beer, and he approached me that the younger man had injured

his lip and that the parent of the, in this case, the alleged defendant, was going to compensate him for medical expenses. And the young chap, he was only 18 or 19, must be a follower of the newspapers, was extremely well-versed in the way that he was going to go for personal injury claims. And, after I drilled him a little bit more, I found out that the young man felt that he'd make a lot more in court than he did on his job as a night clerk. So, there is a lot in society that is moving toward all kinds of relief. And, right or wrong, the insurance industry, after five president that I worked for, is high on everyone's list, for whatever reasons, whether it's that one claim you didn't pay off for an automobile accident or the premium you lost for life insurance or that one thing. And then there's a lot of people, particularly , a lot in Washington, think you all hold deep pockets. So, there is a lot of people that feel there's virtually no cost associated with many of these pending judgments that are moving toward the insurance industry. Now, I would like to move for a few moments now in the area of toxic torts and some of the areas of estimation. The toxic torts have really come, as far as I can recall from the Federal Government side, started somewhat with super fund and before that was passed by President Carter or signed by President Carter in, I think December of 1980, there was a rather, in Washington in subterranian debate, over whether victims should be compensated for toxic injuries. And, during those debates, the OMB staff advised the President and a lot of other people that we thought the whole area of super fund should be used to clean up sites and not for an income redistribution program. However, once things start in Washington, they never die, they just slow down but they never die. And, what happened was that we compromised in super fund and we set up a 30le study, that the buzz words for whether we should have such a system. If you all want any reports, on that, give me your name and George Freeman and I, a big litigator in this area, have written some studies on that. But, the bottom line was out of that that maybe out of that study group we should have some type of administrative relief for victims of toxic compensaton. And I won't spend a lot of time, but the super fund that's is coming through authorization now that has been dropped with direct compensation but some demonstration programs are on the board and possible further federal cause of action which will discuss in a few minutes. In any event, as that issue stuck in Washington, what came out in the real world started to get more significant. And probably the most significant was the disaster that occurred in India. And, it wasn't days until after that occurred that I saw federal agencies cranking out all kind of task forces to solve this problem. And the State Department even got involved in it to chair a international task force _____for one client's and movements as to how Western Europe was going to have these type of activities. And, I mean, it just spread over Washington and, if you followed the alleged claims in that, I mean, they're in the multi-billions of dollars. If any of you are the primary carriers for that I hope you enjoy the reception this evening. But, in any event, that has sort of calmed down a little bit. And all at once, we had a few events in Institute in West Virginia. Now, let me tell you those aren't unusual. Before I had to get my economics creditials I was an engineer, and now I'm not, but there're releases from chemical plants all the time. I mean, that no big thing. The question is are they sudden, the question is what volumes, you just don't make chemicals forever and have no releases. We don't have any close system technology for many chemical engineering plants. And now what has happened you'll see more of. The slightest release, because there's going to be more state legislation for a toxic right to know, that small amounts are going to be emitted from these plants, they're going to be reported, and they're going to be taken outside the scientific area and individual plants are going to be under increasingly greater scrutiny. And, particularly, my friends, in the plaintiff bars, because they're going to be running around--they just love this data--and they act on it accordingly. Now, to get your attention, and I probably don't need too, by the fact that you are all in this room, we're talking about a reasonable amount of change in these developments. I mean, Love Canal, which started out as we had a little cleanup, we were going to move a few houses here and there, it's now $20 million in direct costs, and Lord

knows what the total outstanding liabilities are. Agent Orange, which the Federal Government is somewhat involved in, was at the last count, over $180-190 million. Bob can tell on the asbestos it's in the billions. This unbelievable action that a couple of people in the Justice Department and EPA took against one company ranges $300-400 million to $1.8 billion. It gets to be real money. Even in Washington, I think that tends to be a significant amount of money on a particular suit. Now, some of my former clients, multi-national clients, which some of you all are, has started to ask the question, "Well, really what's out there, and what is our liability?" And, "Why don't you people do some do some work on estimating these liabilities?" Well, if you've ever tried to project GNP or the employment cycle over a period of twenty or thirty quarters, this here is really an art what I'm going to give you now because the range of uncertainties in what I'm going to discuss there are unbelievable compared to any typcial type of economic projection one would make. But let's just go over of the uncertainties that come out really big and have huge impacts on any analysis you all do. One the uncertainty the link between a specific substance and the disease it's going to cause. Does ethylene oxide at 5 parts per million induce some kind of angio sarcomas? Does lead acetate or foot or dermal exposure relate to some type of neural disorder. The links, one certainty you have a chemical exposure and you have some cause of disease incidence. A very difficult, as Bob will tell you, asbestos is probably one of the most cleanest, but that's somewhat unusual. The second, is pathway of exposure. How did it get to the alleged injured party? Was it through air. Was it through water. Was it through a combination of above. Was it through synergy of several elements that he or she was exposed to in the house as opposed to some environmental aspect. And the fourth, is more of the global synergy, meaning has that individual not only been exposed to chemical reactants directly but was there some exposure outside the house in an environment that he only frequents once in many years that he had such an exposure that that in itself induced some kind of reaction in the individual. These are very difficult questions to find. And as we get into this methodology, you will see that answers to those are pretty important. Now, what we've been asked to do for some individuals, was to look at, there's two really types of liability one could look at. One, the number of hazardous waste dumps that are around the country depends on who does the accounting whether it's 2,000 or 20, but most certainly upwards to 1,000 of them are going to be on EPA's "NPL" (National Priorities List). And, insurance companies, private companies, Fortune 500 companies ask what is our outstanding liability at these sites. They're all interested in those numbers for a different reason, I think. Some of the corporations have an aspect of they may go into litigation on these sites or just steps away and they want to start developing a litigating strategy. The insurance companies, I guess in part, are getting a little concerned on whether in fact or whether these reserves you are calculating today or not, or really how big that pie is and what their outstanding liabaility is and when such liability will occur. And another group that's asking for it are the investment bankers. Those are a very unusual group. They don't fit either the category of a Fortune 500 or an insurance company. And when they get conerned, you know that is one of the bell weathers around. When the investment bankers finally look for anything over 3 months, and I can say this on the record because I have a number of them as my clients, when they look at anything over 3 months or 3 quarters, which is somewhat about the length that many CEOs look, that you have a problem. And they are starting to look at these. Why? On mergers and acquisitions, you know you can see this aspiring MBA on the street who crunches number 80 hours a week and does a good job. And after the merger comes through, there's one dump in the place and this sort of is not the best thing for your career, and he, too, may end up working for the government for twenty years. Now, let's go into.....I can't give you numbers because not one client allows me to give numbers. Isn't this an open society but no one wants to give numbers? In any event, there three determinations that is really key to any of the technical determinations. Now, those others I gave you some policy choices. But, there's three number crunching activities

that is common to all these. At least, common to all the things we do. Whether it's common to litigators on the other side, I don't know and I think I have a liberty.....In fact, who in the hell can sue Multi-National Business Services Corporation. It ain't been around for 2-1/2 years. They hardly think we're deep pockets, so I can go over some of the methodology. One, and a driving force in all our analyses, is what you might expect, is the total population exposed to the hazardous waste site. And that, in general, may look like the easiest thing to get, but I'll go over in summary to you. That is the first thing we have to come up with. What is the population exposed. And the term "exposed" is an extremely important term. The second determination is a combination of the projected lawsuits around the site and those numbers of which would be successful. Combine sort of a propensity to sue. When we look at the site, we look at the population around it, what is the propensity that there's going to be lawsuits from that site. And by the way, that's the first area, the population projection, is probably the driving thing that drives the whole equation, but the greatest variability will probably be in the second area that I just discussed, the propensity to sue. What type of litigation is going to take place given that profile of that site. And the third is the average award per successful suit. Now, there is a lot of intermediate calculations and things but the three things we look at is: total population exposed, propensity to sue, and the average award per successful suit. Now, I needn't tell you all the big, great uncertainties in trying to quantify any of these. And so, for many of our activities, we will present a range of vestments to the person who has asked to do the analysis. However, a bad as the range is, it's somewhat more accurate than zero of people that don't do it at all, and there's many people, and particularly when you give these numbers in front of a board of directors, and particularly when they have to sign the little sheets that they are liable, and the SEC rules are really getting ugly, too, you know, in fact, they don't let me brief them anymore, they'd rather me brief them on my twenty years in Washington, not what I'm doing now, you see. But, we will get with you. There's a conern then, on how these nunmbers we'll use and what. Now, let me go over those just those three main areas. Robert, I won't take too much of your time. I'll move on.

On the population exposed. When we go in to look at a site, there is a lot of data around. The real question is how does somebody give it to you. It's not the fact that you haven't paid for it as taxpayers, it's a lot of people don't want you to have it. Or, it's buried down in some office of some bureau. A lot of times it's EPA, but a lot of times it's the state. One of the big things in doing population profiles around sites is knowing how to get the date and where to get the date. The fact that you are going to create the data, that's somewhat a herculean, impossible job. So, one of the things you want to do on population exposure is you have the site and we draw population contours. And I hired somebody from MIT who has one of those fancy computer degrees and he drafts them, but the answers are the same, it just's a different print. I hope he doesn't read this transcript. Anyway, now, so we would look at population profiles around the site. Then you come up with a real difficult question. Where are you going to draw the line. How far are you going to take potential population exposures to the site. Well, EPA has taken a couple of rules. They've taken a four-mile contour from the center of the site for exposure, was it to air, yeah, air emissions were four miles from the center of the site and three miles were for ground/water to surface/water as just a general way of putting some limits on the population. Now, the statistical data behind those two points are somewhat sparse. In fact, I'm more apt to give you the variability around those two points because in most of the sites that we looked in detail, the range goes one mile to seventy miles. So within tha 3 and 4, there is a little of variability. And those of you all statisticians shows what two points--there's a lot of degrees of freedom there, you know. But in any event, the government uses those parameters to come around with numbers around the site. However, when you look at an individual site for your company, it's a little bit more different to you because EPA is looking at macro across the whole

United States, and you're looking at some point estimate of a particular site. So what we generally do, we'll start those population profiles of contours and then we will relate after we do the next two steps, sort of an innertive process, we'll start with a 4 and 3 and then we'll find out through the next steps what's unique to that site. And there's a series of, and this is not done on computer, this is just by looking at the site by looking at the exposure and a few other things that I am going to discuss with you.

Second, on propensity to sue. This is the biggest variability, not that the other was small. When you look at a particular site, generally many times we have a catalog of some chemicals tha were put in there, and we have some relationship as to what those chemicals known in the literature what kind of disease they have done and also not too scientific, what the general public thinks when they hear of certain of those chemicals. We also, depending on how big the site is and how big the litigation is, will have some idea of any potential suits in that area that's been taken place and other litigation in the general area. And finally, and this is very subjective, I;ll be very explicit with you, are the presence of the plaintiff bar and their activity in that area. Now, this may not sound scientific but those are very key factors, and this is the big uncertainty. To come up then with some idea of the probability of the propensity to sue. And there's were there will be extreme disagreements.

And the the third area that we look at to then, the key other variable, is the cost per successful claim. And, depending on how much detail the person wants, there's four areas we quantify now and two or three that we do on select basis and the uncertainty increases as you go down the line. First, medical payments. This is not medical payments for personal injury but medical payments just for compensation for the medical bills. And that is derived by taking the chemical profile of the site, which will have, by and large, depending on the site, a number of chemicals and some idea of the volumes that are in the site. We then, we work with NIH, and back in Washington we have a huge data base and it's pretty well cut and dry now on certain chemicals, what was known to be which chemicals induce what kind of illnesses. For example, it's not a very big science, but I mean, if you see arsenic in a site, you will relate it to skin cancer, that what the great chance it will be. At any levels of emissions there will be skin cancer. Ethylene oxide you'll get certain leukemias, and so forth. Chromium usually has a respiratory--lesions in the lungs. So, there is enough of that established. Once we get that, we will link some idea of the volume of those and the nature of the illness. Next, we have to then go to another thing we quantify is lost income. And, that is, people can disagree, but that is usually straight forward. It's the expected disability from the disease and the average annual salary of injured times some degree of what we feel or what state law or what their compensations allow for on lost income. Survivor benefits are not too difficult to get, as well as burial payments. Now, those are sort of the easier ones to quantify. So, once you have the population exposed and you have these elements, you can start to work on the cost of a successful claim. The three areas that we don't quantify that could mask those costs that I just put, are three areas that are growing in interest and will be moving into litigation. One is property damage. Second, damage in natureal resources (that's the environment where not under the statute you can claim injuries to the environment if you have to restore the environment). And third, pain and suffering. These three in many areas will mask the other costs that we estimated, and generally those are not done unless the site, the contour and profile of the site, is in a very huge, large population area or near it or there is unbelievable amounts ground/water contamination. Now, if you look at all of this, the methodology, once you get those three things, you can play with them and come up with some liability and the real problem is the data. You make a lot of assumptions and those are variable. Not only the data, the interpretation of the data, because once you go into court there'll be somebody on the other side that may not have the same or different data that will interpret it different.

Now, let's say we do all that, and you go to your own individual company, the question is what do they do with these estimates after you get them. However uncertain and how big the range, do they use them for setting reserves. Just what do they use them for. Well, that is a thing tha a lot of people are starting to look at in both, not only the insurance industry, but also the companies. I've not yet known one that established reserves based on these numbers. Of course, I'm not in whatever department of the insurance companies that do that. However, I can tell you one thing that does get their attenion. If you give a range, the upper range would generally scare anyone, but the lower range, which is the lower bound of the estimate, which is done very conservatively, extremely conservatively, is so large in some instances that it really gives you concern. Even if you tighten down about every assumption. And, it's the lower bounds that are starting to perk around that people are starting to get very concerned about. And they are getting very large. Now, what do I predict is going to occur in this area. I attended a session this morning, it was excellent, on torts, and they addressed, in part, the environmental area, and I wouldn't say that it's Dooms Day, but, I mean, people are starting to get conerned for these big awards. I think, and that group this morning identified in general terms, they said maybe we need a new way to have conflict resolution. I mean, the idea of getting lawyers and consultants on both sides fighting. And on one sight that I had worked on, but I wasn't the main perpetrator, I think the fees were $7 million and the cleanup was $3 million. That's at one site. I mean, no one got any the better. I mean, people sat in big rooms and argued the apportionment of liability and bad PR for all the firm and Lord knows. So, what were starting to do, and when I say starting, we are just in the initial stages, what a number of Fortune 500 companies are doing, they are going to hire a third party to do the following things: (1) in our case we're the third party, we're going to hire, not out of our firm, lawyers, the engineers, the economists and the negotiators. We'll assemble the team. We will control the budgets and we will control the time schedule. They will be put on budget targets and time targets to deliver certain products. At the end of those time targets, this third party group (our group) will come in and if there are issues that are unresolved, we will, based on the available data, generated by the experts. We have no control over what they say, just the timing and what they do. We have no control over findings that these groups make. We will then come up and give our views on the apportionment of liability and any unanswered questions. Then, the question is what do you do with our opinino. Well, we are putting together, as part of the third-party advisors a number of ex-federal current employees and current employees who have stature and are not with our firm that are in or out of government, and those reports are going to be filed with EPA, OMB in the courts. And the thrust of this is the idea to cut time,expense and some of these liabilities. Now, finally with terms of the insurance industry, I think you might start thinking about what these Fortune 500 companies are doing. They're coming to the conclusion, at least some of them, that the best way to reduce liability is to clean up the site, and the earlier you clean up the site the faster your liability goes down, particularly if you get a concent order saying it's clean. And, it may be to your advantage, in all the sites that I'm working on, the insurance industry is never around the table. It's never there, and so when you determine how clean is clean, will you put $8 million or $108 million. The company is around there but the insurance aren't. And, I think you might want to consider the idea of, in certain site cleanups where you are really potentially liable, that you work with EPA, or the state, or whoever is cleaning up, to move into that process a little earlier. For one, you'll get your point of view across with a lot of "need to know" that the insurance company is not an insatiable tank of wealth. And, second, that you come from maybe a little different standpoint, but you're equally concerned about the viability of your company and the country as they are. And I think that dialogue earlier in these sites, not in the macro world, earlier in these big litigations and these big cleanups, might tend to decrease the adversity which I see is taking place at an increasingly greater rate between the generators and the owners of the sites and the insurance industry. Thank you.

Miccolis

Okay, for the next part of this presentation I'm going to go through in a bit more detail, some examples of actual numbers. Basically working off the we actually did some work and produced estimates, so you will actually be able to see some estimates. All of these slides are in your handouts. Over the past few years, we have seen, as Jim described it, drastically increasing numbers of toxic situations, both of which have caused personal injury and property damage. Generally unique to these situations, is that the injury or damage is not manifested for many years. We now need to think in terms of things like manifestation, latency period, period of exposure and a new term that I learned was "in resident exposure", which means that a chemical substance is in the person's body and therefore is causing further damage, rather than things we're used to, incident date and report date, and evaluation date, those don't have any meaning in these estimates. One of the most well-known toxic problems has been in the asbestos area. It first developed by asbestos workers in the mining and manufacturing an in the use of the products and then later in insulators, shipbuilders and auto brake maintenance because of the asbestos in the lining material. And now, we're seeing the problem in schools and public buildings because of in-place materials. This has led to a number of economic manifestations. Of course, you have the hardships of those who've become disabled or died because of exposure to asbestos and the resultant claims against their employers or the manufacturers of the product, which then has led to the bankruptcy of some of the manufacturers.

Now, in looking at these areas, several researchers have tried many different approaches to estimating the economic costs of this problem. And, they've done so from different points of view. For example, one estimate was made on the cost to society, so numbers and methodologies such as Jim described in terms of propensity to sue and the average cost. In this case the average costs they would use was the cost of a life or the value of life. And so, the resulting numbers were very, very large. Another estimate was based on the cost to the insurance industry. And I'll talk a little bit about that later. And, the third area, or third point of view, would be the costs to the actual producer, the asbestos producer. My presentation will describe a particular actuarial model that I worked on for estimating asbestos claims for one particular manufacturer. So, it's very unique to that particular situation.

UNR Industries is a company has been operating under Chapter 11 since 1982 when they filed for bankruptcy. One of the major factors leading to the bankruptcy was the uncertainty regarding the costs of their asbestos claims, and the associated litigation costs. In order for the court to decide on how these asbestos claims were going to be handled in the bankruptcy proceedings, a study was commissioned to have an independent firm estimate UNR's liability for both the existing claims, as of July 1982, and all future, pending and future claims against the company. By July 1982, over 14,000 cases had been filed against UNR, representing about 18,000 claimants. By that same date, approximately 3,500 were closed and the amount paid on those, and they were mostly all settled out of court, was $13.6 million, excluding legal expenses. The facts leading up to those numbers are shown on these graphs. There was a steady increase in the claims filed per month. These are the number of claims for each month. It's not a cumulative figure, it's the figure in each month. So you see, it was going from a flurry of activity in early 1979 and then increasing during 1980 and somewhat peaking in 1981, but staying at a relatively high level into 1982, and through by the middle of 1982. After that time, with the bankruptcy proceedings, the number of claims that were being filed was reducing. Also, the closed claim activity, which is on Figure 2, on the basis of the month closed, showed a dramatic increase in 1980 and 1981 until late 1981 where it just

completely dropped off at very low levels of closing activity. The definition of a closed claim for these purposes would be from the standpoint of view of UNR, there might be other defendants on a case, so this is only as far as UNR's liability is concerned. UNR settled on their liability. These were personal injury cases. There were a few workers compensation cases in here, but they are predominantly personal injury cases.

Figure 3 shows the cumulative numbers. It just an accumulation of the other two exhibits. So, you can see the spread. The top line is the number of claims filed and the bottom line is the number of claims closed. So on a cumulative basis, it just completely flattened off by the beginning of 1982. So, obviously, these trends showed a dramatic increase in activity over a relatively short period of time.

Almost all these cases involve 10 to 20 defendants in addition to UNR Industries. In fact, as some of you might know, the plaintiffs' attorneys developed lists of companies to file against, because no one knew which companies' products was the cause of a particular injury. So they developed these lists and just named everyone on the list. There were a few multiple plaintiff cases which could represent hundreds of claimants, but in the case of UNR, there were 31 of those multiple plaintiff cases closed, and 184 open. The 184 open cases represented about 3,500 claims. Many cases, approximately 15% overall, were closed with no payment at all. These were primarily where UNR was on the list but made no product that would have caused the disease that the individual; had so UNR was were able to settle the case without any payment. We also found that there were significant differences among the closed cases, depending on what type of court they were in, whether it was a state court or federal court, and in which state the suit was filed. For example, in New York, there was a legal precedent set which interpreted the statute of limitations in New York such that no claims made against UNR were ever successful because the exposure happened many years ago and therefore had exhausted the statute of limitations. So, in the case of New York the activity slowed down and people were just taking their cases to other states to sue.

In trying to determine a methodology to estimate the potential liabilities in this situaion, we looked at several different approaches. The first one was to take the past claims and trend them, or make some kind of trend projection from the post activity. But, as we saw in the figures, there was nothing to indicate that those trends would ever come down. There was no way to make a projection based on the simple filings and closings. The second approach was to try to estimate, on some basis, the total universe of claims and then apportion to UNR based on their marketshare. Well, we had two problems there. One was trying to get the total universe. And the second was that marketshare changed. Since many of these claims come from first exposure to the product as far back as the forties and fifties, and there just weren't enough records kept to know what the marketshares were.

The third approach was to estimate claims as a function of the morbidity and the mortality of the asbestos workers. And this seemed the most promising. I hadn't prepped Jim Tozzi on his presentation, and he pretty much came up with the same kind of approach, of taking something that related to the individual workers, based on some estimate of population and other estimates. Unfortunately, much of the prior work that had been done and had been written up was concentrated strictly on mortality, strictly on the number of deaths caused by the exposure. And later we'll see that this became a problem which we had to solve. In terms of the actual data, and other quantitative information, and the studies I was referring to, the major sources came from these six areas: epidemiological studies (and you have to say that several times before you can say it smoothly). Two of the men that have done a lot of this work, Dr. Irving Selicoff, and I think he's informally known as the grandfather of asbestos-related disease research, he

and Dr. Nicholson are both at the Mt. Sinai School of Medicine in New York, part of the City University of New York, and they've been doing research on this problem from a disease standpoint for many, many years. The second area was some economic evaluations, MacAvoy, etc., etc., etc., from the Yale Management School, did a study, and Walker, who really should fall into the epidemiology studies area, did some work to address the economic costs in the Manville case. And we had access to that work. The third area was some legal reasearch, and some of it was very recent, just released in the middle of last year from the Rand Institute; this was based on actual asbestos claims that were sampled from attorneys' files and from insurance files. They collected and analyzed all kinds of characteristics of the claims and of the costs associated with the claims. In the fourth area there was the only one insurance research study that we could find, which was a report issued by Conning and Co., which was a very, very macro approach, just trying to get some idea what the overall possible costs would be. The fifth area was what is called the claims information system, which is specifically designed for asbestos cases, maintained by Alexander Grant & Co., accountants for Lloyds and other insurers. And, we thought this system might be available to us, but we ran into confidentiality problems in terms of releasing any information on the cost of the claims. And so, that didn't pan out. The sixth area was that UNR had all of its claims on a computerized data base. From this, we actually could get certain kinds of information from their own claims history. And, we also had access to their claim files, and we took random samples out of those claims file to get additional information that wasn't recorded on the data base.

Now using all this data and information and background, the first thing we approached was to estimate the cost of the open claims. While we knew the number of cases but we didn't know the costs. There were no individual case reserves. All that we knew was that there was a case. And based on the closed claims, we found some key characteristics affecting costs. The first one was multiple plaintiff cases versus the single plaintiff cases just because of the number of individuals; state of jurisdiction and court type were also important, which I mentioned before. These three factors were available in the data base, and all of them, when we looked at them, were significant in the determination of costs. So, the first thing that we wanted to do was to estimate the cost of the number of successful claims, and by successful I mean the plaintiff was succcessful in receiving compensation from UNR. The second was to estimate the average cost per successful claim and that had to be adjusted for inflation. And the third was to take these estimates and compute them, by state, by court type, and separately for single versus multiple cases. And, in those instances where the number of cases in a particular state were very small, we had to combine states together. For this we used UNR's own claim history, and estimated the success ratios and the average cost per case, based on UNR's closed claims. And the next chart gives the examples, and this is for open cases, of how this was done. For example, let's take the State of California, there were 1,700 closed cases, of which 1,658 were successful, giving us a success ratio of 95.7%. We took that percent, for projection purposes, and applied it to 2,611 open cases, to get an estimate of 2,498 successful cases of the ones that were open. Going down to the bottom section, for California, we looked at the total amount that UNR paid on the closed claims, got the historical average cost, and then used that historical average cost, this is before inflation adjustments, and multiplied by the number of successful cases to get the estimated total cost from those cases in that state. We did this for several different combination of looking at federal courts versus state courts, combining the states in different ways. This particular total, the $57 million was based on this particular set of assumptions. The alternative estimates, after inflation adjustments for open cases, ranged from $60 to $75 million. And the inflation adjustments turned out to be not that significant because the cases closed very fast. From the time they were filed to the time closed, I think, averaged two years. So we didn't have a long inflation period.

For future claims, the methodology gets a lot more complicated. It's got the same basic elements, estimate the number of claims, estimate the average cost per claim, and to project the total cost. But to estimate the number of claims we have to get some estimate of the propensity to sue or something of that ilk, and in actuarial terms, we used what I call "claim frequency rates" against the population. The rates are the number of claims per unit of exposure. To get the average cost per claim, we looked at the cost estimates we were using for the open claims and adjusted those for inflation based on when we expected the future cases to close. And then, by adding these up and projecting them, we get the total cost. Now, the average cost per claim was, as was given on the last chart, somewhere around $6,000 to $7,000. So, it wasn't a very big average cost. We looked at the distribution by size, and we found that the costs were heavily concentrated around the average, so that there wasn't a lot of variance that was going to be generated by size of claim. So, it mostly came from frequency. In order to estimate the future claims, we developed some claim frequency rates and we defined a claim frequency rate as a rate of claim filing, and I use 1,000 here per unit of exposure, it could be 1,000, it could be 100,000, but some unit of exposure.

The selected exposures had to be measurable, both in the past when we had closed claim history and going into the future. So, we had to have some basis for looking at the past and going into the future. And they had to relate reasonably well to the claims and they should reflect the characteristics of asbestos-related diseases. So, the next step was to look at what those characteristics were. And as Jim Tozzi pointed out, of all the toxic substances that we know about to date, asbestos is probably the cleanest in that of the four major types of diseases, the first two--asbestosis and mesothelioma--can only be caused by exposure to asbestos. There is no other known cause. Most of the major claims came from those two types of diseases. The other two--lung cancer and other cancers--and there's some other illnesses that also can be caused by asbestos, were basically the four categories we used to classify the disease types. Asbestosis is generally non-fatal. The increased mortality from the the epidemiology studies just doesn't show a significant increase in mortality from someone that has been diagnosed as having asbestosis. However, mesothelioma, and there's a couple different types of it, is really a type of cancer, and it's always fatal, and it's fatal within a short time period after diagnosis. So, somebody, once they find out, it's a very quick, terminal disease. Lung cancer caused by exposure to asbestos can be fatal, and, as I'll explain later, the shortened lifespan means that, and it's not as terminal a disease. Someone can live for several years, but they do have their lifespan shortened. From the information contained in the samples from the Rand study and from UNR's own data base, 80 to 90% of the claims were categorized as asbestosis; 5% mesothelioma; and then the remainder were the other diseases. Also 7-15% were from a claimants that were deceased and 85-93% were from claimants still alive. This gave us basic parameters to pursue estimating the distribution of claims. Consequently, we assumed that, for asbestosis, the claimant was living when the claim was filed. For mesothelioma, we assumed that the claimant was deceased. For lung cancer, we assumed that the claimant could be living but we made some assumptions as to when the death would occur from the time the claim was made. And for othe cancers, we assumed the claimant was deceased.

Now, that gives the basic claim characteristics. Next, we had to define the population base to use as our exposure base. And that population base had to have the required relationships. We had to be able to break down the population to fit all these characteristics. The research that was conducted by Nicholson, Perkel and Selikoff we used as our primary souce. Dr. Nicholson gave a presentation at this seminar, I think two years ago, where he discussed his population. That was a highly defined, high-risk population exposed to asbestos, by industry. He developed mathematical models to

predict the excess deaths caused by the asbestos-related diseases. These models were created by their research into the causes of death, by looking at death records and family statements. It was a very in-depth study of mortality statistics. They also studied fiber concentrations in typical workplace situations. So, they actually measured parts per million in the environment. They provided workplace estimates, by industry, by year of entry into the industry (new people entering the workforce in each industry), and compiled these statistics from government records, from the census, from the Navy, from trade associations, trade unions, and from industry groups. And, as Jim Tozzi pointed out, it's one of the hardest parts of the reseach to go find out where this data exists, because you can't create it from scratch. We did find some other population estimates from some other researchers, and they came up with a lot different results than Nicholson and his group. In 1982, MacAvoy, et al., reviewed three of the main population research papers and their conclusion was that Nicholson was the most likely to be accurate of the ones that had been reviewed. In 1983, Walker used another approach in the Manville case. However, Dr. Nicholson published some comments on the Walker approach raising a lot of technical issues about how those estimates were created and concluded that the Walker estimates were just too low. So, for these reasons, and other reasons related to the technical value that we saw in using the Nicholson population, we chose to use it.

The industries that were identified are shown on this slide. Surprisingly, out of all these, really the key ones were the insulation workers and the shipbuilders. The other ones had some impact, but very little. For each of these industries, we obtained the workforce as of 1940, the new entrants into each industry for each decade subsequent to 1940, the age distribution of the new entrants and the original workforce, the average duration of employment, by decade, and the relative risk of each occupation in terms of the relative risk to disease from exposure to asbestos. So, for example, insulation workers were taken as unity, and automobile maintenance was 0.1. That is, it was only 10% of the exposure of insulation worker. Now, for UNR, we had to make some assumptions about how to use this population. The one of those was that the construction trades and the automobile maintenance had very large populations and the construction trade exposure was from primarily wallboard, gypsum wallboard, but UNR didn't make any of that through their whole history of manufacturing. Consequently, we assumed no exposure to that particular product. For automobile brake linings, UNR wasn't involved in this product either. Therefore, those populations were excluded. UNR discontinued making asbestos products in the early sixties, and so, the population that would be exposed to UNR products after 1964 would be limited to removal, maintenance and repair type operations. Dr. Nicholson was kind enough to give us estimates of how much of the population, by industry, would be in this limited grouping. For example, insulation workers would drop to 10% for the removal, maintenance and repair, because most of the insulation workers are putting in new products. On the other hand, marine engine room personnel, where all the exposure is from old ships and the deterioration of insulation materials, were kept in at 100%.

Another area that we had to make an assumption about is that there were 4.3 million temporary , World War II, shipyard workers, with an average employment of less than one year--typically 4 or 5 months. And during that period, there was a lack of dust control, and everybody working in the shipyard would have a significant exposure to asbestos fibers. This was a problem in the population because this exceeded all the other population estimates. However, in looking at UNR's actual claims, the actual number where the only exposure was World War II, was extremely small, and the period of time has been over 40 years since that exposure, so therefore, given the disease latency, those people would be very old and would have gone through the typical manifestation period. What we did find was that a lot of claims from World War II shipyard workers who subsequently went to work in the asbestos industry, either in shipbuilding or in insulation.

The fourth assumption was that, according to Nicholson's research, there was a certain percentage of the population that was at a lower risk. So, a certain percentage in each industry had a lower risk. Low risk was defined as the equivalent of two months' exposure as an insulation worker, which was measured in terms of air concentration. In order to try to limit our population to strip out the low risk people, required some more estimates, and what we found would was it was not expected that the percentage would change over time. And since all the rates we were computing were relating claims to exposures, if the exposures were the same percentage were low of the total, it didn't make any difference, because it would have been the same multiplier applied to every rate.

The last assumption was that people that had their first exposure from 1972 to 1984 would not have the same exposures because of more attention to the industrial hygiene and safety standards and the use of masks and other control of dust conditions. For this we estimated a drop off in intensity after 1972.

Because of the nature of the claims, we separated out the exposures into two types: non-fatal claims and fatal claims. For non-fatal claims we worked with the number of survivors that were projected from the population in each 5-year period, going from 1940 to the year 2050. Now, these were actually computed as survivor-years, because we were our computations in 5-year increments. So, we had a survivor-year as our exposure unit. For projection purposes we assumed that no one would be exposed to an UNR product after 1979. Therefore no new workers were added to the population after that date. Because of that assumption, the selected population would eventually die. The population base had a normal end to it. And what we computed from this is a claim rate or claim frequency rate per 100,000 survivor years. For fatal claims we used excess deaths that were predicted by the epidemiological models and we applied the excess mortality rates against that same population base. And there we developed a claim rate per 1,000 deaths and those were computed separately for each of the three types of death-causing diseases: mesothileoma, lung cancer, and other cancers. As you would expect, mesothileoma has the highest rate per death because of the link with the disease. It was not, however, 100%, so, some of that's related to the fact that UNR was not manufacturing in every instance of a death case. And lung cancer was second, and other cancers were third.

We further had to divide the exposure base up between period of first exposure. And to do that we grouped the population into what we called "entry" groups based on the year that the people entered the workforce, which would be their first contact with asbestos, and by age. And age, as it turned out to be a significant element in determining propensity of making a claim. Obviously, it's not independent of the period of first exposure because the disease has a latency period of about 20 years. And so, everybody that entered during a certain period would be within certain age groups at the same time, so there was a strong correlation between those two elements.

Now that we had the population broken up, we had to break up the claims. For this, we took the total claims and allocated them based on the sample studies to correspond to the various groupings of fatal versus non-fatal with the percentages that are shown on the slide; the decade of first exposure based on the UNR claims data and the percentages are shown up there; the age of the claimant, and interestingly enough even though the average latency period is something like 20 years, 6.6% still came from claimants under 40 years old. And that's just a variability element. It means that the average latency is 20 years but not necessarily. It could be 10 years; it could be 5 years.

Question: Did you check out how many those people had a history of smoking?

When we first started the sample research, we looked into smoking versus non-smoking as an ancillary cause or as a problem in the lung cancer and in the seriousness of asbestosis, and what the Rand Institute found in their report, is that everybody smoked. Approximately 98% of the claims came from people who smoked. And so, it didn't have any value as a variable.

Question: (could not hear at all)

Right, right it does greatly raise the propensity. But in the claims that have been filed in this particular case, and in the Rand sample, the majority of them were smokers.

And then we had to divide up the claims by industry and occupation. And, based on UNR's information, 55% were in that shipbuilding repair and marine engine room, and 30% were in the insulation workers. So now that we had the claims divided up and we had the exposure divided up, it should be a simple matter as to just divide the claims by the exposures and come up with a projection. Unfortunately, it didn't work that well, or that simply. We had to consider another factor and reflect it in the methodology. I call it "backlog". As you saw in the figures on the graphs, there was an increase claim frequency for 1977-1982 and in looking at this and in questioning people about it, we surmised that most of it came from an increase in awareness of the claimants that they had the disease and that there was availability of compensation through product liability actions. And also, the plaintiffs attorneys were becoming more sophisticated, more knowledgeable and knew exactly what to do. So, we were looking at a situation where we had a bunch of claims in a short period of time, and if we just took all of those claims related to exposures it would be out of balance. This is because we had claims that normally, if the medical and legal conditions had been leveled, the claims would have come in over a longer period of time. They wouldn't have come in all bunched up in a 5-year period. They may have come in over a 10-year period, or a longer period. Consequently, we wanted to make an adjustment to account for this backlog for those claimants that would, at least conceptually, filed earlier. So rather than decrease the claims somehow, we just increased the denominator. Since the numerator was the number of claims, we had to get the corresponding exposures over a longer period of time that corresponded to those claims. We determined these exposures by taking them as a multiple of the survivors in the 1977-1982 period. On the low end it may be, I don't know what the exact figures were but, 1-1/2 times the people exposed during that 5-year period. In the moderate, the multiplier would be higher. And in the high backing, the multiplier's higher than that. For death claims, we knew we could predict the number of deaths from the models, so all we simply did was add more deaths to the exposure base, just by taking more years of expected excess deaths.

This is an example out of a large three-dimensional matrix of all the calculations. This is only insulation workers and only for survivor claims. The exposures are at the moderate backlog assumptions. What we have done is take the period of first exposure, pre 1940, 1940-1949, 1950-1959, 1960-1964, and then broke it down by age. Now, I was looking at this on the plane yesterday, and I looked at the total total number of exposures, and I said, If this is survivors in thousands, or even if it is survivor years, that would be 200,000,000 total total. Well, it's not survivors in thousands, it's in hundreds. So, there is an error on the sheet there. So,
it would be 20,000,000 survivor years, not 200,000,000. The initial allocation of claims as shown there totalling 4,581 claims. We allowed the claims to be broken into partial claims because we wanted to get the rates in more significant digits. So, the historical frequency rates per 100,000 survivors are given below with an overall average of 22.9.

And, if we look at the spread there, there's a lot of variation depending on the year of first exposure, the age, as to how the claim rates varied. And so, what we did is we used this information and then selected mature rates. Now, if you look back down the 60-64 column, you'll see that those rates are very low compared to the earlier periods. Well, we expect that because the people that were first exposed in 1960-64 by 1980, they would have just reached the 20-year point in terms of the period of exposure, since first exposure. And, it will probably take another 5 to 10 years before the claims will really start to develop. So, that the latency period really hadn't gone far enough and you'd expect lower claim rates. So, when I say mature rates here, when we make projections going forward, we had to make assumptions about immature rates because the people exposed in 1965 to 1979 would be phased in.

The total projected number of claims, all groups, all industries, using moderate backlog assumptions, for survivors, is broken down this way. And so, you see the calendar year projections is based on the year filed. And incidentally, I said we had multiple-plaintiff cases, what we did for the history that we used to develop the claim rates, we didn't count each case as one claim, we counted each plaintiff as a claim. So, these are projections of claimants into the future. And, you see that it has to go out pretty far for everybody to die off and all the claims to be made.

Question: Inaudible

Right. This is the population all isolated to UNR and the claim rates developed from the UNR claims. And so, we just took the population and pushed it out using the mortality, and used those claim rates that were developed and multiplied everything out and added it up. So overall, with this moderate assumption, we had 56,000 future claims.

To estimate the cost we had several base assumptions as to what average cost we were starting from. This was the low estimate. And, at the low estimte, we used a 5% inflation based on the average cost of the analysis we did with the open claims. And then we projected when the claims would settle. Now, one assumption here was that if you look at the number of claims settled in 1985, we were estimating that all claims from 1982, the bankruptcy date, to 1985 would all be filed in 1985, and at that average cost. And then we inflated the average cost out to the final year. All the years aren't shown here. You come up with the 50,000 claims and a total inflated cost of $624,000,000. The present value of that flow at a 7% discount rate was a little under $200,000,000. The overall range of the final projections with all the various assumptions for open claims there were 14,000 claims, average cost $4,000-$5,000, total cost $60-$75,000,000. For future claims the number of claims ranged from 48,000-68,000 claims, average claim, this is the average over that whole period, so it's the average claim over the whole inflated period, of $10,000-$12,000 per case, for a total of $500,000,000-$800,000,000. And then for a grand total of $560,000,000-$875,000,000, or in present value terms, 210 to 325 million.

That takes you all the way through, without showing you every detail, of one methodology of extrapolating from a population and from actual claims statistics and making, a final projection of a final liability.

So, I open up for questions, we're at just the 5 o'clock mark.

Mr. Tozzi: Does the inference you draw from this is a Class A analysis like you've done, that the firm goes into bankruptcy when they see the numbers? What was management's reaction when
you gave them this. For a lot of companies, $200,000,000 ...

Mr. Miccolis:
Well, in this case, there was an anticipation that the company did not have enough assets to meet all the claims. And so, once the number reached a fairly low level of size, the number didn't matter, in terms of the company management.
What mattered though, is in the actual bankruptcy proceedings. What happens now? Because now they have divide the assets of the company. And what happens with respect to future claims.

Question: Bob, just very quickly maybe you want to address how those who might want to adapt this methodology to their situation and try to look at the number of cases that their company's is on, the adjustment they have to make to that average cost. I mean, $4,000-$5,000 is not the total cost of the claim. Maybe you want to talk about that.

Miccolis:
Okay. That's only the cost of the claim and it doesn't include any legal expenses. And, in the case of, for defense costs, you know, the cost to just defend the case can exceed the average cost of the claim. It also doesn't include, the total, average cost, which includes all the payments from all the manufacturers. According to the Rand study, I think it averaged in the range of $45,000 to $50,000 a case. And for cases that were litigated, it was over $100,000 a case. So, for an insurer, that may have insured UNR, they may also have insured Manville, or five or six other ones of defendants, on a particular case. So the average cost of the case would be much, much higher.

Question: What did you do about the mesothelioma?

In terms of?

Well, there doesn't seem to be any minimum exposure causing the disease.

Miccolis:
From what I've read about the disease,if it's a pecularity in terms of peoples propensity to get the disease. In other words, everybody that is exposed to it isn't necessarily going to get mesothelioma. But a certain segment of the population will get it. And that percentage of the population that get is doesn't have to have a lot of exposure. It doesn't have to have a lot of inhalation.

Question: Inaudible

No, in the case of UNR, they didn't make any spray insulation. They didn't make any building insulation. So their products never went into public buildings. In the case of Manville, it's a "who knows" situation. In talking to Dr. Nicholson about public building exposures, their research has shown and their other information has shown that the risk, in terms of the air concentration levels to residual exposure coming out of the ceiling is lower than the low-risk population that they were estimating. However, the span of exposure is extreme. In other words, it's in the less than 1% category. And the concern that some researchers have is that they generate more exposure by removing the material than in keeping it in place. The risk here is that the procedures that are being used to rip it out is actually causing more exposure than other procedures to seal it up. So, there's sort of a mass attempt to get rid of the material, and in getting rid of it they are actually creating more exposure, at least temporarily until the dust settles. And if they had used other methods to seal up the material they would have eliminated that additional exposure.

ESTIMATING THE COST OF DISEASE & TOXIC TORT CLAIMS

- INCREASING NUMBER OF TOXIC SITUATIONS
- PERSONAL INJURY & PROPERTY DAMAGE
- ONE OF THE MAJOR TOXIC PROBLEMS - ASBESTOS
- ECONOMIC MANIFESTATIONS - BANKRUPTCY OF MANUFACTURERS
- ACTUARIAL MODEL FOR ESTIMATING ASBESTOS CLAIMS FOR ONE PARTICULAR MANUFACTURER

CASE OF UNR INDUSTRIES, INC.
BACKGROUND

- JULY 29, 1982 UNR INDUSTRIES, INC. FILES BANKRUPTCY

- UNCERTAINTY REGARDING COST OF ASBESTOS CLAIMS

- TPF&C STUDY TO ESTIMATE UNR'S LIABILITY FOR:

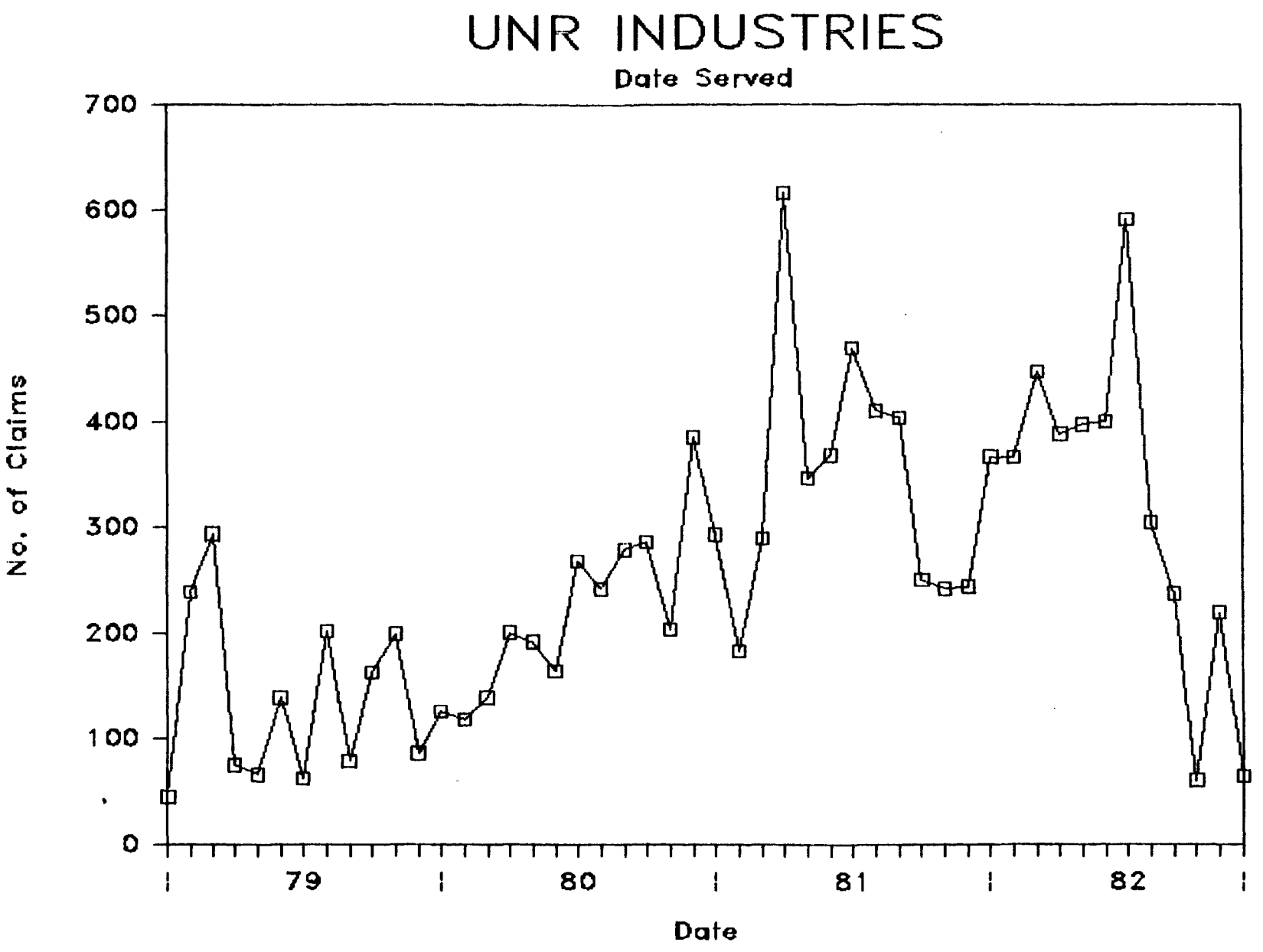
    1) EXISTING CLAIMS

    2) FUTURE CLAIMS

UNR ASBESTOS CLAIMS
1975 - JULY, 1982

- Over 14,000 Cases Filed for Approx. 18,000 Claimants
- By July, 1982 Almost 3,500 Cases Closed for $13.6 million (Excluding Legal Expenses)
- Steady Increase in Cases Filed per Month from Late 1980
- Drop Off in Claims Closed per Month in Early 1981
- Almost All Cases Involved 10 to 20 Defendants Other Than UNR
- A Few Multiple Plaintiff Cases Represented Hundreds
- Many Cases Were Closed by UNR with No Indemnity Payments
- Significant Differences Among Cases Were Found Between:
    1) Type of Court - State vs. Federal
    2) State Where Suit Was Filed

Figure 1


UNR INDUSTRIES
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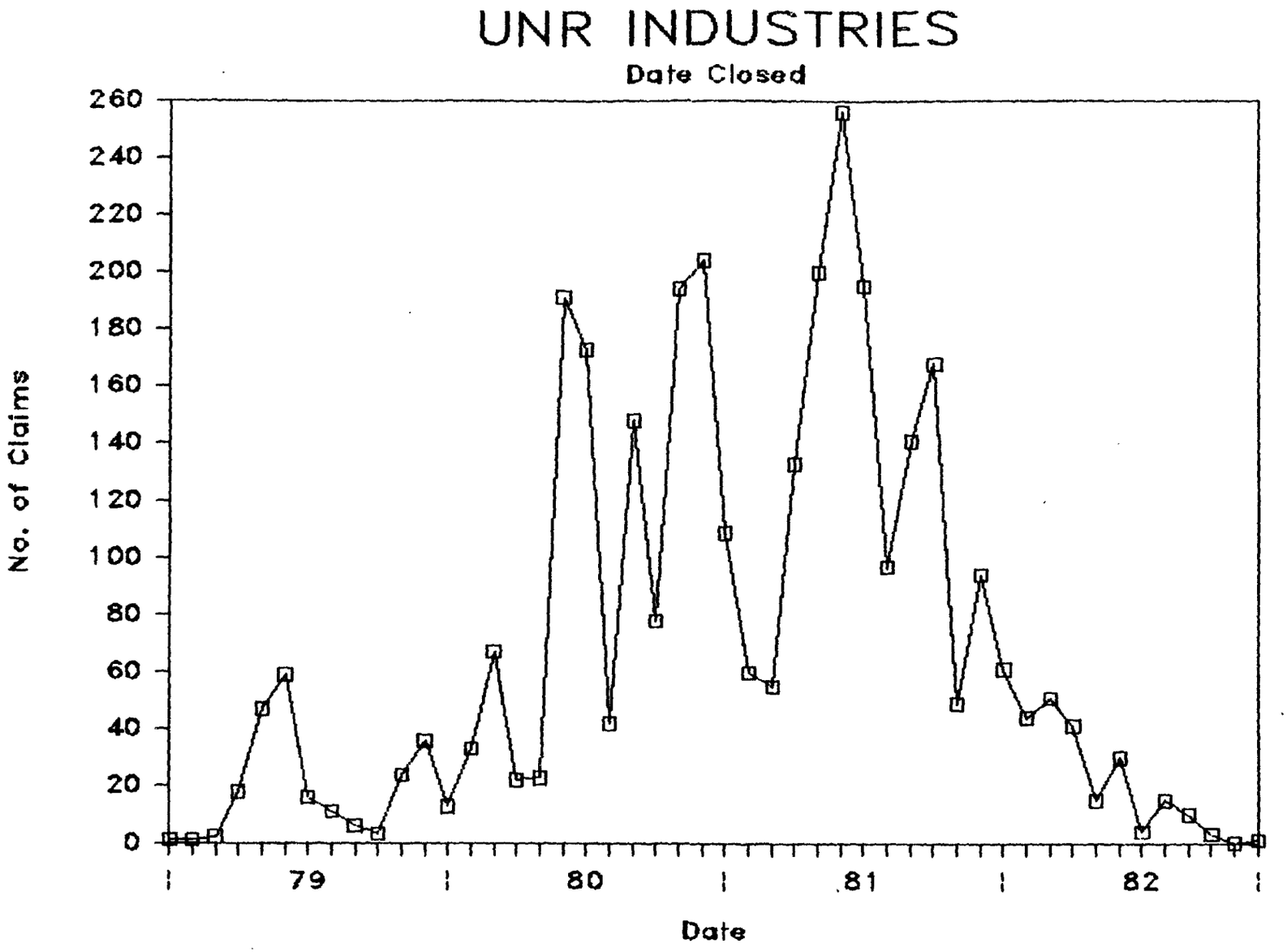
600
500
400
300
200
100
0
No. of Claims
79
80
81
82
Date

Figure 2


UNR INDUSTRIES
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140
120
100
80
60
40
20
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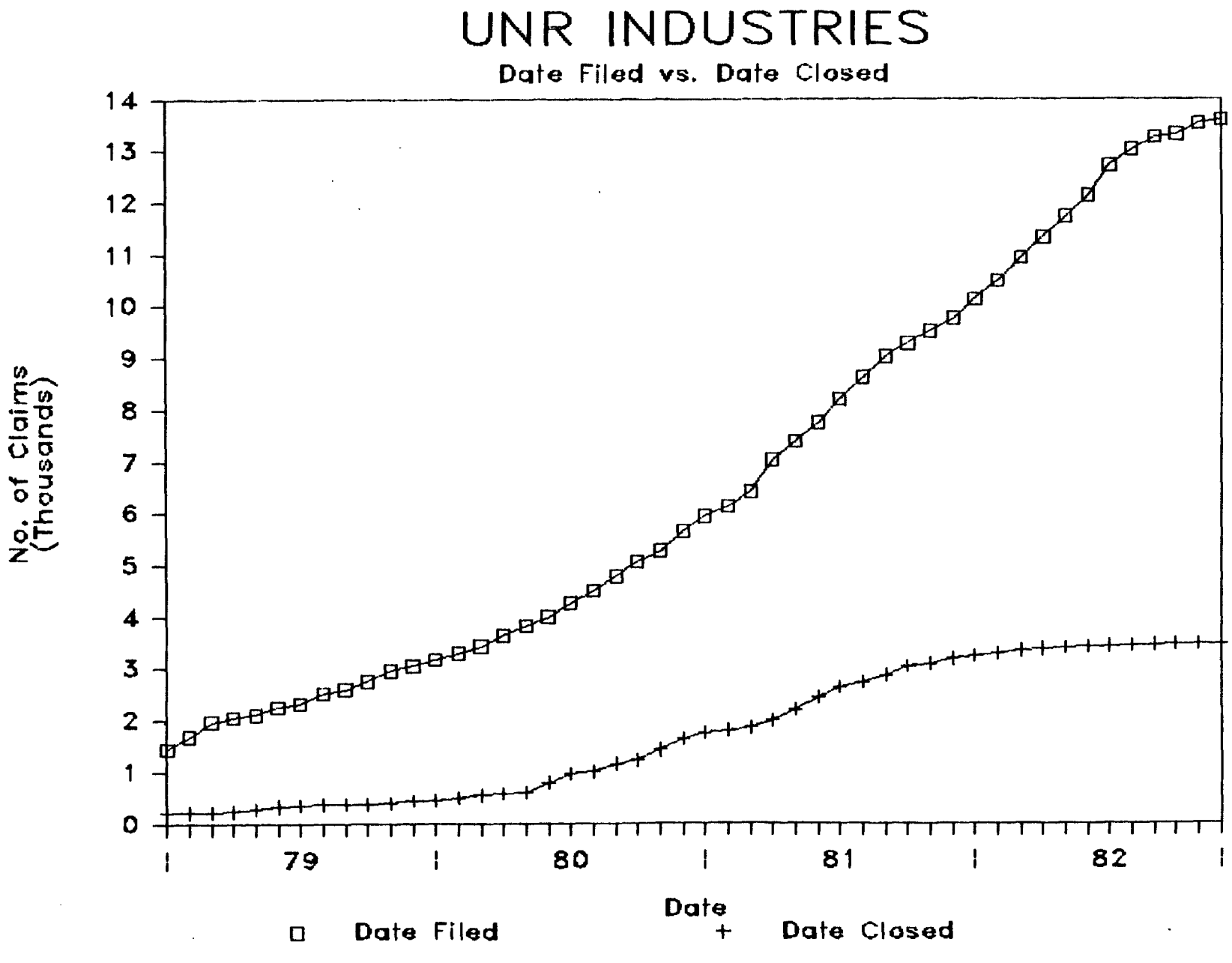
79
80
81
82
Date

Figure 3


UNR INDUSTRIES
Date Filed vs. Date Closed
No. of Claims (Thousands)
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13
12
11
10
9
8
7
6
5
4
3
2
1
0
79
80
81
82
Date
Date Filed
Date Closed

ACTUARIAL METHODOLOGY

SEVERAL DIFFERENT APPROACHES WERE EXPLORED AND RESEARCHED

1) Project UNR Claims from Past Claim Trends

2) Estimate Total Universe of Claims and Apportion to UNR based on Market Share

3) Estimate Claims as a Function of the Morbidity and Mortality of Asbestos Workers

DATA AND OTHER QUANTITATIVE INFORMATION WERE SOUGHT FROM:

1) Epidemiological Studies - Selikoff, Nicholson

2) Economic Evaluations - McAvoy, Walker

3) Legal Research Reports - Rand Institute

4) Insurance Research - Conning & Company

5) "Claims Information System" (A. Grant & Co./Lloyd's)

6) UNR's Claims Data Base and Claims Files

ACTUARIAL METHODOLOGY
OPEN CLAIMS

- NUMBER OF CASES KNOWN BUT COST NOT

- KEY CHARACTERISTICS AFFECTING COST
  - Multiple vs. Single Plaintiff
  - State of Jurisdiction
  - Court Type (State vs. Federal)

- ESTIMATE NUMBER OF SUCCESSFUL CLAIMS
  - Successful = Plaintiff Paid by UNR

- ESTIMATE AVERAGE COST PER SUCCESSFUL CLAIM
  - Adjusted for Inflation

- ESTIMATES COMPUTED BY STATE BY COURT TYPE AND BY SINGLE VS. MULTIPLE PLAINTIFF CASES
  - States Combined Where Numbers Too Small

- UNR'S OWN CLOSED CLAIMS HISTORY USED FOR ESTIMATING
  - Success Ratios
  - Average Costs per Case

UNR INDUSTRIES, INC.

EXAMPLE OF COST PROJECTIONS FOR OPEN CLAIMS

SINGLE PLAINTIFF CASES

ESTIMATED NUMBER OF SUCCESSFUL OPEN CLAIMS	TOTAL ALL STATE	CALIF (STATE)	PENNA (STATE)	TEXAS (FED.)	S.C. (STATE)
1. TOTAL NO. CLOSED CLAIMS	3,431	1,733	104	205	150
2. SUCCESSFUL NO. CASES	2,891	1,658	93	161	125
3. HISTORICAL SUCCESS RATIO	84.3%	95.7%	89.4%	78.5%	83.3%
4. PROJECTED SUCCESS RATIO	80.6%	95.7%	89.4%	78.5%	83.3%
5. NO. OPEN CASES	10,628	2,611	1,590	736	127
6. EST. CASES SUCCESSFUL	8,570	2,498	1,442	578	106
ESTIMATED COST OF SUCCESSFUL OPEN CLAIMS					
1. AMOUNT UNR PAID (000)	12,613	5,097	1,178	1,621	329
2. HISTORICAL AVERAGE COST	4,363	3,075	12,664	10,066	2,635
3. PROJECTED AVERAGE COST	6,699	3,075	12,664	10,066	2,635
4. EST. TOTAL COST (000)	57,409	7,680	18,005	5,818	279

ACTUARIAL METHODOLOGY
FUTURE CLAIMS

BASIC APPROACH:

1) **ESTIMATE THE NUMBER OF FUTURE CLAIMS**

   By Applying Selected Claim Frequency Rates

   to the Exposed Population

2) **INFLATE THE AVERAGE COST PER CLAIM**

   For Each Future Period Starting from the

   Open Claims Projections for Inflation

3) **PROJECT THE TOTAL COST OF FUTURE CLAIMS**

   By Applying the Inflation-Adjusted Average Cost

   to the Estimated Number of Future Claims

ACTUARIAL METHODOLOGY
CLAIM FREQUENCY RATES

- RATE OF CLAIM FILING PER 1,000 "EXPOSURES"
- EXPOSURES MUST BE MEASURABLE FOR PAST AND FUTURE
- EXPOSURES MUST RELATE REASONABLY WELL TO CLAIMS
- EXPOSURES MUST REFLECT CHARACTERISTICS OF ASBESTOS-RELATED DISEASES

ACTUARIAL METHODOLOGY
CLAIM CHARACTERISTICS OF ASBESTOS-RELATED DISEASES

DISEASES:

Asbestosis - Generally Non-Fatal

Mesothelioma - Always Fatal

Lung Cancer - Can Be Fatal

Other Cancers & Illnesses - Can Be Fatal

CLAIMS:

80% - 90% Asbestosis

5% Mesothelioma

7% - 15% Claimant Deceased

85% - 93% Claimant Living

MODEL ASSUMPTIONS:

Asbestosis - Claimant Living

Mesothelioma - Claimant Deceased

Lung Cancer - Claimant Living or Deceased

Other Cancer/Illness - Claimant Deceased

ACTUARIAL METHODOLOGY
EXPOSURE BASES

EPIDEMIOLOGICAL RESEARCH BY NICHOLSON, PERKEL & SELIKOFF

- **Defined High-Risk Population Exposed to Asbestos by Industry or Occupation**

- **Developed Mathematical Models to Predict Excess Deaths Caused by Asbestos-Related Disease**

- **Provided Population Estimates for Each Industry by Year of Entry into Industry**

ACTUARIAL METHODOLOGY
POPULATION AT RISK TO ASBESTOS-RELATED DISEASE

Certain Industries/Occupations with Significant Exposure

Primary Asbestos Manufacturing

Secondary Asbestos Manufacturing

Insulation Workers

Shipbuilding and Repair (excl. WWII)

Temporary WWII Shipyard Workers

Construction Trades

Railroad Steam Locomotive Engine Repair

Utility Services

Stationary Engineers and Firemen

Chemical Plant and Refinery Maintenance

Automobile Maintenance

Marine Engine Room Personnel

SOURCE: Nicholson, Perkel, and Selikoff, "Occupational Exposure to Asbestos: Population at Risk and Projected Mortality - 1980 - 2030," American Journal of Industrial Medicine, 1982.

ACTUARIAL METHODOLOGY
POPULATION AT RISK ASSUMPTIONS FOR UNR

- Construction Trades and Automobile Maintenance Excluded
  - UNR Products Not Used in These Occupations
- Population After 1964 Limited to Removal, Maintenance, Repair
  - UNR Discontinued Asbestos Manufacturing in Early 60's
- 4,325,000 Temporary World War II Shipyard Workers Excluded
  - Number of UNR Claims Small and Over 40 Years Since Exposed
- Percentage of Population at Low Risk Assumed Constant Over Time
  - Low Risk Equivalent to 2 Months as Insulation Worker
  - Projections Include Low Risk Population
- Population First Exposed 1972 - 1979 at Lower Intensity
  - Reflect Impact of Reduced Dust Conditions
  - Establishment of Safety Standards (Masks, etc.)

ACTUARIAL METHODOLOGY
EXPOSURE BASES

TWO SEPARATE SETS OF EXPOSURES WERE DEVELOPED

- **NON-FATAL CLAIMS**

  Number of Workers Living (Survivors) Projected for Each Five-Year Period from 1940 to 2050

  No New Workers Added to Population Base after 1979

  Selected Population Eventually Dies from Normal or Asbestos-Related Mortality by 2050

  Rate of Claims per 100,000 Survivors

- **FATAL CLAIMS**

  Excess Deaths Predicted by Epidemiological Models

  Excess Mortality Rates Applied to Population Base

  Rate of Claims per 1,000 Excess Deaths Computed Separately for:

  - **Mesothelioma**
  - **Lung Cancer**
  - **Other Cancers**

ACTUARIAL METHODOLOGY
EXPOSURE BASES

- **PERIOD OF FIRST EXPOSURE**

  All of the Selected Population Were Divided into "Entry Groups" Based on the Year Entering the Workforce in an Asbestos-Exposed Industry or Occupation (First Contact with Asbestos).

- **AGE OF CLAIMANT**

  Studies Indicate a Substantially Higher Propensity of Claims from Claimants Aged 50 to 69. This Characteristic Was Strongly Related to the Period of First Exposure.

ACTUARIAL METHODOLOGY
ALLOCATION OF HISTORICAL CLAIMS

CLAIM FREQUENCY RATES - Required an Allocation of the Total Number of Claims to Correspond to the Relevant Exposures.

FATAL VS. NON-FATAL - Derived from Sample Studies

- **5% - Mesothelioma Deaths**
- **10% - Lung Cancer Deaths**
- **2% - Other Cancer Deaths**
- **83% - Asbestosis & Other Non-Fatal (Survivors)**

DECADE OF FIRST EXPOSURE - Based on UNR Data Base

- **12% - Pre 1940**
- **48% - 40's**
- **25% - 50's**
- **13% - 60's**
- **2% - 70's**

ACTUARIAL METHODOLOGY
ALLOCATION OF HISTORICAL CLAIMS

AGE OF CLAIMANT (AT TIME OF CLAIM OR DEATH)

6.6% - Under 40

13.1% - 40 to 49

39.3% - 50 to 59

34.3% - 60 to 69

6.6% - 70 and Over

INDUSTRY OR OCCUPATION

55% - Shipbuilding & Repair and
Marine Engine Room Personnel

30% - Insulation Workers

10% - Chemical Plant / Refinery Maintenance

3% - Railroad Engine Repair and Utility Services

2% - Asbestos Manufacturing

ACTUARIAL METHODOLOGY
BACKLOG ASSUMPTIONS

INCREASED CLAIM FREQUENCY FROM 1977 TO 1982 INFLUENCED BY:

1) Increasing Awareness by Claimants of Asbestos-Related Diseases and Availability of Compensation

2) Increased Sophistication and Specialization of Plaintiffs' Attorneys

ADJUSTMENT NEEDED TO ACCOUNT FOR POTENTIAL BACKLOG EFFECTS OF CLAIMANTS WHO WOULD HAVE FILED EARLIER

THREE LEVELS OF BACKLOG ASSUMED FOR SURVIVORS:

1) Low, Moderate, High

2) As a Percentage of Survivors (1977 - 1982)

BACKLOG FOR DEATH CLAIMS ASSUMED BY INCLUDING EXCESS DEATHS FROM YEARS PRIOR TO 1977

UNR INDUSTRIES, INC.

EXAMPLE OF CALCULATIONS OF SURVIVOR CLAIM FREQUENCY RATES

INSULATION WORKERS

A. EXPOSURES (MODERATE BACKLOG)
(number of survivors in thousands)

	FIRST EXPOSURE				
AGE	1940	40-49	50-59	60-64	TOTAL
UNDER 40	-	-	3,966	12,288	16,254
40-49	-	3,562	35,973	13,508	53,043
50-59	585	30,533	26,266	6,892	64,276
60-69	5,684	19,641	12,522	3,949	41,797
OVER 70	5,975	8,877	7,338	2,532	24,722
TOTAL	12,244	62,613	86,065	39,169	200,092

B. CLAIMS (INITIAL ALLOCATION)

UNDER 40	-	-	91.4	78.7	170.1
40-49	-	141.0	345.6	85.0	571.6
50-59	113.2	1181.7	473.0	101.8	1869.7
60-69	315.2	939.8	329.1	70.8	1655.0
OVER 70	59.9	178.7	62.6	13.5	314.6
TOTAL	488.3	2441.2	1301.7	349.8	4581.0

C. HISTORICAL CLAIMS FREQUENCY RATES
(per 100,000 survivors)

						SELECTED MATURE RATES
UNDER 40	-	-	23.0	6.4	10.5	10.82
40-49	-	39.6	9.6	6.3	10.8	12.31
50-59	193.5	38.7	18.0	14.8	29.1	29.13
60-69	55.5	47.8	26.3	17.9	39.6	39.45
OVER 70	10.0	20.1	8.5	5.3	12.7	9.07
TOTAL	39.9	39.0	15.1	8.9	22.9	

UNR INDUSTRIES, INC.

TOTAL PROJECTED CLAIMS

ALL GROUPS, ALL INDUSTRIES

(MODERATE BACKLOG)

CALENDAR PERIOD	SURVIVOR CLAIMS	LUNG CANCER CLAIMS	OTHER CANCER CLAIMS	MESOTHELIOMA CLAIMS	TOTAL
1982-84	4,919	1,005	171	362	6,457
1985-89	5,962	1,515	248	1,064	8,789
1990-94	6,004	1,725	280	1,258	9,267
1995-99	5,316	1,663	266	1,298	8,543
2000-04	4,430	1,453	231	1,276	7,390
2005-09	3,502	1,142	179	1,115	5,938
2010-14	2,413	778	118	789	4,099
2015-19	1,574	468	68	503	2,613
2020-24	979	249	35	294	1,557
2025-29	525	114	15	148	802
2030-34	257	43	6	64	370
2035-39	123	13	2	24	161
2040-44	50	3	-	7	60
2045-49	11	-	-	1	13
TOTALS	36,062	10,171	1,619	8,205	56,057

UNR INDUSTRIES, INC.

LOW COST ESTIMATES

MODERATE BACKLOG

YEAR SETTLED	INFLATED (5%) AVERAGE COST	NUMBER OF CLAIMS	TOTAL INFLATED CLAIM COSTS (000)
1985	4,604	6,457	29,728
1986	4,834	1,758	8,499
1987	5,076	1,758	8,923
1988	5,330	1,758	9,370
1989	5,596	1,758	9,838
1990	5,876	1,758	10,330
1991	6,170	1,853	11,433
1992	6,478	1,853	12,004
1993	6,802	1,853	12,604
1994	7,142	1,853	13,235
1995	7,499	1,853	13,896
1996	7,874	1,709	13,457
1997	8,268	1,709	14,130
1998	8,682	1,709	14,837
1999	9,116	1,709	15,579
2000	9,571	1,709	16,357
2001	10,050	1,478	14,854
2002	10,552	1,478	15,597
2003	11,080	1,478	16,376
2004	11,634	1,478	17,195
2005	12,216	1,478	18,055
2006	12,827	1,188	15,238
2007	13,468	1,188	16,000
2008	14,141	1,188	16,800
2009	14,848	1,188	17,640
2010	15,591	1,188	18,522
.	.	.	.
.	.	.	.
.	.	.	.
TOTAL		56,062	624,715

PRESENT VALUE OF CLAIM COSTS AT 7% - $194.5 MILLION.

UNR INDUSTRIES, INC.

SUMMARY OF LIABILITY PROJECTIONS

	NUMBER OF CLAIMS	AVERAGE COST PER CLAIMANT	ESTIMATED TOTAL COST (millions)	PRESENT VALUE COST (millions)
OPEN CLAIMS	14,116	$ 4,250 - $ 5,313	$ 60 - $ 75	-
FUTURE CLAIMS	48,020 - 68,389	10,412 - 11,698	500 - 800	-
TOTAL	62,136 - 82,505	9,012 - 10,065	560 - 875	$210 - $325

INFLATION 5%

DISCOUNT RATE 7%

Panel Sessions 5A/6F

COMMON PITFALLS IN RESERVE ANALYSIS

Moderator: Martin Adler, Vice President & Actuary
GEICO

Panel: Bertram A. Horowitz, Assistant Chief Casualty Actuary
New York Department of Insurance
Richard E. Sherman, Partner
Coopers & Lybrand

1985 Casualty Loss Reserve Seminar

Kansas City, Missouri

And welcome to the session called "Common Pitfalls In Reserve Analysis. I'm Marty Adler, I'm going to serve as your moderator. The session this morning might be a bit of a break from what we've had so far in the seminar. At least some of the sessions have dealt with how to reserve properly. This might be subtitled "How not to reserve." The opinions that are going to be expressed by my panelists are their own, they do not necessarily represent those of the Academy, the CAS, their employers, or mine. The first speaker this morning is Bert Horowitz. Bert is a fellow of the CAS and a member of the AAA. He has his bachelors degree from the State University of New York in Applied Mathematics, and he has a Masters in Mathematics from Brown University. He is presently Assistant Chief Casualty Actuary with the New York Insurance Department and previously worked for the Royal Insurance Company. In his present capacity, Bert has been quite active in reviewing companies that have fallen into financial difficulties, particularly, those showing up through the inadequacy of loss reserves. Bert has his hands full because of what we all know is going through the insurance industry at this time. However, I think that he has some interesting insights to offer on what has gone wrong in a number of areas on companies reserving. I'm going to ask Bert to step up now. Just one word of note here. We will entitain questions during the presentation. We would prefer they be the type that would simply elaborate on the explanation on what's being said, rather than to move out into auxilliary areas. There will be time for questions at the end as well. I will reserve the right to cut off the questioning if it interferes with the probably of getting through what we have proposed to say.

Horowitz: Thank you Marty and good morning. The most common inaccuracy or pitfall that see as a solvency regulator is not in the analysis but rather in the data. There are certainly pitfalls that occur in the analysis but the very first thing we look at is whether or not the company has accurate data. The annual statement information is generally the starting point as insolvency regulator. There are three types of inaccuracies that occur in the annual statement data. The first is that the annual statement data is eternally inconsistent. The second is that it produces strange or improbable results. The third is that source documents that the company has internally do not aggregate to the annual statement data. The first kind of error or inaccuracy in the annual statement is that they are internally inconsistent. The kinds of things that show up are that the Schedule P Part 3 does not agree with Schedule P Parts 1 and 2. Schedule P reserves do not agree with the Part 3 reserve. That Schedule P Part 3A does not agree with Schedule P Part 3. That Schedule O doesn't agree. Schedules O and P do not agree with the carried statement reserve. That reserves are carried to page 3, line 1 inaccurately, and line 2 loss adjustment expense reserve. And there are various other schedules and exhibits that can be used to cross-check that often don't agree with each other, like Schedule T and page 14 of the annual statement. It's not necessarily true that in all cases that this agreement will not necessarily be an error, but it will point to us asking questions to further investigate it. In the second kind of inaccuracy that shows up, the annual statement produces strange or improbable, but not necessarily impossible results. Some examples of that are negative IBNR's going up in Part 1F. Negative known case reserves implied by taking the losses unpaid in Schedule P minus the part 1F IBNR. Negative paid losses that show up by successive comparisons by Schedule P's in successive annual statements. For instance cumulative paids through the 1983 annual statement of a particular accident year being $1 million, but for that same accident year the cumulative paid in the 1984 annual statement is $900,000. Another kind of improbable or strange result is that the earned premium of two successive Schedule P's for a particular Schedule P line for a particular calendar year does not agree with each other. Those should be fixed; there are some exceptions. Another type of inaccuracy or improbable result is a strange or wild pattern of development. And the third inaccuracy that shows is that source documents do not aggregate to the annual statement. We often find that you can't trace easily or you can't sometimes trace at all how the company

compiled its annual statement. There are often reinsurance entries missing. Manual entries made at the very end with no apparent reason and sometimes no trace whatsoever of how the annual statement was compiled. Again, we will be checking paid losses, known case outstanding, IBNR counts, reinsurance by accident year, premium and checking discount, if any, of source documents to see if they agree with the annual statement. Investigation of those three items, consistency of the annual statement, the strange or improbable results and the source documents often gives us much insight into the company under examination or the company for which we are doing analysis. A large part of our analysis rests with an understanding of the company data and also gives us insight into the organization and the data processing and the accounting process of the company under examination. Of course, it pinpoints any data problems and narrows some of the issues. It also gives us some information about the potential distorting effects in some of the analysis that may need special treatments, such as discounting. That will often come up when we are looking at the statement. Claims made policies - that will also often come up. That will help explain some of the strange or improbable results we might see. Portfolio transfers also produce strange and wild developments which we can adjust for reinsurance as well. One is also able, from learning much about the statement just by investigation of those three items, to reconstruct the data base and reslice it, or repartition it or reportion it in order to be more suitable for an actuarial analysis of the reserves. So summarizing this whole first point, the one major inaccuracy or pitfall or distortion is to not understand what the annual statement says and not adjust for any inaccuracies or improbable results that are in the annual statement.

The second class of pitfall or inaccuracy I want to go into is related to the first, and that would be a misinterpretation of data. One major misinterpretation which I often encounter is a failure to understand what the loss reserve is. Loss reserves are not money locked away in a vault to do something. Loss reserves are assets set aside. They're the amount of funds that a company must set aside from its assets in order to pay claims. The statutory balance sheet is designed on a liquidation basis so that it's a snapshot of a particular point in time to determine whether a company at that particular point in time can, with its assets, pay all its obligations, and usually the biggest obligation is its loss reserve. The second kind of misinformation or misinterprepation is that often I hear, "Well, we have various estimates on the loss reserve and they're one or two or five percent off from each other, and that doesn't make a difference." Well, sometimes it does and sometimes it doesn't. That goes into the concept of leverage. In a company where there is a million dollar loss reserve and a million dollar surplus, a small percent change will not make much of a difference. On the other hand, a company with a million dollar loss reserve and a $50,000 surplus, a 5% swing in the loss reserve will render the company insolvent. So, small changes in loss reserves can or may not make a difference in the overall financial condition of a company.

The next misinterpretation of data I would like to go over is what I call a fallacy of strengthening. Often I hear, "We strengthened our reserves a million dollars last year." I wanted to go over a slide with you to show you some of the problems I encounter with that. I've set up an example here where the experience of a company is extremely consistent, as you can see from Schedule P, Part 2 of the annual statement. It is often alleged that you see we've strengthened our loss reserves $1 million last year going from 12/83 to 12/84, and so our loss reserves at the end of this year are now adequate. This company, as I've set it up, is really using the term strengthening to mean continual acknowledgement of deficiency. Every year they "strengthen" such that they acknowledge a $1 million deficiency each year. The 82 reserve on accident years 82 and prior was $2 million deficient, the 83 reserve on accident years 83 and prior has acknowledged to be a $1 million deficiency and it will ultimately emerge as a $2 million deficiency, and so will 84 reserves as I've set it up also ultimately pan out to be $2

million deficient. This company hasn't strengthened. This company just continuously acknowledged a deficiency in its reserves. And its current reserves are just as adequate as every year's initial reserves. Strengthening means an increase in adequacy of reserves. This company has the same level of inadequacy of reserves, namely its initial reserves is always $2 million deficient. Another kind of misunderstanding that I often encounter is the question of how statutory solvency works. In taking this company as an example, this company may have reported itself having a surplus of $1 million at the end of each annual statement date. And so it reports itself solvent. Yet for the 82 year we can now see that its $1 million surplus, just on the basis of its loss reserves has ultimately panned out to be a $1 million insolvency because its loss reserve that it carried was $2 million deficient. Similarily, the 83 reserve will be $2 million deficient, and the 83 surplus that it initially reports of $1 million will ultimately pan out to be $1 million insolvent as will 84. It is often asked, "How can a company that's continuously insolvent continue to exist?" There are two answers. First of all, once again, statutory accounting is a snapshot so that at each point in time if a company liquidated, it were able to pay with its assets its liabilities. The company is using its premium from future insurance to pay losses for old claims and existing on a cash going concern basis. And secondly, statutory accounting does not generally permit discounting and the company is getting the benefit of some of the investment income it's earning on its reserves. I want to go into some of the more outrageous loss reserve methods that some companies use to establish their loss reserves. This first class of methods is really more of a manipulation rather than a bonafied method. In more than a few companies I've seen this. The chief executive officer of a company sees his balance sheet at 12/84 and says, "Gee, I have assets of $1 million" - add them all up - there is nothing very indeterminate in them, and I have non-loss and loss adjustment expense reserves, 300 thousand. And now I have to decide my loss and loss adjustment expense reserves. Well, in 84 I had a written premium of $500 thousand, and I know the NAIC Early Warning tests or IRIS ratio say that if I have three to one or more I'm not doing too well. So I'll work backwards. Premium to surplus ratio of two to one sounds good. So I'll make this 2.50, this becomes 4.50, and this becomes 7.50, and now I'm done. My loss reserve is $450,000. I've actually seen some companies where they work backwards like this, and, of course, this 4.50 has absolutely no relation to the true liability. The statutory accounting and the insurance laws of each state require that this be an adequate of the estimate of the true ultimate loss adjustment expense liability. Closely related to that kind of manipulative sort of loss reserving is a misuse of a whole class of ratio methods. These methods would fix the loss ratio, and thereby assume that the premium collected was adequate and keep that assumption fixed regardless of the experience. So in computing the accident year 1980 reserve at 12/80, a company might look at its earned premium of $1 million. In loading in the rate of this earned premium for loss and loss adjustment expense reserves was 60%, so its ultimate loss and loss adjustment expense is that we're presumed in the rate at $600,000, $1 million times .6. Now for 12/80 it looks at its accident year paid through 80 and it gets 400, so its reserve that it carries at 12/80 is the 600 minus 400, or 200. Holding this position ad infinitum can yield an implausible result. For instance, accident year 80 paid by 12/84 may be 700, which produces the absurd result of a negative 100 loss reserve. The loss ratio method may be appropriate for a very new company in a very new line of business. And there is a method called the Bornhutter/Ferguson which starts with the idea of having a fixed loss reserve ratio, which gives less and less weight to that ratio and more and more weight to the actual experience as it emerges. So, one does have to make a distinction when you really do know nothing else, that a loss ratio method may be an appropriate one, but as more and more data comes in which seems to controverse that fixed loss ratio, one should move further and further away from relying on that a priori estimate of loss ratio. Related to this thought of loss ratio analysis is taking IBNR as a fixed percent of premium. "We have for the last 30 years taken 20% of our earned premium and that's our IBNR." There are many potential fallacies in that. First of all,

the adequacy level of the premium may be entirely different than 20 years ago. Second, the mix of business that the company is now in may be much longer tailed, and if it is much longer tailed, then the exposure and the IBNR is much greater. Thirdly, that the adequacy of the known case may be totaly different, and that method presumes that the known case is at the same adequacy level. There are other potential fallacies in using that method.

QUESTION: (inaudibale)

Of course, often they don't do that reconciliation, and they just look at the aggregate reserve and solve backwards, which may imply a negative IBNR. Secondly, it still may be true that the known case reserve is what it is, and either of these two answers give a total reserve and one gets by subtraction the IBNR which still may be positive and implausible.

QUESTION: Bert, will they actually show a negative IBNR?

I've actually seen several companies that do have a negative IBNR. What the answer, when it's pointed out to them, is often given to me as the fat or redundancy of the known case is so great, that it more than overwhelms the new IBNR. These examples of taking percent of premium can be even further aggregated by the error that would result from them can be further aggregated by a company which is discounting. If a million was the correct premium, and 60% was the correct loss ratio on a present value basis, that 60% undiscounted may ultimately pan out to be 200%. And a company continuously adhering to the 60% that was true at time zero, if they adhere to that at time 10, they yield an even more absurd result than a company which is not discounting when their loss experience shows up to be worse than applied in the premium. I wanted to mention several other fallacies or inaccuracies that I often see. One very frequent one is the complete ommission of the unallocated reserve. The unallocated reserve is the real required reserve for loss adjustment expenses which are not specifically assignable to claims, and there is indeed a actual footnote formula in schedule P to show how the payments should be apportioned to each accident year. New York and each state requires that each carrier carry a loss reserve to cover that ultimate payment. Another common ommission I see is the failure to include the excessive statutory reserve. Again, there is a footnote to schedule P which shows the formula for computing the excessive statutory reserve to be carried on page 3, line 16 of the annual statement. Often companies completely ignore it. Perhaps worse, often companies manipulate their loss reserve in order to not have a statutory reserve. And that is they are aware of the statutory reserve requirement, and they carry the correct total liablity but move it around by accident year in order to not generate a statutory reserve. One final error or misunderstanding or misinterpretation I wanted to mention was the failure to adjust the company just entering or just leaving rehabilitation when evaluating a balance sheet or a loss reserve. It's kind of a two-edge sword. A company just leaving the rehabilitation, its loss experience in the recent past may be improved because the receiver or the judge or by negotiation, the settlement process has settled claims for say 70¢ on the dollar. On the other hand, the company may have truly improved, and that's presumably the reason the company was let to be out of rehabilitation. So, adjustments for that are difficult but should be taken into account. And they are very common in the work that I do because I'm dealing often with companies that are on the edge of rehabilition or just coming out of rehabilition. My collegue, Rick Sherman, will delv into some of the more technical common pitfalls in loss reserving. Thank you.

Adler: I have couple of observations. One is the strengthening fallacy that you mentioned, where the companies are really technically insolvent but they don't know it. I

think of that as the looney tunes affect. I don't know how many of you here are as old as I and remember when there used to be cartoons in the movies. There always seems to be a case where one of the characters walks straight off a cliff and walks in mid air til he realized where he was, and then dropped straight to the bottom. Bert, I wanted to ask, how often are statements in error? You talked about the inconsistent data.

Horowitz: I haven't had the statement yet that didn't have some error, but I would say 50% of the statements have a material error.

Adler: Just in case we think that this applies only to other companies. There was one other question I wanted to bring up now to elaborate on what you said. The negative reserve, you say sometimes companies actually show a negative IBNR, but are there other ways it shows up such as it being hidden somewhere?

Horowitz: Well, it could be in a negative known case. I've often seen companies have a negative known case, and you won't actually see a negative number in the annual statement, because the losses unpaid will be a positive number in Schedule P, Column 9, and the Schedule P Part 1F, IBNR will also be a positive number, but when you subtract the two that implied a negative known case reserve for a particular accident year, and yet the Part 3 known case reserve will be positive in the aggregate.

Adler: Do you ever see the situation where they're simply cheating the present year in order to acknowledge what's already materialized in the older years, as perhaps assume a constant loss ratio?

Horowitz: Yes, in fact several of the examples I showed in effect do that. If you fixed the loss ratio, you may be cheating years by moving back the liability or moving forward the liability, and in the example of when a company is retrospectively declaring itself insolvent, it's in effect cheating by not showing a liability at all, and it's emerging as it's reported.

Adler: Rick Sherman is a member of the Program Committee of this seminar. He has bachelors and a masters degrees in Mathematics from the University of California. He is a Fellow of the CAS, and a Member of the AAA. He is currently a principal with Coopers and Lybrand out of the San Francisco office. He directs a staff of ten consultants in the West Coast area. He has been a consulting actuary for some 10 years, both with his present employer and with another consulting firm. He has also served as commercial lines actuary for the Fireman's Fund Insurance Companies for a three year period. He has conducted studies of loss reserves for 15 of the 60 largest insurers in the U.S., and so he has a broad insight into some of the reserving practices in the industry. He is also an author. Some of us think of him as a half actuary. He is half of the author called Berquist Sherman, a standard text on the CAS syllabus. For this paper, Rick and Jim Burquist have won two prizes awarded by the CAS. It is entitled, "Loss Reserve Adequacy Testing, a Comprehensive Systematic Approach." Anyone who has struggled with the current CAS Part 7 Exam is well acquainted with it. He recently authored another paper, "Extrapolating, Smoothing, and Interpolating Development Factors." Over his career he has analyzed total loss reserves of $25 billion, counting each company's reserves only once. Rick is going to talk about some errors made by people who try to apply actuarial methods but don't quite do it right.

Sherman: Thank you, Marty. First I want to suggest three possible sub-titles for my talk this morning. The first is, "The Hazards of Intuitively Appealing Ideas." I think most of the techniques that I'm going to talk about today have a lot of intuitive appeal and yet produce a result which is not accurate. A second title comes from Alexander Pope, "A

Little Knowledge is a Dangerous Thing," or a third is, "How a Local View and a Global View Can Differ."

I want to start out on that last sub-title with an analogy. I would submit to you that based solely on your personal experience, you could very reasonably come to the conclusion that the earth is flat. As far as the eye can see and in one's personal experience, it generally looks flat except for various undulations that one sees, and if you're out on the ocean it appears that way as well. You could further argue that a property of water is that it flows to the lowest level, and if the earth is round or something like it, then where ever you are on the ocean surface, water should be flowing away from you because it fills in all the low spots. Therefore, the earth must be flat, because whereever I am, the water isn't flowing away from me. Now the assumption that the earth is flat is at least locally not a bad one. After all, the curvature of the earth is only about 1 foot per mile, and so the error in that assumption is only about 200ths of 1 percent. However, if you tried to live on that basis, and decide to take a trip straight out horizontal from here for 4,000 miles, you will find yourself 1,656 miles away from the surface of the earth. And so, the further out that you go the error compounds. For all of us, I think, our only basis for knowing that the earth is round, unless there are some astronauts in this audience, is that we've seen some photos of it and we've been taught about it in our science courses. It is not based on personal experience.

Now I want to go from talking about space as a variable to talking about time as a variable. Here the local view represents those that spend a lot of time working on individual claims. The actuary is more like the astronaut who can't see that individual claim file, but he can see the overall process and where it's going over time. Let's turn to Exhibit 1. It represents the global view of the whole claims process. Here we have one line of business (workers' compensation), and one accident year (1975). We are tracking the overall results for all incidents that occured in accident year 1975. In the first three columns, we look at the individual calendar year results. The first year of development is what happened during calendar year 1975. We closed 16,568 claims for an average paid loss of $332. During 1976, 18,416 claims were closed, and the average paid loss during 1976 was $699. Observe here that in the first two years we managed to close about 95% of all claims. So we've taken care of the vast bulk of claims. And of all those closed during the first two years, we have a cumulative average paid loss of $525. Well, one technique that I have seen applied, probably 3 or 4 times, is that one way to test the adequacy of the outstanding reserves is to take a look at the cumulative average paid loss and to multiply it by the number of outstanding claims. After all, you have closed almost 35,000 cases and you know what they're worth, and the 1,500 or so ones that remain are probably similar to the ones that have already been paid. Well, lets look over in the last three columns. Now column 7, you will note, is entitled "Hindsite, Outstanding Reserve." Now what that means, is that we're standing right here at the end of 1985, and virtually all the claims have been closed. We know now what the total case and IBNR reserve should have been as of the end of 1975 plus or minus a very small amount. At the end of 1985, about $1,400,000 remains in reserves. There could be some error in those reserves, but plus or minus 100 or 200 thousand, we know that the reserve that should have been established at year end 1975 is $30,718,000. We get the hindsight outstanding reserve by taking our latest estimate of incurred loss and subtracting payments to date through that point. If I were applying that first reserve technique as of year end 1976, I would take my cumulative average paid loss of $525, multiply it by the number of open and INBR claims, ($2,914) and come up with a reserve estimate which will be grossly understated. Now, the actual average hindsight reserve, at this point we can say within a very small error, should have been around $6,125 rather than $525. So what was shown here is that the average of the remaining claims at this point was about 11 or 12 times the average of the claims that have been paid through those first two

years. So techniques that use an average paid loss to estimate an average outstanding loss have some real problems associated with them, and I would definitely not recommend them to anyone.

I would like to go on to a second situation which I think is a very common one, versus the one just described which I don't think is too terribly common. The first thing that our moderator, Marty Adler, pointed out to me, is that I had an error in Exhibit 2. The second final reserve of $12,000 should be $15,000, and that follows through on all the numbers in this exhibit. That's a relatively small amount, or at least it doesn't change the kind of conclusions that can be drawn from this exhibit, so I won't bother to have you follow through all of the changes. I've often seen exhibits where the final reserve is compared with the amount paid upon closure of a claims -- on an aggregate basis for a particular group of claims. In this particular case, we're tracking a given group of claims where the incidents occurred in 1979. And what we find here is that there have been, except in the last year, pretty consistent savings upon closure of claims, in fact, very substantial savings - 64%, 83%, 87%, 50%. On an overall average, percentage savings on closure of all claims was 27%. Now, maybe I should ask the audience,"What can we conclude about the adequacy of reserves in this particular case?" I see this type of analysis frequently from claims departments. It is used to monitor what is happening with the reserves. I would submit to you that you can't conclude anything about the condition of the reserves based on these statistics. All it is saying, is that reserves tend to be a bit redundant just prior to closure, which makes a lot of sense. You're just about to settle the thing and there aren't too many surprises. Most of the surprises are at that point are that you end up paying nothing or little at all in case things go your way. So you end up with a pretty nice savings amount.

Exhibit 2 presents a hypothetical example, that contains many of the characteristics of the claims process which are critical to understand when you're doing a reserve analysis. In this example, there are only ten claims for accident year 1979 (for the sake of simplicity). What we have done here is to track the incurred losses as of each year end. So, for example, claim No. 1 had a reserve of $5,000 at the end of 1978 and $5,000 at the end of 1979. It closed during 1980 for $2,000, and so the incurred amount continues to stay at $2,000 for subsequent year end amounts. We have this for ten different claims. Now, the top half f the exhibit was derived from the bottom of the exhibit. We have totaled up the amounts paid in the year closure, and compared them to the reserve for the prior year end to come up with the numbers on this particular exhibit.

There are several things to note about Exhibit 2. First, eight out of ten of these claims settled for less than the initial reserve. Eight out of ten! Nine out of ten settled for less than the final reserve! So knowing nothing more than what I have told you so far, you might that this company really has some redundant reserves. Well, let's look at the bottom line. What has happened in some cases is that there has been a substantial change between the initial reserve and the final reserve. Claim number eight is an example. A $25,000 reserve goes to $100,000 and then it finally settles for $50,000. I think that is the only one of that type. Exhibit 2 is illustrative in that, typically, about 70 or 75% of claims will settle for less than the reserve. It's only about 10 or 15% of the cases that are going to start developing very adversely. And the basic problem is that that 10 or 15% that develop adversely usually tend to develop so adversely that such unfavorable development more than cancels the favorable development on the other claims. And so the overall net result tends to be an upward movement in total incurred losses. What you have here is a situation where looking at it on a basis of savings and final reserves, you show redundancy. Looking at the overall numbers, you conclude that there is substantial difficiency.

Now, lets take a look at it from another standpoint. Suppose I am an IRS agent, and I'm going to apply the closed claim technique to this particular block of claims. What I'm going to do is go back to the claims that were closed as of 1981 and compare the amount closed on those cases with the initial reserve back at the end of 1978. Well, if I do that in this case I come up with total payments of $8,000 and total initial reserves of $41,000. In other words, reserves are 80% redundant. The actual case here is that the original $71,000 reserve should have been $193,000. However, the IRS close claim method is telling you that you have massive redundancies. Isn't it interesting that the IRS has chosen a technique which maximizes taxes!

Now, another question that commonly arises here is, "Suppose, we had brought a claims auditor in to look at these claims and to come to some conclusions as to it. Maybe it's just the notion that these people are not setting case reserves adequately." There is a lot of value in having a claims audit done from time to time. However, there are limitations to the value because even the best claims auditor is restricted by only being able to look at the facts that are in the case file at the time. What a good claims audit will tell you is what reserves should be established -- based on the facts that are currently in the file. The problem is that over time, these facts change. Let's take claim number 8 or 9. All of a sudden, there were rumors of a lawyer being brought in, so they upped the reserve a bit. Then they brought in a lawyer and the reserve was again increased. Then they replaced the lawyer with F. Lee Bailey and the reserve was raised again. And then they finally settled the thing. I think the point here is that even the best claims audit cannot anticipate how the facts will change over time on some of these files. Any questions so far?

In your handout, there are about 4 or 5 pages of discussion on the CAS's position on the closed claim method. I've included that for your reading at some subsequent time, rather than spending time on it currently.

Now, I would like to go on to another common problem, which occurs in the establishment allocated loss adjustment expense reserves. In Exhibit 3, we have a display of the paid loss and paid allocated experience of what I would call the Boring Insurance Company. It's so boring that it writes the same business every year. Every year paid losses are the same: $1 million is paid the first year, $2 million the second in losses, $500,000 the third and $300,000 the fourth. And it's so boring that the paid allocated even comes out the same. In the first year, $15,000 is paid in allocated; $70,000 the second year; $30,000 the third; and $30,000 the fourth. Now I've done this because sometimes people think this particular fallacy is caused by the growth of a company. What I want to show is that the growth of a company may effect how incorrect this method is. But even if there's no growth, it's still incorrect. You'll notice here that there is a diagonal line which separates past from future payments. Because this company is so boring we know what it is going to pay out, and the total required loss reserve here is the sum of the payments below the diagonal line ($3,900,000). Now the sum of the future paid allocated is $230,000. This example was constructed with some rounding from live data in terms of the payout pattern, although it was truncated a little bit. The key assumptions are based on actual workers' compensation data. In that first year of development, allocated was 1½ percent of paid loss. In the second year, paid allocated was 3½ percent of paid losses, and these are on a decumulated bases rather than cumulative. In the third period, paid allocated was 7% of paid loss and then it went to 10%. A very common pattern. That ratio goes up over time. Now, what is the common method. To estimate the allocated loss adjustment expense reserve, what we note is the ratio of paid allocated in a given calendar year, and to get that you sum up a diagonal ($150,000), and then you sum up the paid losses for that particular year and you get a ratio. Here it's 3.9%. Again, this is the Boring Insurance Company, so this ratio never

changes. Okay, we've taken a calendar year ratio, we apply that to the loss reserve, which in this case we know exactly ($3,900,000), and that gives us a reserve of $154,000. Okay, so that's what the estimated allocated reserve is based on this calendar year paid technique. Now, what is the actual required reserve? It's $230,000. And so the actual dificiency in the reserve here is almost 50%. How did this come about? Basically, what we have done is we've taken a slice of this loss information which is a calendar year section. Now that takes a portion from the first, second, third and fourth years of development. So, in effect, it's like taking a straight average of these four ratios (1.5%, 3.5%, 7% and 10%). However, if we're going to determine the reserve or determine a percentage to apply to the reserve, we need to note the fact that what we ought to do is drop the 1 1/2% out of that weighted average because we aren't including that in the calculation here if we're taking the ratio of the reserve, one reserve to another. We count the 3 1/2% one only once in our weight. The 7% ratio will get a weight of two, and the 10% ratio will get a weight of three. And so what you're doing, if you're really going to apply a ratio to the loss reserve, is you've got to take these amounts and give heavy weight to the percentages for later periods of development. Because these percentages go up significantly, the result is going to be that this technique will fairly consistently underestimate the reserve. Now I submit there may be some exceptions. Nevertheless, I think the application of appropriate allocated techniques is what is required here. Any questions on that?

The next topic is the selection of tail factors. No cheating and looking ahead in the exhibits that you've got. What I want to do is to look at the common situation, where you only have 3 or 4 years of development that you're looking at in you incurred losses, and what you've got to do is try to select an incurred development factor for the remaining period of time. This is called, "picking a tail." The first example I want to look at - we're looking at general liability losses. This is actual data. In this particular case, I happen to have 15 years of development on this company, but I'm just going to show you what the first three development factors were, and let you pick what the factor ought to be from four years to ultimate. In the first year, from 1 year to 2 years of development, we have 1.84 as our incurred loss development factor. Then we have 1.28. Then we have 1.18. Now, that's all the information that we have in terms of an average development factor for this triangle, and we only have 4 years of experience. We're faced with the task of picking a factor that will get us out to 15 years of development, and all we have is this type of information. The question is what factor you pick. How many would pick a factor less than 1.1%? How many would repeat the last factor, say 1.18 (still no hands) 1.25 - that look better? 1.3? The actual number here is 1.33. Let's take another example. Worker's comp. The first factor is 1.49. Second is 1.17. The third is 1.09. Now let's see if we can pick a factor, this is plain vanilla workers compensation. We know the results out to 15 years. How many want to repeat the last factor of 1.09? How about 1.15? 1.2? Looking at 15 years it was 1.21. Now let's go to something that's a little more wild. We'll go from worker's comp to excess malpractice. First one is 7.88. Next is 2.17. Then 1.65. Okay. How many want a factor less than 2? 2 1/2 3? 3 1/2 It is 3.57 to 15 years. And finally, excess workers' comp. 1.63, 1.29, 1.17. How about 1.4 - that sounds nice and conservative. Well, the actual number is 1.69 going out to 15 years. In this particular company, I happen to have it out to 25 years. To get from 15 years of development to 25 years of development, you need an extra 1.22. So the actual factor should have been about 2. Now, I guess the point of all this is that it's pretty tough when you're in that situation of only having 3 or 4 years experience to pick an adequate tail factor. I think repeating the last factor may work for something like automobile BI, but for these particular 4 lines it tends to be light in terms of the factors it comes up with - GL, workers comp, excess malpractice and excess workers' comp. (See Exhibit 4)

Now, let me try another example on you. That is that you used to be a primary comp carrier, all of a sudden you make a shift and all you write is excess comp. When you are applying your reserve analysis you use your historical factors, (Exhibit 5) which are those right up here in this line. However, what you should have been using in this particular case is the excess factor for work comp which is this (Exhibit 4). All I'm really saying here is that you really have to be careful about shifts in the book of your business, because different types of businesses can have different development patterns. Any questions at this point?

What you have in your handout are first some backup for what I just showed to you. You'll see a page that looks like this (Exhibit 5), and this shows actual development factors from age to age. It's a composite experience of 5 major carriers for each of the lines of business - auto BI, general liability, and workers' comp. It's all primary business, basically. There might be a little bit of excess, but it's very little. And, it was on the basis of these actual factors that I presented to you the previous examples. It is an interesting excercise to cover up the future and see if you can predict it based upon what you knew previously. That is what my most recent paper is about coming up with a curve fitting technique to try to do that. It's an interesting set of factors to look at, and probably a little bit scarey. What we have on the second exhibit (Exhibit 4) is a quick summarization of the incurred loss development study done by the Reinsurance Association of America. This is a very large body of data, and what I've done is take the average factor for the latest 10 accident years for each stage of development. And it shows here the actual factors and the fitted factors using this particular mathematical function. Well, regardless of the fitted, I think it's interesting here to look at the actual development on this large body of data from reinsurance companies and to see how long a tail these different lines have.

I want to close by covering what I think is another common problem, and that is the tendency to rely upon only one actuarial method in doing an analysis, and in doing so, to not be too worried about whether or not the underlying assumptions of the method are correct or not. I'll run through this fairly quickly, because I know you've already seen the techniques. In the first case we have an analysis performed by M. Penn Dingdoom (Exhibit 6). Mr. Dingdoom uses a standard incurred loss development technique. He selects average factors. He applies a standard technique, and comes up with a reserve in this case of $143.7 million for the particular company. The problem is, the established reserve is $100 million. Now to add to the confusion, there is a second analyst who only believes in applying one technique, and that technique is the paid loss development technique. His name is Moore Caw Shush. Now Mr. Shush in this particular case applies the paid technique in a very standard matter (Exhibit 7). Mr. Shush takes a average factors from the experience, and to get his factor to ultimate of 1.33, what he does is he takes the ratio of his ultimate incurred for the oldest year, then compares that with his most developed paid loss figure. After applying that technique, he comes up with a reserve of $65 million. Now $65 million and $144 million are very far apart. The incurred loss projection indicates a reserve defficiency of $44 million. The paid projection a redundancy of $35 million. In the first case, you have resulting surplus of negative $19 million. In the second, you have a surplus of $50 million!

What has happened here is that the underlying assumptions of each method have been violated, and both techniques produce inaccurate results. The incurred loss projection technique is based on the assumption that there are consistent practices in setting case reserves, and a consistent adequacy level for the case reserves. In this case, there were major increases in the adequacy of the case reserves during 1979. The paid loss projection assumes that there are consistent practices in settling claims, and there is a constant rate of settling claims. However, in this case, there is a continual decline in

the rate of closing claims. And so the paid projection technique tended to underproject.

Now, you might ask if I were evaluating a company, "What would I do in a case like this." We could apply what is called the doctrine of equal ignorance. You don't know any better in choosing between the two methods, so you simply take an average of them. Sometimes it gets down to that, but hopefully that is not what we have to do.

Your management is always saying that you are doing a better job at reserving now than 5 years ago. So it's easy to say that case reserves are getting more adequate, so therefore the incurred method overprojects, and sometimes that's true. As somebody on the outside, if I'm going to accept that hypothesis, there needs to be some evidence, because I hear this day in and day out. One thing that we tend to look at in an analysis like this is how the average case reserve develops over time. As we look at this triangular array (Exhibit 8), one thing that you will note is that as we cross the diagonal line, what we're doing is crossing through the effect of the activity during calendar year 1979. As we do that, the average case reserve increases 132%, 129%, and 130%, respectively. So at least the claim that there has been substantial strengthening of the reserves becomes a bit more believable because it really shows up in terms of the average case reserve. And for all the other periods the increase in the average claim reserve is something comparable to inflation that existed during those periods.

With this information available, you can try to adjust your incurred data to reestimate the case reserves at a constant rate of adequacy using various inflation assumptions. That is one approach to try to handle this situation. What is often done is to start with your latest average case reserves, and work backward deflating them over a period of time. You could then apply these revised averages times the number of outstanding claims, thereby restating the outstanding reserve, and then the incurred. What you get in this particular case if you do that is the following type of adjustment. The net affect is that you end up approximately doubling the reserves for periods prior to 1978 and leaving the reserve for the latest two calendar years about the same. If we restate the case reserves, and reapply the incurred method, the projected reserve of $144 million now drops to $100 million, which is what the company is carrying.

Looking at the case where the rate of settlement is changing, we can review by accident year the ratio of claims closed to claims reported (the claims disposed ratio). What we note here (Exhibit 9) is a consistent downward pattern in these numbers. For this latest year, only 31% of the claims are closed at the end of 12 months. Back in 1976, it was 42%. Now, what can be done here is to apply an adjustment technique which will adjust the paid loss array so that the whole prior history conforms to what would have been paid had the disposed ratio in any given column been the same as the latest ratio. That's what is done in this particular technique, and we can apply that by noting the relationship (between disposed ratios and percentages of ultimate losses paid) from past periods where we have a good amount of history. Say for accident year 1976, we get a relationship between the claims disposed ratio, and paid losses as a percentage of ultimate losses. This is a very simple example where you get a straight line. In actuality, what you really will get in most cases is a curved line and have to fit an exponential curve. If we do this type of adjustment and readjust the whole prior history of paid losses, then our paid projection comes up from $63 million to $84 million.

What is happening in this particular case is that we started out here with a carried reserve of $100 million. The incurred projection was way up there ($144 million) and the paid projection was down here ($65 million). We asked ourselves what was wrong with these techniques. Why did we come up with these differences? We did some investigation, we came up with some reasons, we adjusted the methods, and what we

found is that we substantially eliminated the difference. What is the moral of the story? I think one moral is that you ought to apply more than one technique. If you up with significant differences you ought to be asking yourself why there are differences, and doing some background research to determine the reasons for those differences, you may also find another technique that isn't affected by changes in your operations, or change in business, or reinsurance or whatever. Find some way of adjusting for it and reapplying a reserve projection technique.

Question: Would you now apply the doctrine of equal ignorance within smaller bounds?

I think it would have to be based on - what the background investigation indicated. As a byproduct of going through that process, we will probably have to come up with some feeling as to which technique we think is the better one. It may be that you get down to the situation where you really can't distinguish between the two, and then as a last resort, you might want to do that or use the range that you have as some indication of the potential variability in your estimate. And depending upon your philosophy in establishing reserves, if you want to be a conservative, you might go with the higher number and so forth. So, I would say applying the doctrine of equal ignorance is definitely a plan of last resort.

Adler: Rick, I want to say thank you, you've now convinced me about the flat earth. Do we have any further questions from the audience? Ed?

I just wanted to comment that my question was facetious in a sense but in another sense it's still quite important. There is a $14 million range or so between the high and low, and we can be satisfied that we narrowed that range from $80 million to $14 million. But management doesn't care. They want to know in the latter situation, is it 100 or 84? And I think the comment I would make is you do have to hang your hat someplace, and you need some consistent method over time for determining where you are going to go in that interval.

You might also rely on how well in the past your adjustments have served you. Any further questions? I have a couple clarifying notes that I took. The example of the closed claim fallacy, the saving on closure that Rick gave actually ignored the further strengthening during the year. His simplified example only compared the closure to the reserve at the end of the prior year. What happens in practice is very often that the reserve itself would go up even more during the year just prior to closure, and the amount of apparent savings and reserves would increase beyond the figures shown on the example.

Another comment I have is that good claims examiners state that they don't reserve only for what is in the file, but for what they could reasonably anticipate to occur, the facts that are likely to emerge. I'm told those are the guidelines. An example might be in a no-fault claim, particularly one where there are unlimited benefits. And the person is currently being cared for at home by the family but the parents may be aging and they can anticipate in a few years that the person will have to be institutionalized. A good claims examiner will set the reserves based on those estimates. But Rick's point still applies. Even the best claims examiners will still on the whole underestimate the ultimate cost of all the claims because there are still enough claims in which new fact are likely to emerge that could reasonably be anticipated, and unless the companies guidelines are such that they think they are overestimating, the case reserves are going to tend to develop upward.

Rick, I have a question for you. You showed your example with the accident year

cumulative average. Suppose somebody says, "Well that's all right. We know that the smaller claims have been settled first, but we will just use the accident year average, because that will give us a cross-section of claims closed the different ages, and maybe we'll add an inflationary factor to that". Will that not give us a good average to use for the outstanding claims?

Question: How are you going to choose the factor you are going to apply to adjust it upward?

Sherman: The current estimate of inflation. I think there is more than inflation going on here. The basic problem, and I think it is particularly true in a company that's growing, is that your calendar year cross section of average paids is over-represented in terms of the smaller, quick closing claims. Particularly if your growing. And it's under-represented in those claims that take a long time to close, because afterall, those are the claims that close out there 10 years out, and 10 years ago, your company was 1/3 the size that it is today. So you've got an unrepresentative sample, and if you're going to apply inflation to that, what you are going to have to do is break down that average amount according to the year of closure and apply inflation for successively 1, 2, 3, up to 10 years worth. So on the average, you might have to apply 3 - 5 years inflation and then also apply an adjustment for the growth in the company. If you did both of those things, that might not be a bad technique.

Adler: Okay, just intuitively, I think that the example you set up with the paid allocated to the paid losses during the year would probably apply in this case in concept that you still have an over-representation of older claims, even though you've used the calendar year cross section of claims closed at different ages. It would still apply - the concept would apply to this problem.

Question: If there were no growth, as in the case of the Boring Insurance Company, you do have the problem that is analogous to what you have in the allocated case, and that is that you have a lot of representation out there in the older periods of development.

When you square that triangle, you have an over-representation out in the right-hand side.

Sherman: In respect to that particular slide, Rick, could you just comment quickly on what error you are likely to make if your company is not fortunate enough to have your allocated losses separately from the losses, and you just have one triangle to combine. I think you're going to be under-reserved.

I'm not quite sure I understand the question. Are you saying that all you've got is combined data that's loss, plus allocated, and you've got a good history of it? Well, I think there have been a number of techniques presented in the seminar that you ought to be able to apply to that, that shouldn't necessarily have an inherant bias, unless there is a shift in the relative amount of allocated to loss over time, and maybe what you're saying, and I think this is true for a lot of companies, that the inflation rate for lawyers' fees exceeds the rate of inflation in a lot of other things that are paid for in insurance claims, and so the relative mix of allocated to loss is an increase over time. That's what I typically see, and so in that respect, you're probably right. Doing a combined analysis and not reflecting that shift is going to some way or another produce a low estimate.

Adler: Our time is about up. Please join me in giving a round of applause to our panelists.

CASUALTY ACTUARIAL SOCIETY

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December 4, 1984

Mr. M. S. Hughey
President
American Academy of Actuaries
1835 K Street, N.W.
Washington, D.C. 20006

Dear Stan:

At its November 11 meeting, the CAS Board of Directors adopted the following resolution:

> The CAS Board of Directors endorses the statement of the Committee on Reserves (on the IRS closed claim method) and approves its publication in the next edition of Proceedings (1984) as a Statement of Opinion of the CAS Board of Directors and of the Committee on Reserves.

Attached is a copy of the subject report.

I was directed by the Board to pass this information along to the AAA for use in connection with Academy public interface activities. No preference for a particular course of action (by the AAA) was expressed by the CAS Board.

After you have had an opportunity to discuss this matter with the AAA Executive Committee, I'd appreciate it if you would let me know how you propose to proceed. In the meantime if you wish to discuss, please call.

Thanks.

Sincerely,

Stan

C. K. Khury
President

cc: S. G. Kellison
CAS Board of Directors
CAS Executive Council

Casualty Actuarial Society

Committee on Reserves

Position Paper: Closed Case Method

for Reviewing the Adequacy of Loss Reserves

Comparison of the cost of closed claims to reserves has been used for many years, often simplistically, to evaluate loss reserve adequacy. Recently a particular "closed case" method, developed by the Internal Revenue Service, has received attention within the insurance industry. The Committee on Reserves has reviewed this method for its adherence to sound actuarial principles. The Committee finds that the closed case method is seriously inconsistent with the Casualty Actuarial Society's Statement of Principles Regarding Property and Casualty Loss and Loss Adjustment Expense Liabilities and is inappropriate for testing the adequacy of loss reserves. The following statement expands upon this finding.

Description of Method

In its basic form the closed case method of testing loss reserves examines claims by line of business which were reported and case reserved, but unpaid, as of an earlier reserve evaluation date and which have been settled subsequently.

It develops an "experience rate" by dividing the amount reserved for these settled claims at the reserve evaluation date by the total amount paid on them subsequently. The experience rate is applied to (divided into) total reserves, reported and unreported, as of the current reserve date to adjust current reserves to an indicated zero redundancy/deficiency level. Typically, the earlier reserve date (test year) would precede the current date by five to seven years, and the experience rate would be the average of the rate developed for each of the test years.

Implicit Assumptions

Application of the closed case methodology carries certain implicit assumptions. For its indicated results to be valid, satisfactory testing of the acceptability of these assumptions would be necessary. Major implicit assumptions are:

(a) The relative strength of case reserves at the earlier reserve evaluation date, for claims that are settled by the current reserve date, is comparable to that of total reserves at the current reserve date.

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(b) The relative strength of the estimate for incurred but not reported (IBNR) claims at the current reserve date is comparable to that of the case reserves. The implication here is that the combined frequency and severity components of the IBNR reserve are comparable in strength to the severity component alone of case reserves. Alternatively, if the strength of the severity component of the IBNR reserve alone is comparable to that of the case reserves, then the frequency component is exact.

(c) The relative strength of the reserves for reinsurance assumed from all sources is comparable to that of the direct case reserves.

(d) Estimates of credits for ceded reinsurance are proportional to the direct case reserves and to assumed reinsurance in their impact on relative adequacy.

Adherence to Actuarial Principles

The Statement of Principles Regarding Property and Casualty Loss and Loss Adjustment Expense Liabilities outlines a series of principles which must be considered for a reasonable and appropriate review of reserves. A comparison of these principles to the closed case method clearly illustrates that this method does not meet the criteria established by the CAS for proper review or establishment of reserves.

Key principles outlined in this statement and corresponding deficiencies in the closed case method are:

1. "Loss reserving procedures should operate on well defined groups of losses" and give consideration to all elements of the total loss reserve.

The closed case method:

(a) gives no consideration to IBNR claims or reopened claims in the determination of the experience rate.

(b) ignores the extent to which reinsurance arrangements applicable to claims outstanding at the current reserve date might differ from programs in place for claims in the test years and the effect such differences might have on claims emergence and development patterns.

(c) has drawbacks even as a means for testing only the case reserves. The implicit assumption that the relative strength of case reserves has remained constant is always questionable absent a review of

average outstanding values over successive periods. Further, the method does not consider claims reserved at the test date but not yet settled nor any changes in the reserves thereon. These are the claims likely to be in litigation with their ultimate settled values less certain. For workers' compensation, permanent disability claims and even certain temporary disability claims would remain open and not considered even though periodic payments are being made on them. Additionally, if the case reserves are meant to contain a provision for reopened claims, the closed case method of testing would not consider this element since the reopened claims would not have been specifically case reserved at the reserve evaluation date.

2. "Understanding the trends and changes affecting the data base is a prerequisite to the application of actuarially sound reserving methods. A knowledge of changes in underwriting, claims handling, data processing and accounting, as well as changes in the legal and social environment affecting the experience is essential to the accurate interpretation and evaluation of observed data and the choice of reserving method."

"It is not sufficient for the actuary merely to apply historical analytical procedures in the calculation of reserves. Whenever the impact of internal or external changes on claim data can be isolated or reasonably quantified, adjustment of the data is warranted before applying various reserving methods."

"A competent actuary will ordinarily examine the indications of more than one method before arriving at an evaluation of an insurer's reserve liability for a specific group of claims."

The closed case method:

(a) does not recognize or adjust for changes in size of distribution, external influences, operational changes, reinsurance retention changes, aggregate limit changes, or other underlying changes affecting losses;

(b) is a straight application of a formula with no consideration of trends or changes affecting the data;

(c) is generally used as an only method rather than in conjunction with other reserving methods.

3. "The actuary should be conversant with the general characteristics of the insurance portfolio for which reserves are to be established." There should also be a thorough knowledge of claims practices. This principle implies that having this knowledge will affect one's reserve evalution.

The closed case method does not fulfill this requirement in that:

(a) it ignores general characteristics of the nature of losses between various lines of business. The method is assumed to work equally well for low frequency/high severity lines as it does for high frequency/low severity lines of business;

(b) out-of-the-ordinary claims practices, such as discounting loss reserves, are not given special recognition;

(c) it provides no variation for differences in settlement patterns amoung different groups of claims, which is contrary to the Statement of Principles note that "the length of time that it normally takes for reported claims to be settled will affect the choice of the loss reserving procedure";

(d) all data is treated to be fully credible, with no consideration given to the lack of credibility of indications based on small volumes of historical data.

Proponents' Viewpoint

Proponents of the closed case method argue that it is improper to use estimates to test reserves that are themselves estimates. They believe that the use of a test period of claims settlements produces a more accurate indicator by which to adjust current reserves. However, proper use of estimates in no way violates the Statement of Principles. Rather, the closed case method ignores significant information, which can be valuable when used with proper analytical techniques.

Committee Position

The Committee on Reserves believes that the closed case method of testing the adequacy of loss reserves, as described in the foregoing statement, does not conform to sound actuarial principles. While the method provides indications as to the historical adequacy of case reserves, such indications are incomplete and may be misleading. The committee has no objections to the underlying data used in the closed case method. However, they are appropriate only when used with proper actuarial techniques. In general, the committee finds that the closed case method is unsound and should not be used to evaluate total loss reserves.

Workers' Compensation
Accident Year 1975

Year of Development	(1) Paid Losses (000's)	(2) Claims Closed	(3) Average Paid Loss	(4) Cumulative Paid Loss (000's)	(5) Cumulative Claims Closed	(6) Cumulative Average Paid Loss	(7) Hindsight Outstanding Reserve (000's)	(8) Number of Open & IBNR Claims	(9) Average Hindsight Reserve
1	$5,504	16,568	$332	$5,504	16,568	$332	$30,718	21,330	$1,440
2	12,874	18,416	699	18,378	34,984	525	17,844	2,914	6,124
3	6,938	1,393	4,981	25,316	36,377	696	10,906	1,521	7,170
4	4,155	504	8,244	29,471	36,881	799	6,751	1,017	6,638
5	2,171	286	7,591	31,642	37,167	851	4,580	731	6,265
6	1,270	184	6,902	32,912	37,351	881	3,310	547	6,051
7	818	128	6,391	33,730	37,479	900	2,492	419	5,947
8	453	85	5,329	34,183	37,564	910	2,039	334	6,105
9	345	135	2,556	34,528	37,699	916	1,694	199	8,513
10	312	53	5,887	34,840	37,752	923	1,382	146	9,466

EXHIBIT 1

DECEPTIVE CLAIMS STATISTICS

Year	Paid on Closure	Final Reserve	Savings	Percentage Savings
1979	4	11	7	64%
1980	2	12	10	83
1981	2	15	13	87
1982	50	100	50	50
1983	135	125	(10)	(8)
Total	193	263	70	27%

Claim Number	Incurred Losses (000's) As of					
	12/78	12/79	12/80	12/81	12/82	12/83
1	5	5	2*	2	2	2
2	5	2*	2	2	2	2
3	5	5	5	2*	2	2
4	5	2*	2	2	2	2
5	10	10	10	0*	0	0
6	1	0*	0	0	0	0
7	10	10	0*	0	0	0
8	25	35	50	100	50*	50
9	5	25	50	50	100	115*
10	—	—	—	—	25	20*
Total	71	94	121	158	183	193

*Year of Closure

USING CALENDAR YEAR RATIOS TO ESTIMATE THE ALAE RESERVE

Paid Losses (000's)

Accident Year	12	24	36	48	
1980	1,000	2,000	500	300	
1981	1,000	2,000	500	300	
1982	1,000	2,000	500	300	Required Reserve = 3,900
1983	1,000	2,000	500	300	
1984	1,000	2,000	500	300	

Paid Allocated Loss Expense (000's)

1980	15	70	35	30	
1981	15	70	35	30	
1982	15	70	35	30	Required Reserve = 230
1983	15	70	35	30	
1984	15	70	35	30	
Ratio of Paid ALAE to Paid Loss	1.5%	3.5%	7.0%	10.0%	

$$\text{Ratio of Calendar Year Paid ALAE to Paid Loss} = \frac{150}{3{,}800} = 3.95\%$$

$$\text{(Calender Year Ratio)} \times \text{Loss Reserve} = 3.95\% \times \$3{,}900 = \$154$$

ALAE Reserve Based on Calendar Year Ratio = $154

Actual Required Reserve = $230

Percentage Reserve Deficiency = 49.4%

Prepared by: Richard Sherman

Prepared for: Common Reserve Pitfalls

COMPARISON OF ACTUAL AND FITTED INCURRED LOSS DEVELOPMENT FACTORS

REINSURANCE ASSOCIATION OF AMERICA EXPERIENCE

Years of Development	Automobile Liability		General Liability		Medical Malpractice		Workers' Compensation	
	Actual*	Fitted	Actual*	Fitted	Actual*	Fitted	Actual*	Fitted
2:1	1.760	1.619	2.300	2.290	7.876	6.104	1.634	1.630
3:2	1.227	1.264	1.541	1.536	2.172	2.480	1.285	1.287
4:3	1.100	1.123	1.295	1.287	1.654	1.717	1.169	1.172
5:4	1.061	1.062	1.171	1.177	1.334	1.429	1.134	1.118
6:5	1.031	1.033	1.109	1.119	1.150	1.288	1.092	1.088
7:6	1.015	1.018	1.093	1.085	1.156	1.208	1.053	1.068
8:7	1.015	1.011	1.060	1.064	1.163	1.158	1.055	1.055
9:8	1.008	1.007	1.046	1.050	1.120	1.124	1.048	1.046
10:9	1.006	1.004	1.045	1.039	1.133	1.101	1.039	1.039
11:10	1.000	1.003	1.039	1.032	1.023	1.084	1.036	1.034
12:11	1.001	1.002	1.022	1.027	1.058	1.070	1.014	1.029
13:12	1.001	1.001	1.024	1.022	1.090	1.060	1.017	1.026
14:13	1.001	1.001	1.004	1.019	1.063	1.052	1.030	1.023
15:14	1.000	1.001	1.019	1.016	1.089	1.046	1.023	1.021
16:15	1.000	1.000	1.008	1.014		1.040	1.016	1.019
17:16	1.001	1.000	1.010	1.012		1.036	1.032	1.017
18:17	.999	1.000	1.008	1.011		1.032	1.005	1.016
19:18	1.000	1.000	1.018	1.010		1.029	1.021	1.015
20:19	1.000	1.000	1.004	1.009		1.027	1.015	1.014
21:20	.999	1.000	1.005	1.008		1.024	1.037	1.013
22:21	1.000	1.000	1.017	1.007		1.022	.996	1.012
23:22	1.000	1.000	1.000	1.006		1.020	1.038	1.011
24:23	1.000	1.000	.997	1.006		1.019	1.026	1.010
25:24	1.000	1.000	1.000	1.005		1.017	1.018	1.010

*These factors are the average of the latest 10 accident years for each given year of development from the 1983 edition of the RAA's Loss Development Study.

COMPARISON OF ACTUAL AND FITTED INCURRED LOSS DEVELOPMENT FACTORS USING AN INVERSE POWER FUNCTION

Years of Development	Auto Bodily Injury Liability		General Liability		Workers' Compensation	
	Actual	Fitted	Actual	Fitted	Actual	Fitted
2	1.634	1.680	1.839	1.886	1.493	1.490
3	1.094	1.077	1.279	1.266	1.167	1.159
4	1.025	1.022	1.185	1.132	1.094	1.082
5	1.008	1.009	1.077	1.080	1.046	1.052
6	1.003	1.004	1.039	1.054	1.033	1.036
7	1.003	1.002	1.033	1.040	1.028	1.027
8	1.001	1.002	1.029	1.030	1.019	1.021
9	1.000	1.001	1.030	1.024	1.012	1.017
10	1.001	1.001	1.019	1.020	1.010	1.014
11	-	-	1.014	1.016	1.011	1.012
12	-	-	1.016	1.014	1.010	1.010
13	-	-	1.013	1.012	1.009	1.009
14	-	-	1.012	1.010	1.008	1.008
15	-	-	1.008	1.009	1.007	1.007
Goodness of fit (R^2)	.98462		.98278		.98551	
Parameters						
a =	.68047		.88614		.48984	
b =	3.14215		1.73380		1.62362	
c =	-1.00000		-1.00000		-1.00000	

Notes:

1) The actual factors above represent composite experience from five major carriers for each line of business.

2) The goodness of fit is measured by the coefficient of determination (R^2)

M. PENN DINGDOOM'S ANALYSIS

CUMULATIVE INCURRED LOSS
AS OF DECEMBER 31, 1980

ACCIDENT YEAR	MONTHS OF DEVELOPMENT 12	24	36	48	60
1976	8100	15500	16700	17200	17200
1977	10000	19300	27100	25700	
1978	12400	38100	37400		
1979	23700	51000			
1980	31400				

ACCIDENT YEAR	MONTHS OF DEVELOPMENT 12	24	36	48	60
1976	1.914	1.077	1.030	1.000	
1977	1.930	1.404	0.948		
1978	3.073	0.982			
1979	2.152				
1980					
AVERAGE	2.267	1.154	0.989	1.000	
WEIGHTED AVERAGE	2.360	1.138	0.976	1.000	
LINEAR TREND					
SLOPE	0.186	-0.048	-0.082		
INTERCEPT	1.803	1.250	1.112		
R2	0.192	0.047	1.000		
PROJECTED	2.731	1.059	0.867		
EXPONENTIAL CURVE					
SLOPE	8.514	-4.549	-7.923		
INTERCEPT	1.812	1.252	1.119		
R2	0.225	0.063	1.000		
PROJECTED	2.727	1.039	0.873		
SELECTED	2.267	1.154	0.989	1.000	1.000

ULTIMATE LOSS BASED ON INCURRED LOSS DEVELOPMENT
AS OF DECEMBER 31, 1980

ACCIDENT YEAR	CUMULATIVE INCURRED LOSS (1)	SELECTED DEVELOPMENT FACTOR (2)	CUMULATIVE DEVELOPMENT FACTOR (3)	ULTIMATE LOSS (1)X(3) (4)
1976	17200	1.000	1.000	17200
1977	25700	1.000	1.000	25700
1978	37400	0.989	0.989	36989
1979	51000	1.154	1.141	58207
1980	31400	2.267	2.587	81242

MOORE CAW SHUSH'S ANALYSIS

CUMULATIVE PAID LOSS
AS OF DECEMBER 31, 1980

ACCIDENT YEAR	MONTHS OF DEVELOPMENT 12	24	36	48	60
1976	5000	9000	12600	13100	15100
1977	5800	10300	14500	19200	
1978	6700	11800	18800		
1979	7700	13600			
1980	8900				

ACCIDENT YEAR	MONTHS OF DEVELOPMENT 12	24	36	48	60
1976	1.800	1.400	1.040	1.153	
1977	1.776	1.408	1.324		
1978	1.761	1.593			
1979	1.766				
1980					
AVERAGE	1.776	1.467	1.182	1.153	
WEIGHTED AVERAGE	1.770	1.499	1.229	1.153	
LINEAR TREND					
SLOPE	-0.012	0.097	0.284		
INTERCEPT	1.805	1.274	0.755		
R2	0.755	0.780	1.000		
PROJECTED	1.747	1.660	1.609		
EXPONENTIAL CURVE					
SLOPE	-0.649	6.678	27.360		
INTERCEPT	1.805	1.287	0.816		
R2	0.755	0.782	1.000		
PROJECTED	1.747	1.666	1.686		
SELECTED	1.776	1.467	1.182	1.153	1.154

ULTIMATE LOSS BASED ON PAID LOSS DEVELOPMENT
AS OF DECEMBER 31, 1980

ACCIDENT YEAR	CUMULATIVE PAID LOSS (1)	SELECTED DEVELOPMENT FACTOR (2)	CUMULATIVE DEVELOPMENT FACTOR (3)	ULTIMATE LOSS (1)X(3) (4)
1976	15100	1.157	1.157	17471
1977	19200	1.153	1.334	25613
1978	18800	1.182	1.577	29644
1979	13600	1.467	2.313	31459
1980	8900	1.776	4.108	36563

REVISING PAID LOSS PROJECTIONS FOR CHANGES IN THE RATE OF SETTLEMENT OF CLAIMS

RATIO OF CUMULATIVE CLOSED CLAIMS TO CUMULATIVE REPORTED CLAIMS AS OF DECEMBER 31, 1980

ACCIDENT YEAR	MONTHS OF DEVELOPMENT 12	24	36	48	60
1976	0.420	0.670	0.852	0.943	0.993
1977	0.395	0.653	0.831	0.932	
1978	0.372	0.621	0.814		
1979	0.344	0.599			
1980	0.313				

ADJUSTED CUMULATIVE PAID LOSS DECEMBER 31, 1980

ACCIDENT YEAR	MONTHS OF DEVELOPMENT 12	24	36	48	60
1976	3300	7900	12000	12900	14900
1977	4200	9300	14200	19200	
1978	5200	11300	18800		
1979	6700	13600			
1980	8900				

ACCIDENT YEAR	MONTHS OF DEVELOPMENT 12	24	36	48	60
1976	2.394	1.519	1.075	1.155	
1977	2.214	1.527	1.352		
1978	2.173	1.664			
1979	2.030				
1980					
AVERAGE	2.203	1.570	1.214	1.155	
WEIGHTED AVERAGE	2.146	1.594	1.260	1.155	

ULTIMATE LOSS BASED ON PAID LOSS DEVELOPMENT DECEMBER 31, 1980

ACCIDENT YEAR	CUMULATIVE PAID LOSS (1)	SELECTED DEVELOPMENT FACTOR (2)	CUMULATIVE DEVELOPMENT FACTOR (3)	ULTIMATE LOSS (1)X(3) (4)
1976	14900	1.151	1.151	17150
1977	19200	1.155	1.329	25525
1978	18800	1.214	1.614	30341
1979	13600	1.570	2.534	34460
1980	8900	2.203	5.582	49680

1985 CASUALTY LOSS RESERVE SEMINAR

5A/6F AVOIDING PITFALLS IN ANALYZING RESERVES & FORECASTING LOSSES

by

Richard E. Sherman

DECEPTIVE CLAIMS STATISTICS

Year	Paid on Closure	Final Reserve	Savings	Percentage Savings
1979	4	11	7	64%
1980	2	12	10	83
1981	2	15	13	87
1982	50	100	50	50
1983	135	125	(10)	(8)
Total	193	263	70	27%

Claim Number	Incurred Losses (000's) As of					
	12/78	12/79	12/80	12/81	12/82	12/83
1	5	5	2*	2	2	2
2	5	2*	2	2	2	2
3	5	5	5	2*	2	2
4	5	2*	2	2	2	2
5	10	10	10	0*	0	0
6	1	0*	0	0	0	0
7	10	10	0*	0	0	0
8	25	35	50	100	50*	50
9	5	25	50	50	100	115*
10	—	—	—	—	25	20*
Total	71	94	121	158	183	193

*Year of Closure

CASUALTY ACTUARIAL SOCIETY

C. K. Khury
President

23 Main Street
Holmdel, NJ 07733
(201) 946-3600

December 4, 1984

Mr. M. S. Hughey
President
American Academy of Actuaries
1835 K Street, N.W.
Washington, D.C. 20006

Dear Stan:

At its November 11 meeting, the CAS Board of Directors adopted the following resolution:

> The CAS Board of Directors endorses the statement of the Committee on Reserves (on the IRS closed claim method) and approves its publication in the next edition of Proceedings (1984) as a Statement of Opinion of the CAS Board of Directors and of the Committee on Reserves.

Attached is a copy of the subject report.

I was directed by the Board to pass this information along to the AAA for use in connection with Academy public interface activities. No preference for a particular course of action (by the AAA) was expressed by the CAS Board.

After you have had an opportunity to discuss this matter with the AAA Executive Committee, I'd appreciate it if you would let me know how you propose to proceed. In the meantime if you wish to discuss, please call.

Thanks.

Sincerely,

Stan

C. K. Khury
President

cc: S. G. Kellison
CAS Board of Directors
CAS Executive Council

attach. # 1

Casualty Actuarial Society

Committee on Reserves

Position Paper: Closed Case Method

for Reviewing the Adequacy of Loss Reserves

Comparison of the cost of closed claims to reserves has been used for many years, often simplistically, to evaluate loss reserve adequacy. Recently a particular "closed case" method, developed by the Internal Revenue Service, has received attention within the insurance industry. The Committee on Reserves has reviewed this method for its adherence to sound actuarial principles. The Committee finds that the closed case method is seriously inconsistent with the Casualty Actuarial Society's Statement of Principles Regarding Property and Casualty Loss and Loss Adjustment Expense Liabilities and is inappropriate for testing the adequacy of loss reserves. The following statement expands upon this finding.

Description of Method

In its basic form the closed case method of testing loss reserves examines claims by line of business which were reported and case reserved, but unpaid, as of an earlier reserve evaluation date and which have been settled subsequently.

It develops an "experience rate" by dividing the amount reserved for these settled claims at the reserve evaluation date by the total amount paid on them subsequently. The experience rate is applied to (divided into) total reserves, reported and unreported, as of the current reserve date to adjust current reserves to an indicated zero redundancy/deficiency level. Typically, the earlier reserve date (test year) would precede the current date by five to seven years, and the experience rate would be the average of the rate developed for each of the test years.

Implicit Assumptions

Application of the closed case methodology carries certain implicit assumptions. For its indicated results to be valid, satisfactory testing of the acceptability of these assumptions would be necessary. Major implicit assumptions are:

(a) The relative strength of case reserves at the earlier reserve evaluation date, for claims that are settled by the current reserve date, is comparable to that of total reserves at the current reserve date.

116-19

(b) The relative strength of the estimate for incurred but not reported (IBNR) claims at the current reserve date is comparable to that of the case reserves. The implication here is that the combined frequency and severity components of the IBNR reserve are comparable in strength to the severity component alone of case reserves. Alternatively, if the strength of the severity component of the IBNR reserve alone is comparable to that of the case reserves, then the frequency component is exact.

(c) The relative strength of the reserves for reinsurance assumed from all sources is comparable to that of the direct case reserves.

(d) Estimates of credits for ceded reinsurance are proportional to the direct case reserves and to assumed reinsurance in their impact on relative adequacy.

Adherence to Actuarial Principles

The Statement of Principles Regarding Property and Casualty Loss and Loss Adjustment Expense Liabilities outlines a series of principles which must be considered for a reasonable and appropriate review of reserves. A comparison of these principles to the closed case method clearly illustrates that this method does not meet the criteria established by the CAS for proper review or establishment of reserves.

Key principles outlined in this statement and corresponding deficiencies in the closed case method are:

1. "Loss reserving procedures should operate on well defined groups of losses" and give consideration to all elements of the total loss reserve.

The closed case method:

(a) gives no consideration to IBNR claims or reopened claims in the determination of the experience rate.

(b) ignores the extent to which reinsurance arrangements applicable to claims outstanding at the current reserve date might differ from programs in place for claims in the test years and the effect such differences might have on claims emergence and development patterns.

(c) has drawbacks even as a means for testing only the case reserves. The implicit assumption that the relative strength of case reserves has remained constant is always questionable absent a review of

average outstanding values over successive periods. Further, the method does not consider claims reserved at the test date but not yet settled nor any changes in the reserves thereon. These are the claims likely to be in litigation with their ultimate settled values less certain. For workers' compensation, permanent disability claims and even certain temporary disability claims would remain open and not considered even though periodic payments are being made on them. Additionally, if the case reserves are meant to contain a provision for reopened claims, the closed case method of testing would not consider this element since the reopened claims would not have been specifically case reserved at the reserve evaluation date.

2. "Understanding the trends and changes affecting the data base is a prerequisite to the application of actuarially sound reserving methods. A knowledge of changes in underwriting, claims handling, data processing and accounting, as well as changes in the legal and social environment affecting the experience is essential to the accurate interpretation and evaluation of observed data and the choice of reserving method."

"It is not sufficient for the actuary merely to apply historical analytical procedures in the calculation of reserves. Whenever the impact of internal or external changes on claim data can be isolated or reasonably quantified, adjustment of the data is warranted before applying various reserving methods."

"A competent actuary will ordinarily examine the indications of more than one method before arriving at an evaluation of an insurer's reserve liability for a specific group of claims."

The closed case method:

(a) does not recognize or adjust for changes in size of distribution, external influences, operational changes, reinsurance retention changes, aggregate limit changes, or other underlying changes affecting losses;

(b) is a straight application of a formula with no consideration of trends or changes affecting the data;

(c) is generally used as an only method rather than in conjunction with other reserving methods.

3. "The actuary should be conversant with the general characteristics of the insurance portfolio for which reserves are to be established." There should also be a thorough knowledge of claims practices. This principle implies that having this knowledge will affect one's reserve evalution.

The closed case method does not fulfill this requirement in that:

(a) it ignores general characteristics of the nature of losses between various lines of business. The method is assumed to work equally well for low frequency/high severity lines as it does for high frequency/low severity lines of business;

(b) out-of-the-ordinary claims practices, such as discounting loss reserves, are not given special recognition;

(c) it provides no variation for differences in settlement patterns amoung different groups of claims, which is contrary to the Statement of Principles note that "the length of time that it normally takes for reported claims to be settled will affect the choice of the loss reserving procedure";

(d) all data is treated to be fully credible, with no consideration given to the lack of credibility of indications based on small volumes of historical data.

Proponents' Viewpoint

Proponents of the closed case method argue that it is improper to use estimates to test reserves that are themselves estimates. They believe that the use of a test period of claims settlements produces a more accurate indicator by which to adjust current reserves. However, proper use of estimates in no way violates the Statement of Principles. Rather, the closed case method ignores significant information, which can be valuable when used with proper analytical techniques.

Committee Position

The Committee on Reserves believes that the closed case method of testing the adequacy of loss reserves, as described in the foregoing statement, does not conform to sound actuarial principles. While the method provides indications as to the historical adequacy of case reserves, such indications are incomplete and may be misleading. The committee has no objections to the underlying data used in the closed case method. However, they are appropriate only when used with proper actuarial techniques. In general, the committee finds that the closed case method is unsound and should not be used to evaluate total loss reserves.

MOORE CAW SHUSH'S ANALYSIS

CUMULATIVE PAID LOSS
AS OF DECEMBER 31, 1980

ACCIDENT YEAR	MONTHS OF DEVELOPMENT 12	24	36	48	60
1976	5000	9000	12600	13100	15100
1977	5800	10300	14500	19200	
1978	6700	11800	18800		
1979	7700	13600			
1980	8900				

ACCIDENT YEAR	MONTHS OF DEVELOPMENT 12	24	36	48	60
1976	1.800	1.400	1.040	1.153	
1977	1.776	1.408	1.384		
1978	1.761	1.593			
1979	1.766				
1980					
AVERAGE	1.776	1.467	1.182	1.153	
WEIGHTED AVERAGE	1.770	1.499	1.229	1.153	
LINEAR TREND					
SLOPE	-0.012	0.097	0.284		
INTERCEPT	1.805	1.274	0.755		
R2	0.755	0.780	1.000		
PROJECTED	1.747	1.660	1.609		
EXPONENTIAL CURVE					
SLOPE	-0.649	6.678	27.360		
INTERCEPT	1.805	1.287	0.816		
R2	0.755	0.782	1.000		
PROJECTED	1.747	1.666	1.686		
SELECTED	1.776	1.467	1.182	1.153	1.154

ULTIMATE LOSS BASED ON PAID LOSS DEVELOPMENT
AS OF DECEMBER 31, 1980

ACCIDENT YEAR	CUMULATIVE PAID LOSS (1)	SELECTED DEVELOPMENT FACTOR (2)	CUMULATIVE DEVELOPMENT FACTOR (3)	ULTIMATE LOSS (1)X(3) (4)
1976	15100	1.157	1.157	17471
1977	19200	1.153	1.334	25613
1978	18800	1.182	1.577	29644
1979	13600	1.467	2.313	31459
1980	8900	1.776	4.108	36563

M. PENN DINGDOOM'S ANALYSIS

CUMULATIVE INCURRED LOSS
AS OF DECEMBER 31, 1980

ACCIDENT YEAR	MONTHS OF DEVELOPMENT 12	24	36	48	60
1976	8100	15500	16700	17200	17200
1977	10000	19300	27100	25700	
1978	12400	38100	37400		
1979	23700	51000			
1980	31400				

ACCIDENT YEAR	MONTHS OF DEVELOPMENT 12	24	36	48	60
1976	1.914	1.077	1.030	1.000	
1977	1.930	1.404	0.948		
1978	3.073	0.982			
1979	2.152				
1980					
AVERAGE	2.267	1.154	0.989	1.000	
WEIGHTED AVERAGE	2.360	1.138	0.976	1.000	
LINEAR TREND					
SLOPE	0.186	-0.048	-0.082		
INTERCEPT	1.803	1.250	1.112		
R2	0.192	0.047	1.000		
PROJECTED	2.731	1.059	0.867		
EXPONENTIAL CURVE					
SLOPE	8.514	-4.549	-7.923		
INTERCEPT	1.812	1.252	1.119		
R2	0.225	0.063	1.000		
PROJECTED	2.727	1.039	0.873		
SELECTED	2.267	1.154	0.989	1.000	1.000

ULTIMATE LOSS BASED ON INCURRED LOSS DEVELOPMENT
AS OF DECEMBER 31, 1980

ACCIDENT YEAR	CUMULATIVE INCURRED LOSS (1)	SELECTED DEVELOPMENT FACTOR (2)	CUMULATIVE DEVELOPMENT FACTOR (3)	ULTIMATE LOSS (1)X(3) (4)
1976	17200	1.000	1.000	17200
1977	25700	1.000	1.000	25700
1978	37400	0.989	0.989	36989
1979	51000	1.154	1.141	58207
1980	31400	2.267	2.587	81242

REVISING PAID LOSS PROJECTIONS FOR CHANGES IN THE RATE OF SETTLEMENT OF CLAIMS

RATIO OF CUMULATIVE CLOSED CLAIMS TO CUMULATIVE REPORTED CLAIMS AS OF DECEMBER 31, 1980

ACCIDENT YEAR	MONTHS OF DEVELOPMENT 12	24	36	48	60
1976	0.420	0.670	0.852	0.943	0.993
1977	0.395	0.653	0.831	0.932	
1978	0.372	0.621	0.814		
1979	0.344	0.599			
1980	0.313				

ADJUSTED CUMULATIVE PAID LOSS DECEMBER 31, 1980

ACCIDENT YEAR	MONTHS OF DEVELOPMENT 12	24	36	48	60
1976	3300	7900	12000	12900	14900
1977	4200	9300	14200	19200	
1978	5200	11300	18800		
1979	6700	13600			
1980	8900				

ACCIDENT YEAR	MONTHS OF DEVELOPMENT 12	24	36	48	60
1976	2.394	1.519	1.075	1.155	
1977	2.214	1.527	1.352		
1978	2.173	1.664			
1979	2.030				
1980					
AVERAGE	2.203	1.570	1.214	1.155	
WEIGHTED AVERAGE	2.146	1.594	1.260	1.155	

ULTIMATE LOSS BASED ON PAID LOSS DEVELOPMENT DECEMBER 31, 1980

ACCIDENT YEAR	CUMULATIVE PAID LOSS (1)	SELECTED DEVELOPMENT FACTOR (2)	CUMULATIVE DEVELOPMENT FACTOR (3)	ULTIMATE LOSS (1)X(3) (4)
1976	14900	1.151	1.151	17150
1977	19200	1.155	1.329	25525
1978	18800	1.214	1.614	30341
1979	13600	1.570	2.534	34460
1980	8900	2.203	5.582	49680

REVISING INCURRED LOSS PROJECTIONS FOR CHANGES IN RESERVE ADEQUACY

CASE LOSS RESERVES PER OPEN CLAIM AS OF DECEMBER 31, 1980

ACCIDENT YEAR	MONTHS OF DEVELOPMENT 12	24	36	48	60
1976	450	1500	2000	4501	19626
1977	500	1700	4600	5200	
1978	560	3900	5301		
1979	1300	4500			
1980	1500				

ACTUAL CASE LOSS RESERVES AS OF DECEMBER 31, 1980

ACCIDENT YEAR	MONTHS OF DEVELOPMENT 12	24	36	48	60
1976	3100	6500	4100	4100	2100
1977	4200	9000	12600	6500	
1978	5700	26300	18600		
1979	16000	37400			
1980	22500				

ADJUSTED CASE LOSS RESERVES AS OF DECEMBER 31, 1980

ACCIDENT YEAR	MONTHS OF DEVELOPMENT 12	24	36	48	60
1976	5900	12800	8200	4100	2100
1977	8300	18000	12600	6500	
1978	11600	26300	18600		
1979	16000	37400			
1980	22500				

CUMULATIVE INCURRED LOSS AS OF DECEMBER 31, 1980

ACCIDENT YEAR	MONTHS OF DEVELOPMENT 12	24	36	48	60
1976	10900	21800	20800	17200	17200
1977	14100	28300	27100	25700	
1978	18300	38100	37400		
1979	23700	51000			
1980	31400				

ACCIDENT YEAR	MONTHS OF DEVELOPMENT 12	24	36	48	60
1976	2.000	0.954	0.827	1.000	
1977	2.007	0.958	0.948		
1978	2.082	0.982			
1979	2.152				
1980					
AVERAGE	2.060	0.964	0.888	1.000	

ULTIMATE LOSS BASED ON INCURRED LOSS DEVELOPMENT AS OF DECEMBER 31, 1980

ACCIDENT YEAR	CUMULATIVE INCURRED LOSS (1)	SELECTED DEVELOPMENT FACTOR (2)	CUMULATIVE DEVELOPMENT FACTOR (3)	ULTIMATE LOSS (1)X(3) (4)
1976	17200	1.000	1.000	17200
1977	25700	1.000	1.000	25700
1978	37400	0.888	0.888	33211
1979	51000	0.954	0.856	43658
1980	31400	2.060	1.763	55372

COMPARISON OF

ACTUAL AND FITTED INCURRED LOSS DEVELOPMENT FACTORS

USING AN INVERSE POWER FUNCTION

Years of Development	Auto Bodily Injury Liability		General Liability		Workers' Compensation	
	Actual	Fitted	Actual	Fitted	Actual	Fitted
2	1.634	1.680	1.839	1.886	1.493	1.490
3	1.094	1.077	1.279	1.266	1.167	1.159
4	1.025	1.022	1.185	1.132	1.094	1.082
5	1.008	1.009	1.077	1.080	1.046	1.052
6	1.003	1.004	1.039	1.054	1.033	1.036
7	1.003	1.002	1.033	1.040	1.028	1.027
8	1.001	1.002	1.029	1.030	1.019	1.021
9	1.000	1.001	1.030	1.024	1.012	1.017
10	1.001	1.001	1.019	1.020	1.010	1.014
11	-	-	1.014	1.016	1.011	1.012
12	-	-	1.016	1.014	1.010	1.010
13	-	-	1.013	1.012	1.009	1.009
14	-	-	1.012	1.010	1.008	1.008
15	-	-	1.008	1.009	1.007	1.007
Goodness of fit (R^2)	.98462		.98278		.98551	
Parameters						
a =	.68047		.88614		.48984	
b =	3.14215		1.73380		1.62362	
c =	-1.00000		-1.00000		-1.00000	

Notes:

1) The actual factors above represent composite experience from five major carriers for each line of business.

2) The goodness of fit is measured by the coefficient of determination (R^2)

COMPARISON OF

ACTUAL AND FITTED INCURRED LOSS DEVELOPMENT FACTORS

USING AN INVERSE POWER FUNCTION

Years of Development	Auto Bodily Injury Liability		General Liability		Workers' Compensation	
	Actual	Fitted	Actual	Fitted	Actual	Fitted
2	1.634	1.680	1.839	1.886	1.493	1.490
3	1.094	1.077	1.279	1.266	1.167	1.159
4	1.025	1.022	1.185	1.132	1.094	1.082
5	1.008	1.009	1.077	1.080	1.046	1.052
6	1.003	1.004	1.039	1.054	1.033	1.036
7	1.003	1.002	1.033	1.040	1.028	1.027
8	1.001	1.002	1.029	1.030	1.019	1.021
9	1.000	1.001	1.030	1.024	1.012	1.017
10	1.001	1.001	1.019	1.020	1.010	1.014
11	-	-	1.014	1.016	1.011	1.012
12	-	-	1.016	1.014	1.010	1.010
13	-	-	1.013	1.012	1.009	1.009
14	-	-	1.012	1.010	1.008	1.008
15	-	-	1.008	1.009	1.007	1.007
Goodness of fit (R^2)	.98462		.98278		.98551	
Parameters						
a =	.68047		.88614		.48984	
b =	3.14215		1.73380		1.62362	
c =	-1.00000		-1.00000		-1.00000	

Notes:

1) The actual factors above represent composite experience from five major carriers for each line of business.

2) The goodness of fit is measured by the coefficient of determination (R^2)

COMPARISON OF ACTUAL AND FITTED INCURRED LOSS DEVELOPMENT FACTORS

REINSURANCE ASSOCIATION OF AMERICA EXPERIENCE

Years of Development	Automobile Liability		General Liability		Medical Malpractice		Workers' Compensation	
	Actual*	Fitted	Actual*	Fitted	Actual*	Fitted	Actual*	Fitted
2:1	1.760	1.619	2.300	2.290	7.876	6.104	1.634	1.630
3:2	1.227	1.264	1.541	1.536	2.172	2.480	1.285	1.287
4:3	1.100	1.123	1.295	1.287	1.654	1.717	1.169	1.172
5:4	1.061	1.062	1.171	1.177	1.334	1.429	1.134	1.118
6:5	1.031	1.033	1.109	1.119	1.150	1.288	1.092	1.088
7:6	1.015	1.018	1.093	1.085	1.156	1.208	1.053	1.068
8:7	1.015	1.011	1.060	1.064	1.163	1.158	1.055	1.055
9:8	1.008	1.007	1.046	1.050	1.120	1.124	1.048	1.046
10:9	1.006	1.004	1.045	1.039	1.133	1.101	1.039	1.039
11:10	1.000	1.003	1.039	1.032	1.023	1.084	1.036	1.034
12:11	1.001	1.002	1.022	1.027	1.058	1.070	1.014	1.029
13:12	1.001	1.001	1.024	1.022	1.090	1.060	1.017	1.026
14:13	1.001	1.001	1.004	1.019	1.063	1.052	1.030	1.023
15:14	1.000	1.001	1.019	1.016	1.089	1.046	1.023	1.021
16:15	1.000	1.000	1.008	1.014		1.040	1.016	1.019
17:16	1.001	1.000	1.010	1.012		1.036	1.032	1.017
18:17	.999	1.000	1.008	1.011		1.032	1.005	1.016
19:18	1.000	1.000	1.018	1.010		1.029	1.021	1.015
20:19	1.000	1.000	1.004	1.009		1.027	1.015	1.014
21:20	.999	1.000	1.005	1.008		1.024	1.037	1.013
22:21	1.000	1.000	1.017	1.007		1.022	.996	1.012
23:22	1.000	1.000	1.000	1.006		1.020	1.038	1.011
24:23	1.000	1.000	.997	1.006		1.019	1.026	1.010
25:24	1.000	1.000	1.000	1.005		1.017	1.018	1.010

*These factors are the average of the latest 10 accident years for each given year of development from the 1983 edition of the RAA's Loss Development Study.

Panel Sessions 5B/6A/6C

BASIC CASE STUDY

Moderator: Lee M. Smith, Manager
Ernst & Whinney

Panel: David C. Westerholm, Assistant Actuary
Zurich American Insurance Companies

1985 Casualty Loss Reserve Seminar

Kansas City, Missouri

Kansas City, Missouri

Welcome to the Basic Case Study Session of the CLRS. My name is Lee Smith, and with me is David Westerholm, and we will be presenting a couple of cases. As part of this, we are supposed to note this session is being recorded, so anyone wishing to ask questions should come up to the microphone and give your name and affiliation. We wou'd also like to remind you to complete the seminar evaluation form. This session is going to illustrate some things which are probably very similar to some things you have seen before, and we are going to try to make it a little bit different in the sense that what we are trying to demonstrate in this session are some situations where standard reserve techniques may not provide or produce results which are the kind of results you would expect to have and which would make sense in the context of the operating environment you may be familiar with. In particular, some of the standard reserve techniques are known to fail for several kinds of reasons. In your handouts for this seminar, you got the CAS statements of principles for loss reserving, and if you look at that sometime you'll see a listing of the kinds of things that can affect standard reserving techniques. And we're going to be dealing with a couple of kinds of those things today in showing how you either adjust your data base or adjust your actuarial methodology to account for these sorts of things. I think we have an awful lot of material to cover in a limited amount of time, and we want to encourage as much audience participation as possible, so I want to get started right away. Dave is going to be doing our first case study, and he'll be talking about that, and we have quite a few slides on it, so maybe we'll just get started, Dave, and play it by ear.

Okay, we are going to assume you dilegently attended the basic concepts in loss reserving techniques I, II, and III, committed them all to memory, and are an expert at them. What we have here is the first case study, really draws upon what you may have been shown at techniques I and II. To bring everyone up to speed, lets quickly go through and I'll highlight the key points of the little scenario for this case study. ACME Mutual, somehow they've managed to corner the comprehensive package policy market for antique stores and flea markets, and produced $180 million of earned premium in 1984. 84 was also a very big growth year for them, increasing written premium by 40%. They currently have $60 million in surplus, but they've paid the price for that growth, because 1984 was not quite up to par on a loss ratio basis as the prior years were. In September of 84, the Chairman and President, Bill Acme, he attended the CLRS. After he returned home, he met with all his claim supervisors. They were having one of their annual conferences, and there he stressed the importance of strong case reserves, and he quoted to them, "strong, adequate case reserves are vital to the financial integrity of the protection we offer to our policyholders." And, this just the daylight out of the Vice President of Claims to know that the President really thought so highly of the function he performed, so he had copies of this made up and placed in each of the claim offices. Well, year end came and went and they did all the necessary annual statement filings and bureau report equirements, and after the dust settled, he asked his brother Bob, the chief financial officer, "Why don't you take a look at our reserves, and run them through one of these fancy techniques I learned at the CLRS". So, his brother said sure. Up until this point, all they had done is put up 5% of premium as IBNR. So given last years earned premium was $180 million, 5% of that, 9 million dollars was all they put up as a required IBNR reserve. Well, Bob crunched through one of the loss reserving techniques, the incurred loss link ratio technique, and he came into his brother's office all white-faced and sweat beading off his brow, primarily because if you look at his quick analysis here in the center, for the accident year 75 - 84, the estimated ultimate using this projection technique came up with a total 813 million dollars; reported losses were 718 million. The difference between those two is your IBNR of 94 million dollars. Well as you can see he was bit distressed by this, they had only $60 million in surplus, they only put $9 million in IBNR. This wonderful reserving technique said they needed almost ten and one-half

times that much. So it looked pretty grim at this point but his brother Bill obviously been around for a while, was not about to get flustered by this and said, I think its time we get an actuary to take a look at these numbers and see what he can do with them. If any of you have had the opportunity to attend the general liability session yesterday you'd see some of the nice adjustments that can be made to the numbers to make them a bit more palatable. I think obviously, Bill had seen this done before so he decided to call an ace actuary to look at this.

So given this introduction, this is what you're faced with and you get the phone call and hopefully the material you got in the registration packet (the first 12 exhibits).

Now what I'm going to do is offer a possible solution to this. There is no one correct solution. I'm merely going to show you one that through years of playing with numbers like this would be an approach that I would take given the data that is presented to me. For some of these slides the numbers are rather small and you're going to want to refer to the numbers in your handout that you picked up in the back. I'll refer to the exhibit number.

One of the first things that I would do in a situation like this, given the data that you have, which is basically, you've got outstanding losses, the outstanding counts that go with them, and the average reserves and the same set of exhibits for paid losses and incurred losses, the ratio of paid to incurred losses and then the annual link ratios for both the paid and incurred losses. Those are the 12 initial exhibits that you are given.

Now what I did, this is exhibit 12 in the, all these exhibits that I will be referring to are here in the package that you picked up in the back. One of the first thing that I would do is go through and do a straight incurred loss link ratio projection. On this exhibit you see the selected link ratio in the first column to the right and the second column the cumulative link ratio.

Now to select the link ratio, which is probably any number of things that you could do, just look at the 12-24 month line. You will see 10 link ratios there, they don't bounce around very much. You may look at them and say oh these are terrible, because you look at the text book example of reserving you'll see 5 link ratios and they may vary by less than a tenth. Well, that's what happens in a text book.

Question was how did I end up with some link ratios less than one.

A couple of possibilities for that. One, salvage and subrogation; two, remember the claim adjuster sets up his reserve, its his best estimate at the time given the fact of what he thinks the case may be. He may have reserved the case initially at a 100 thousand dollars based upon the facts at the time. Things may have worked out for the best, we may actually have one one damage award it settled it at 60 thousand, so the development will go from 100 down to 60, thats how something like that will happen.

These numbers actually are pretty close to a real set of numbers that I have dealt with. Now what I did to the 120 to ultimate factor of point 99, if you will look at..., don't do this now, but for 1975 the paid losses were 35.2 million, the incurred losses $35.6 million, so it's 400 thousand left to play with there. All the claims have come in, I just selected an ultimate of $35.5 and that resulted in a factor of .999. Otherwise for the rest of them I averaged the last link ratios to get the annual one. I took a straight 3 point average. So there are a number of techniques that you can use. You can look at the last 5, toss out the high and the low and average whats left or try to fit them to a trend, if you think that there is a such thing as a trend in these things. There are any number of

things that you can do.

Basically for this example, I took an average of the most recent 3 link ratios. And thats what I got.

Lets go to the next slide.

Okay, I did that for the incurred losses. I did the exact same thing for the paid losses. Same set up. I just took an average of the most recent 3 link ratios for each evaluation date and I used that and came up with another set of loss development factors. These however, would be applied to paid losses. So the first set is applied to your incurred losses. This set you'd apply it to your paid losses.

Again if everything was perfect and hopefully the ultimates that you would get for each of these would come out to be identical. It will probably never ever happen in your life time, but ideally that is what you would like to happen, or hopefully not to far apart, that you would take either one that wouldn't matter.

Lets show you what happened.

Question...,

What I did, when I got out to the tail, the ultimate that was produced for 1975 using my incurred losses, was $35.5 million and 5. I started with that and to get, using paid losses, the $35.5 required a tail factor of 1.007. Basically when I, and this is something that you going to almost always have to do, because your paid losses, your incurred losses will hopefully reach the ultimate level alot sooner than your paid. Your paids could go on for ever and ever until they finally get ultimate. So that what I generally do for the oldest year, you're pretty sure of your ultimate, I mean I can't go too far wrong because 1975 the paid losses were at $35.2, the incurred losses $35.6. It's some where between those two, you can't go too far wrong. I picked $35.5. Given that as my selection, I'm not going to change it the required paid factor to get one twenty to ultimate is 1.007. For these particular examples and for what I normally reserving, no. What I and as part of my job I also, I feed my loss development practice to my pricing counterpart who uses these for sometimes individual risk analysis, for his studies by state of coming up with rate adequacy studies at that point I smooth them. I say here this is what you could expect, so if you use it for any thing other than what I'm going to do it for yes, I'll smooth them out. But for purposes of this, no.

So here you are, two sets of factors. Let's apply them to the respect to paid and incurred losses and see what we get.

Concentrate on the first two columns. First one projection of ultimates using paid losses. If you take those loss development factors that I just showed you on the prior exhibit and apply them to the most recent paid loss --- in year, you'll get those strings of ultimates. And they total 659 million dollars. The next column is the projected ultimate using the incurred losses. There is a mistake in that number $813,385 at the bottom, that's $813,205 that is exhibit 19, so you might want to pencil that in. It is the only exhibit I didn't have my PC so I did this one by hand and I added them up wrong and that is terrible that the computer made me worthless.

As you can see the difference between the paid projection and incurred projection is almost 150 million dollars. That is a shade more than what we would like to have so you don't just add them up and divide them by 2 and say thats it. So it requires a bit more

analysis.
Now, lets go to the next exhibit. Exhibit 10, that you can find in your initial handouts.

One of the first things that I would look at given I'd see this great disparity between the paid and incurred losses, I want to look at my ratio of paid to incurred losses. This is a real good exhibit to do, because what this is showing you at same points and time are those losses that have been reported what percent have already been paid.

Lets look at the first line up there, the 12 month line.

First row. And lets look at the last 4 points, 5 points. 1980, I'll interpret that one. 37.5%, if I just take the raw paid losses, divided by the incurred, it says 37.5% of my incurred losses have been paid by 12 months. In 1981 only 36% had been paid, in 1982, 34.5%, in 1983, 32.1 %. Then all of a sudden it just drops like a rock down to 24%. Now what this is telling you at this point is that either one, we have a change in our payout pattern, (we are paying our claims more slowly than in the past) or two, the case reserves are being increased by more than they have in the past, or three, there may be a combination thereof.

But this lets you know that something is happening plus it gives you an idea of which development factor, ratio of your paid to ultimate or incurred to ultimate, which ones are more important that they line up.

Lets just pick, lets look at 1980. Lets assume that in 1980 at 12 months the reported incurred losses for 1980 were identical to what we had in 1977. Let's say they each had $100 incurred losses. This 37.5% number for 1980 says, I have 37 and one half dollars paid out of that 100. Go back to 1977 it says I had 40 dollars paid out of my 100. Well you would expect to have different paid to ultimate ratios then. If my reported loss in each year is 100 at 12 months and say my ultimate is identical for each of those 2 years, you'd expect your incurred to ultimate factor to be the same but your paid to ultimate to be higher in 1980 than it is in 1977 because you have much less paid. So what this exhibit does for you, it lets you know really which set of numbers as far as paid to ultimate or incurred to ultimate are more important to have lined up. So what this is telling you is that its probably more important that my incurred to ultimate ratio look good than my paid to ultimate. What this is telling you is that my paid to ultimate ratio should generally be increasing because I have much less paid at the same point and time in my recent years than I did in my prior years.

We can get back to this one if it causes any problems. But this is a good key exhibit to put together.

The next thing that I would look at, this is exhibit 6 in your pre-registration handout, this is the average paid. In the prior exhibit I got some information that I'm having less a slower payout of my ultimate losses than in my most recent years. Its starting to slow down for what ever reason.

This average paid just shows you what the average paids have been over the past 10 years. If you would go through and calculate what the average change in paid has been, you'll find that it averages around 6%. It doesn't vary whole lot from that. So if you go from accident year to accident year on exhibit 6 you'll find that the average annual increase, it hovers right around 6%, I around 6%. So nothing looks too suspicious by looking at my average paids.

Now I'm going to look at the average case reserve. This is exhibit 3.

Now here if you go through and look at this you will find out that in every year the average reserve is increasing by 11 and one half percent, except the most recent diagonal. If you look at that last diagonal, in 1984, $10,500; 1983, $17,300; 1982, $17,600; and just go down that last diagonal, I tried to make this sort of jump out at you. Those last points in time, that average reserve, that's 36.5% increase over what you've seen before. So the average jumps by 25% more than you were use to seeing. The 11.5% increase in average reserve now went up to 36.5%. And this is obviously is a result of this talk with the claim department stressing the need for strong case reserve. And really I've been through a --- with this, and it really and truly happened. As an actuary or reserve analysts one of the worst things you could do, even if you have difinitive proof, is tell the reserving department that, historically I could prove your initial case reserves are always 10% too high or 10% too low, I mean that will just kill you. Because the main thing that you are concerned with is consistency, if they've always been 10% too low or too high, it will be reflected in your loss development and you'll pick it up, if you cause them to change that and they don't tell you, you're going to be double counting. Or if you told them that they were too low, or you could put your self in their shoes, if you tell them I can prove you're always 10% too low, what are you going to do; I'm going to increase my case reserves. I'd like them to be as accurate as I could. And as the actuary reserve specialist you're going to come along and continue to increase them again for that deficiency that was there in the past, which is no longer there. That's why consistency is critical, gives a basic starting point of all your analysis, namely, that history is going to repeat itself. Now generally it doesn't, you try an adjustment, make some objective adjustments for changes you know have happened, but basically you don't want the claim department to go off and do this any different. Keep on with their same reserving philosophy, that's why it's nice when the first thing you want to do is check how stable is your claims personnel. Have you had the same people out there for some time, it would be really nice if you could have a list of every bulletin that is sent to the field, as a reserve specialist you should have a copy of that, so you can see. Alot of things that they say shouldn't affect you at all really does. So now we're faced, with, it looks like what the source of the problem is. Dramatic increase in claims adjustment reserves. They want to make sure we have good strong reserves and they obviously did the job.

Exhibit 14, these next set of exhibits all I've done is gone back and adjust my figures for what I think should have happened.

This slide is a slide of the average case reserves and what I've done during that last diagonal, along that last diagonal, the number in parentheses is the average, I would have expected to see if the 11.5% annual trend continued. So for 1984, the number you see up there $10,522, that is the result of a 36.5% increase. Had the 11.5% historically increase persisted, I would have seen $8,595 and that's what I've done all the numbers in that last diagonal. Number in parentheses is the number that you would have expected to see if the 11.5% increase in reserves have persisted.

So you're assuming that the big increase wasn't a result of what I'm sure the CEO or the company thought was a harmless statement, just a pep talk to his claims adjusters, it turned into see a big increase in the reserves, so undoing that here are the average reserves I would have expected to see at this point and time. Next slide is exhibit 13. All I've done is shown you what the case reserves, total amount of case reserves would look like. I've taken my new average case reserve times the outstanding counts. That all this is, I just have a new case reserve --- counts times my new adjusted average gives me total case reserves.

So again in 1984, instead of the $105 million of case reserves that were there, I really

should have expected to see $86 million. Next slide.
This next slide is the adjusted incurred losses, its exhibit 15.

All I've done here is taken the paid losses and added to them, my new adjusted case reserves. And this is the set of incurred losses that I would have expected to look at. So in 1984 the $138 million number has been replaced by $119 million number. So incurred losses drop by about $19 million due to this adjustment that I made.

Exhibit 17, all I've done is shown you here the new ratio of paid losses to incurred losses and again you can see what this adjustment, the ratio of paid to incurred along that last diagonal lines up a lot more nicely with what you would have expected after this adjustment. You're going to need to check yourself out some of these. Cover up the last diagonal, okay, had I seen this trend, what would I have expected to see along that last diagonal. So in 1984, the ratio of 24% of paid to incurred is now replaced by 27.8. It still might be a bit lower than you would have expected, more of a drop, but it's much more in line than the 24% that you saw there.

Exhibit 18, all I've done now is calculate a new set of incurred loss link ratios. Again if I replace the 1984 diagonal of incurred losses with my adjusted incurred losses, the numbers in parentheses are the new link ratios that would result. And again, all I've done, went to the same technique, I just took an average of the most recent 3 link ratios in each year, use that as my selected link ratio muliplied them up, get my cumulative loss development factor. So now I've got a new set of loss development factors, and now I'm going to apply them to an adjusted set of incurred losses.

Next slide. Which brings us to exhibit 20.

Now you can see on the top half of this exhibit, this was our initial set of figures. Those are our estimated ultimate losses, $813 million for the required IBNR of $94.5 million dollars. On the bottom half using these adjusted incurred losses I'm down to 726 million of estimated ultimate. Reported, of course, stays the same.

My required IBNR is now only $7.6 million. The $9 million that they had up doesn't look nearly as bad any more. So as you can see this was a, the adjustment that I made was one adjustment that could be done in this that again it assumes that this big increase in case reserves was result of this speech to the claims department. You'd have to go back talk to the claims department, find out, really what this really did, you could do some testing of some sample cases and it wouldn't be really hard to find out that this was just an one time increase in case reserves that did you in. By making this adjustment to the incurred losses that you've expected to see, you'd come up with a much more reasonable answer.

But the only thing that you should get from this is that, it doesn't take much of a change in your assumption to change your ultimates by a whole heck of a lot. You could have, in my company, we had a year in 1984 reserves were about $800 million and I tried to impress upon our CEO that, 85% of our business was work comp., GL and commercial auto. Any actuary around given that mix of business would be very pleased if they could get within 7 or 8% of the true number. Property lines, your variance will be much smaller, but for those type of lines, 7 or 8% is really pretty good, so it is a relatively small margin but 7 or 8%, you're talking on close to 70 million dollars. So that yes here is my number I might come back to you 6 months from now and say I need 55 million more. Then you shouldn't get excited by that. I may have come back and say only $55 million less, but knowing my own personal track record, chances are little slim that I'll do that to you, and just that most of surprises unfortunately you face in the reserving

business they're generally bad.
There haven't been a whole lot of really good surprises in recent past.

Any questions at this time. Yes.

There are, perhaps should be some consistency, I didn't write that scenario, I wrote the slides and to try to make a bit more exciting a moderator who wasn't able to attend wrote this scenario, but that was primarily to show that there was rapid growth, to give you more hints, there was a rapid growth in business which generally when you add new business to the books your new business comes on its usually a worse loss ratio than your more seasonal business. But there is no intentional tie in between that.

Any other questions. Yes.

I phrased that wrong perhaps. Not necessarily more important, it was more important that if I had a set of ultimates and I took the ratios of the incurred to the ultimate so I could look and say okay at 24 months of development, my incurreds are always 30% of my ultimates, lets say. If I took those same ultimates and said lets take the ratios of paid to ultimate, I would not get a very consistant pattern, lets say 24 months it might say 10% for one year, 15 for another, 25 they wouldn't line up. So there is no way you could come up with one set of ultimates that would make both your paid to ultimate and incurred to ultimate exhibits both look good. But consider the...., so you say well which one do I go with, I'm saying that by looking at that ratio of paid to incurred, it tells me that I'm obviously paying out less of my incurred losses at the same point and time, so that if my incurred to ultimate ratios that I get to line up and then I see what the implied paid to ultimates are, I'll probably see, 20% in one year, 15 in the next, 10%, 8% a slowly less percent paid to ultimate which given the paid to incurred exhibit is what I should expect to see. So that tells you basically which exhibit you should make look nice and which one you can let vary and which way it should vary.

So if I'd given a set of ultimates, my incurred to ultimate ratio should line up. My paid to ultimate ratio for the same point and time should show a decrease in ratio paid ultimate because its telling me I have less paid at the same point in time in my later year than I did in my prior years.

That's all it just gives you a little guide, cause to which ones you want to pay more attention to. And again, you're always going to want to..., your paids are always, almost always are going to show more consistent in link ratios than your incurred but, you've got to look at your incurred, cause that's sort of like your early warning.

A million dollar claim come in, your paids aren't going to show that. Your incurreds will because the claim had just has got it up in reserve. So you gotta somehow deal with that situation. You have a lot of nice stability with your paids, but you are missing an important data, the claim adjusters reserve, and that's the best thing you've got to go with. Like I said again, you may have to make some adjustments for that, but you've got to look at that piece of data.

Anything else.

If you ever have time to work through this, I think you have enough data that now given this solution, and that leisure time can be found, you can come up with your own scenarios, if we have time later on, I did a counts, times average projection, any number that you could do, you generally like to do enough techniques, you've covered most of the possible sources of bias.

Lee Smith: The first case study illustrated one kind of situation which can arise, which would make standard loss reserving techniques perhaps fail. The second case study is another kind of situation, totally different kind of situation where one could hypothesize when one does this standard loss reserving technique, that those standard techniques are failing. The procedure that we're going to talk about in this second case study, is maybe a little more dangerrous to use in the sense that there can be a temptation to try to start out with the answer and then work back to the reserves and we're going to try to illustrate in our sample, we tried not to do that but you're walking a pretty thin line. We are illustrating a method which is known as the Bornhuetter - Ferguson method, which you may or may not know about. I think some of you may have been exposed to it yesterday. The basic idea of Bornhuetter - Ferguson is to select a loss ratio for years where in this case, accident years, where you're not real sure that your data is mature or where you feel there has been some unusual situations maybe a type that Dave was talking about in the first case study, where the standard techniques aren't working, you can't rely necessarily on your standard loss reserve techniques, so what do you do.

Well one thing is to make adjustments of the type that Dave did if you know what's distorting your data.

Another is a, kind of an old fashioned approach in a way of selecting loss ratios and I think alot of people who aren't necessarily in insurance companies, lets say risk managers for entities which may be providing some of their own insurance or trying to estimate what some of their liabilities are, they maybe more likely to try to use this kind of a technique. This is very difficult to do, but in any event, for this particular case study, we have a company which is writing professional liability insurance and we are finding, and some of you who may work the area of professional liability maybe finding that standard actuarial techniques don't always work precisely when you have a type of insurance where the payments may not be made for up to 10 or 15 years after the point and time that which the liability rises. And so you're sitting there 15 years prior to payment trying to estimate what your ultimate liabilities are going to be.

In this particular case as we go through some of the numbers we'll see that we are getting some results, which don't make a whole lot of sense when we just blow it through a standard technique, and so we come up with a way of modifying that technique.

This particular company has been writing since 1976 I believe, and things are going along fairly well until about 1981, 1980 some where in there, we talk about a tail hitting, and if you're not familiar with that sort of terminology, they're dealing with a slow closing line or professional liability type coverage is that you can write premiums for a while and collect a lot of premiums and some of these medical malpractice companies that were set up, they might have written 20 million dollars in premiums a year in 1976, 1977, 1978 and paid out no losses, so their assets were going up 20 million dollars a year, they had a great cash flow. And not knowing what the rates should be, they just assumed that their rates were probably adequate, maybe they selected the rates that were in the market place when they were set up or what ever. So they were booking an IBNR which basically balanced back and gave them increased surplus of the type that they wanted to show each year. Then all of a sudden, five years after the initial policy is written a bunch of the claims that had been waiting out there to hit happened to this particular company. So we're going to see some standard loss reserves triangles which you and I are both sick of seeing, but they do illustrate maybe a unique situation and maybe a somewhat if not a unique way of handling, it looks a little unique, perspective of what you might handle such situations.

We're going to go very quickly through some of the numbers because its not overly important to dwell on them. But I think, starting with the first slide, one of the things that I do, I make a lot of people do when they're trying to decide what's going on for a type of insurances, before you go through all the calculations before you take what we call your link ratios or your growth factors or what ever. It's often a good idea just to look at the numbers and so I want to spend just a few seconds any way with this slide up there and everybody kind of looking at the numbers and seeing if this just by looking at it with out doing any actuarial mathematics, we get any kind of feel for what's going on in this company that may help us later determine what kind of subjective judgements to make about the future growth of these claims which the claims unit reported and we'll be providing later on the reported incurred losses and so on and so forth. But for each triangle that one might look yet may reveal a lot of information by itself and if you go through all the calculations before you just look at the numbers and try to absorb their meaning sometimes you'll lose the meaning of the original numbers, you get lost in all the mathematics. One of the things that I would note here is if you look at the development stage 12, the first year of report by accident year I noticed a fairly significant growth pattern beginning in 1980 in terms of numbers of claims reported at the first reports, so for accident year 1980 as of the end of 1980 year we had 60 claims reported, whereas for 1981 that one year maturity we had 94. So we had more than a 50% growth number of claims reported in that one year period. Then we see another dramatic growth in 1982. So either though the socio-economic phenomenon occuring here or a change in settlement patterns or what ever we're not sure by looking at this reporting pattern, which is probably a better way of thinking about it, since its claiming its report. And you see some of the same patterns later on at 24 months, again you see a fairly dramatic growth of from 79-80 and 80-81 and that basic pattern is going to influence everything you do. So if you spend a little time before going through, just looking at the numbers and hypothesizing what they mean, your original bias may be wrong, but at least you've come up with some original thoughts which you could be testing later on, otherwise you don't have any perspective. So let's move on to the next slide. Some of these slides are pretty mechanical and there's not, I don't think, a lot of point of spending a lot of time on them, and these are just traditional growth factors we can see, maybe the only thing we need to point out here is that there is some instability in the way the claims reported have grown, particularly if you look at the accident year 1984 the growth in the first report to the second report is 4.2 compared to 1983 growth from first to second report of 2.7, we can see that there is some instability here which might give you a clue that you're going to have some trouble applying standard techniques because if you just take an average, and let's say the average is 3.5 you're not necessarily doing a very good job. Because maybe the 4.2 is telling you something, maybe there is a trend there whereby, we're going to see a 5 the next time or maybe the 4.2 is an aberration that's going to go back down to 2.7, and thats going to have a significant influence on your results.

For example, this variability in claim counts at early stages of development may lead you to check with the claim department to ascertain that no procedures were changed as to when a claim enters the books. These are the kinds of things that one ought to be thinking about as one goes through, I think the standard table before producing any particular results, just think about what some our numbers might mean.

Here we have just calculated some selected development factors at each point and time, you can see that we've filled out the triangle in this case, which you may or maynot have seen before but, for example in 1985, 24 - 12 factor, that's a selected factor that's not an actual factor, so what that basically is the average of the factors above excluding the high and low. The 5 previous ones excluding the high and low is just giving you a selected factor so that we could go ahead with the analysis and see what it tells us.

This just fills out the triangle of claims units reported by applying the factors we've selected to the known amounts to produce the unknown amounts. Say for example 1985 at the end of next year we'll have 590, and at the end of the year after that we'll have 1,346 if you don't do this kind of, what I call a fill out sometimes you'll never test how well you're doing. This tells you something, because if you've done this projection at year end 85 and then you look at your claims count back, during at the middle of next year let's say July 86, and if you're already above 590 claims for accident year 1985, then you know that last year your procedure wasn't working right. This gives you alot of useful information, in addition to allow you to do alot of analytical stuff.

There is a lot of useful information in loss reserving that doen't go directly to the bottom line which just gives you some information that you could use in doing financial projections and staff planning. If you're going to grow and your number of claims increase by 3 or 4 times the next couple of years based on your projections, you want to hire some more claims people and things like that. It gives you some useful information.

These are the reported losses, now which correspond with the reported units we looked at before. Again we can see that same kind of pattern, we can see that we've had tremendous growth at first report for example, for 1979, we had about 507,000 for the first report, where as were up to a million at the same point in time for accident year 1980 and 2.5 million for 1981, and 4.7 million 7 for 1982. So we have a tremendous growth rate here in our reported claims and assuming that we're writing the same number of policies here that our exposure isn't growing, what we're seeing is a tremendous trend in frequency, severity, or some change in the way the data is being reported and again we can talk about all of these numbers but we don't have time so we'll just keep on going.

This slide is the average severity for the initial part of this case study. We used a procedure frequency times severity a number of claims times average claims, you've been exposed to that probably already. You could just look at the reported dollars and look at how they'd grown historically and predict how the immaturity is going to grow. This particular case does the number of count projection which we've already seen, and then we project the average cost per count and multiply them to gether to get our estimate of ultimate. It's not all that tricky it just uses two pieces instead of one. And this is the actual report on severity, I don't think, there's nothing there that we haven't talked about before.

These are the factor which we don't need to talk about.

And this is filling out the triangle, it's starting to look familar so we could just keep running through this.

If any one wants to stop along the way, if this gets too fast or too slow you could let us know. This is filling out the triangle and this kind of exercise is useful just as the filling the number count triangle would be in a sense that you could see what your expected severity is going to be at each point and time for each accident year.

For example 1985, we're saying that the average reported claim as of the end of 1986 will be 33,000 compared to 25,000 at the end of 1985. This gives us some useful information perhaps for managment planning and so on and so forth.

Note that ultimate severities through accident year 1980 exhibit reasonable trend patterns but that substantial variability exists for the less mature accident years 1981-1985.

These are the projected losses now and this is our loss projection which gets us to our loss reserve estimate and we've just muliplied the projected number counts by the projected average cost per count and filled out the triangles. So again this also gives us useful information, it tells us, how much money is going to be on our books without IBNR at each point in time we can see accident year 1985 we're predicting it's going to have a reported amount by the end of 1986 of $19.135 million.

Again that kind of information, although that can also be useful outside the context of loss reserves. Okay, we're getting into some real numbers here. We have the ultimate losses, we take out what's been paid and we get our estimated loss reserve.

Now in this hypothetical case, we just to make it interesting, lets say that the company currently has a 200 million dollar total reserve IBNR plus case, and therefore this projection says that they have a 80 million dollar problem. We might also hypothesize that they have a 60 million dollar surplus. I think the case study says what would you do over the weekend. Well I'll go to Wisconsin, but I surpose that somebody that is diligent might try to sit around and figure out what is going on. I guess that in this case we're going to assume that somebody is going to do that and we'll start moving through that.

These are the projections of ultimate loss ratios that result from our incurred projections and this is kind of the key to why one might decide to go the Bornhuetten - Ferguson method which we're illustrating. As I said, its fairly dangerous, maybe these numbers are right and maybe somebody in the financial area said to the actuary were broke if we go with your number so we're not going with your numbers. Come up with some other numbers. One way to do that is Ferguson, that's not the way we're recommending today. But another possibility is that you know that you've raised your rates dramatically, actually beginning in 1978 and you also re-underwriting your business. You think you have a better mix of business, you think your loss cost ought to be going down, your premiums are going up 30% a year and yet your actuarial projections for whatever reason are saying that your loss ratios are going to deteriorate up to 300% base on fairly limited information for example. For 1983 we only have lets say reported 30% of all our cases and we only have paid maybe 10%, so with 10% of our payments in we're saying the company is broke. Is that fair. Well maybe it is but if you have a good reason to believe that maybe its not, then we'll try to find some other technique which will either verify the original answer or give a better answer and that what were now going to illustrate.

Well it's actual earned premium divided into projected incurred losses. So we're saying that incurred losses as we predict, based on our actuarial model are going to be 2.86 times the premiums that we earned for that year.

Any of you who have worked with medical malpractice may not be as shocked at this scenario as those of you who haven't, in any event were assuming that we should be shocked to illustrate the Bornhuetten - Ferguson method here. We'll move through this very quickly. Well, what we've done, we've gone ahead and done 2 different kinds of projections now and we're going to do a basic paid projection which you probably were exposed to yesterday. This is a paid projection and this is a paid triangle and the next screen will show the link ratios or the growth factors, whatever you want to call them.

For those dollars paid, those total dollars paid, and the next one will show the selected factors and again all we're going to go through and say based on historical growth patterns and paid loss, here is how we think the future is going to go as far as the years that are not fully developed. We'll just keep going.

Okay here are the paid to ultimate factors or the loss development factors that came out of the paid loss model, the typical development model, as far as how much we think each of these years is going to grow until fully developed. For example in 1976, we're saying that it is fully paid so we have no more payments that we expect to come in there. In 1977, based on historical growth of prior years we think its going to grow another 19.1% although we're down to 1985 where we see that we expect whats been paid at the end of 1985 to grow about 4,000 times before its closed out. Though looks kind of large, I've seen bigger ones. And these, the ultimate development factors than could be translated into the paid factors, in other words the percentage of the ultimate loss which have been paid to date and its basically the reciprocal of the development factor and we need this factor as you'll see later on to apply the Bornhuetter - Ferguson method. The idea of producing this, for example 1977, we're saying that we're 84% paid now, the implication that is that we're 16% unpaid. Our development analysis is telling us that we have 16% more claims to be paid. We've already paid 84% and the other numbers can be interpreted similarly when you get down to 1985, and you can see we don't even think we've paid one one-thousandth of our claims yet and therefore we have more than .99974 to go. And these unpaid factors are used in applying the Bornhuetter - Ferguson method as we'll see later on so lets try to keep in mind these unpaid factors, they're just telling us what percentage of our total ultimate is unpaid as of the time you're doing the reserve analysis.

Now here is where we get into the tricky part of the Bornhuetter - Ferguson method - how do you decide what loss ratio is expected.

You have to pick an expected loss ratio. Our actuarial projections are saying we have 300% loss ratios to be coming in some of these later years. Well we're saying because of all of this good stuff we've done, we're only going to be 160. Now the reason that one might be able to say that, there may be a credible way to say that, and a number of incredible ways.

The credible way might be that the you're really comfortable with your ratemaking. That you've really done a good job with your rate making sinces 1978 and that your assumptions are reasonable. And that you really don't want a 160% loss ratio, you're really shooting for lets say 120% loss ratio, and that sounds probably kind of high too, but for a line like medical malpractice, where you could earn 30% investment income, you could survive pretty easily on a 120% loss ratio.

So you have a 120% loss ratio targeted in you ratemaking but you *** TAPE DISTURBANCE***, why your target loss ratios are a 120% and your actuarial calculations said that you needed to go up to x amount to hit 120% loss ratio, the market brought your rates back down and your say that based on our actuarial projection our loss ratios ought to be 160%.

If we have 160%, and these are earned premiums, you could see the earned premiums in the next column, then our estimated ultimate losses and losses expenses incurred are really the numbers on the right there, as opposed to the ones that are coming out of the actuarial model. But this isn't the end of the story because the Bornhuetter - Ferguson method doesn't just allow you to select your ultimate losses based on loss ratios, what it does is produces your expected ultimate losses and then it uses those along with the factors we produced earlier the unpaid factors - to determine what your ultimate loss are going to be and thats the next slide. It's a little bit, this gets a little bit tricky but the concepts are not as tricky as the words I don't think, you just have to study it a little bit.

Now here we get back to unpaid factors so we're saying, okay for 1977, 16% of our claims are unpaid of our ultimate losses. Well our loss ratio approach says that our ultimate losses are going to be $6.6 million. 16% of them are unpaid, based on our development model therefore we're estimating our current unpaid losses are $1,066,419. The other numbers can be similarly interpreted. So what we've done here is we said, we've come up with an estimate of ultimate losses, using a loss ratio approach, but we've used some of our development factors to decide of those ultimate losses, what is left unpaid, and the unpaid losses that arise from this method are different from the ones that would come off of using the straight loss development approach that we saw earlier. Rather than having a 160% loss ratio for each year when we come up with our final estimates, they will vary depending on the degree of maturity of the accident year.

Here we have the unpaid loss and loss expense amounts that are coming out of our Bornhuetter - Ferguson model now. It's $192 million I think if we remember it was $280 million previously, so we've been able to save the company about $88 million by going to the Bornuetter - Ferguson method and somebody is going to be real happy about that and we add back to that our paid losses,
our historical paid losses which we assume are given.

The paid losses are given. The unpaid are being estimated by the Bornhuetter - Ferguson method, so if you see, there are 3 ways that we could have estimated the incurred losses.

The first one is what we did, our counts times average, and we came up with one estimate of all incurred.

The second is just pick a loss ratio and that will give you another estimate.

The third is kind of a compromise, where you take your factors from your projection and give them some weight, and then you take your loss ratios and you give them some weight and then you come up with kind of a balanced reserve estimate. In any event we come out with $192 million here for our reserve estimate. You add it back to your paids and you get back to $306 million total ultimate incurred for all your accident years. And I think then the slide produces the loss reserves that result from these ultimate incurred estimates by backing out the paid and we need these for the last slide here which shows the loss ratios which result and we can see again, rather than the Ferguson producing the 160% loss ratio which were a starting point of the assumption of the model, they really produced quite a bit higher loss ratios depending on how much mature the year is because remember we're accepting the paid losses. We are not using loss ratios to overrule what we know about which is the paid losses, we're only using it to estimate the unpaid portions. So the paid losses which were fairly high relative to the 160% assumption are influencing the years for example the 1979, 80, 81 and 82, quite abit. So rather than resulting in the 60% loss ratio this reserving technique produces loss ratios in excess of 200% but still less than the 300% or so that your standard actuarial techniques are produced.

So you could say that the Ferguson method is one kind of smoothing method that one might use in development analysis, when you feel your standard techniques aren't producing logical numbers.

I'll stop here a minute, you may just want to look at the stuff a little bit, there may be some questions, think about it a little bit. We have a reported projection which shows how the Ferguson method could be used on reported projections as well as paid projection, but the concepts will be the same equally confusing no doubt-so we might as

well stop and absorb this for a minute. If anybody has any questions that's fine. Now we'll just go ahead and do the reported projection and its going to be a similar analysis as the paid approach, only in this case, rather than excepting the paid losses as the paid projection using Bornhuetter - Ferguson, this method excepts the paid losses and the case reserves so we're giving more weight to the actual company data than the paid basis that we just looked at and we're giving less weight to the selected loss ratios. And we'll see that the effect of that is to produce higher loss ratio estimates at the end. I think that we saw this particular slide, this is just a report of losses that we used in the original projection. And the next slide is the development factor on those which were all familar with at this point I'm sure. And I think we'll fill out the, now here we select our factors, we're just going through, this is a standard reported projection at this point, if weren't using Bornhuetter - Ferguson we'd just go through, select our factors and apply them to reported amounts and we'd be done, back out our paids and we'll have our reserves but we had a few exhibits by going to this Ferguson.

Now this exhibit looks to the one we saw in paid projection but its not quite. The reason for that is the development factors here reported development factors rather than paid development factors and so what we're getting here rather than getting an unpaid factor which we used last time to determine how much loss was on paid for each accident year, we're getting an unreported loss factor and it's a significant distinction. The difference being that we're here estimating the IBNR versus the total reserve, this application of Bornhuetter - Ferguson comes up with a factor to estimate only the IBNR portion of the accident year claim. The paid projection using Ferguson estimates both the case reserves and the IBNR. This is a little bit different.

The third column there represents what's been unreported. You start out with your loss development factor. Let's look at 1979, Dave. We can see that for 1979 we have a loss development factor of 1.12. So we're saying that 12% of our losses are not in yet. And our losses are going to grow by 12% or reported losses and there for whats been reported, is about 89% and if 89% has been reported we've got about 10 or 11 percent to go. That's what those factors represent for 79, we're saying that 11% of our losses are unreported and that factor is going to be used now to apply to the expected losses that we come up through our loss ratio method in order to estimate your IBNR.

This produces again the expected ultimate losses using our selected loss ratios, so this is identical to the exhibit we saw on the paid basis. We're still using 160% loss ratio but the bottom line will be different because of the nature of the analysis we're doing here.

Here rather than the unpaid factors we have the unreported factors, which again is only estimating the IBNR by the loss ratio approach, and therefore we're coming up with IBNR estimates in the third column there which we're going to add to what we know which in this case is paid plus case to get our new ultimate incurred.

The $96 million there is the IBNR portion of the total reserve which we'd been looking at before, the $280 million that we looked at in the original projection, 190 that we looked at in the first Ferguson that includes case reserves. Now the IBNR portion according to this analysis is $96 million, we use that, you will see in a minute.

So we have our IBNR losses and our reported losses and unreported losses in the first column. We add that to our case reserves to get our reserve estimate and basically we're saying that we took our case reserves, we estimated our IBNR reserves using the loss ratios approach to get a total reserve estimate and we can see that it jumped to $209 million. So here by using Ferguson on a reported basis to were saying that we have a $9

million deficiency oppose to a $8 million redundancy under the paid basis. So you can see that Ferguson is tricky in a couple of ways, one in terms of how you use it and what kind of projection you use it on is to how you select your loss ratios. Its very critical, unless one is really skilled at knowing what the loss ratio ought to be, there is a real temptation just to back into the answer you want. That's the real difficult process to use and its often easier to take too lightly the loss ratio selection. But in any event based on what we've done here we can see that we've had a, about a $20 million swing by going from a paid projection to a reported projection, by only using Ferguson on the IBNR reserves as opposed to the total reserves.

Surplus is now $51 million, it started at $60 million, and under this method it would be $51 million.

Let's just add the reserves to the payment to get back to your ultimate incurred losses. I think the next slide is going to show the result in loss ratios. Under this particular method, so again we can see we're getting some pretty high loss ratios again here because we're accepting whats been reported, and what's been reported is some pretty herendous stuff, and we're only using loss ratios to estimate the IBNR so we're getting some pretty bad results here and they're reflected in the fact that we've had a significant hit to surplus. So it's that we've had to fairly quickly go over fairly complex subject probably and hit you with quite a bit, and we wanted to get the exposure out there. You're welcomed to make comments or what ever but that is pretty much two different kinds of situations where we think it could be illustrated, but standard loss reserving techniques of the type that you've been hearing about today may not work, so you have to be careful. As they said, the reserving principles which was in your package talks about a number of other kinds of situations which might exist, which would make
your standard techniques not work very well, since we've illustrated maybe a couple of them. Are there any questions.

Well the best, one of the best ways is to probably just to do your reserving on a net basis where you just have your net losses. Another way is to start out with your direct losses and back out the excess amounts but one way or another if you're estimating your net loss reserve, you'll have to take the effect of reinsurance out. Its usually easiest if you use could net data I think.

Reply: I agree in general, if you could get your net data its better the time that I found that it didn't work as well is when all I had was reserving workers comp. Your retention there, it started out, I think at 25,000 long long ago and I think its up to 300 - 500 thousand now. So if you're looking at just net data on that basis you're going to see bigger and bigger loss developments just because you retention is increased over time. So looking at historical average, you're always going to underestimate your loss development factor. So in cases like that I look at my development first, get a reserve and I'll estimate what my reinsurance is separately. If your retention is staying about the same it was all about $300,000 than I agree if you could get your hands on the net data to start with, than you're in pretty good shape.

You do it on net premium, as Dave said its a lot trickier usually by taking the net data as I indicated because usually there are changing retentions and other kinds of factors, social economic factors and exposure mix factors another thing that you're going to influence these historical developments, there are usually quite a few adjustments some of which relate to reinsurance and some of which don't and there probably isn't an easy solution to that it can take a lot of time and effort. Its probably one of the most difficult areas as trying to get in the effect of reinsurance, particularly in this kind of insurance where you have particularly the same malpractice company which has retained

$100,000 for a while and the reinsurance market tighten up and they started retaining 200, 300 and then a million and 5 million and you have fairly uncreditable data. Let's say your total claim basis is 2,000 claims that can be a real mess.

If you have a basis for doing that, and I think we're looking here for example the first report on 1985 at 158 claims in malpractice insurance, probably need at least 4,000 claims to feel very comfortable with your estimate and its going to fall with in some kind of a normal range, lets say 90% of the true estimate which is probably even optimistic for 4,000 claims. So you have 150 claims it's, you're probably be fooling yourself and who ever your talking to say that you do alot of fancy statistical stuff til its mostly subjective judgement in this kind of thing. You try if you have an understanding of the company and you have a feel for how the...

CASE 1

ACME MUTUAL

PROBLEM DEFINITION

CASE STUDY 1.

ACME MUTUAL INSURANCE COMPANY

Acme Mutual Insurance is a regional specialty company that had an earned premium volume of of $180 million in 1984. It writes only a comprehensive package policy for antique stores and flea markets. Having specialized in this business for ten years, the company is an acknowledged leader in underwriting, pricing, and claim handling for this specialty class of business.

Last year was a terrific growth year for Acme, with a 40% growth in written premium, and a 60% growth in its written policies. Unfortunately, this tremendous growth left Acme somewhat strained for surplus. At its current $60 million of surplus, it is now at a hazardous 3.33 net written premium to surplus ratio. Also, the loss ratio for the 1984 year was not as good as Acme had been used to.

In September of 1984, Bill Acme, the chairman and president of the company, attended the Casualty Loss Reserve Seminar in New York City. He heard a lot of useful advice at the various sessions he was able to attend. Different panelists appeared to stress different issues, but Bill was especially interested in the session on interaction with the claims department, and the basic loss reserving methodologies presented. He recalled that his dad, the former chairman, had always been keenly interested in questions of claim file adequacy. Of course, that may have been because he started out as a claim adjuster for Acme in the 1940's. Bill had always considered himself more of a financial man. He enjoyed managing the investment portfolio ever since he had received his MBA in finance from Wharton.

A week after he returned home, Bill had an opportunity to address the company's liability supervisors, who were having their annual Claim Supervisors Conference at the Home Office. He stressed the importance of strong case reserves, and quick action to gain control of all reported claim incidents. "Strong, adequate case reserves are vital to the financial integrity of the protection we offer to our policyholders", he noted. He remembered that Dad had always had a fondness for that particular phrase. The VP-Claims was impressed and flattered with Bill's understanding of the importance of the claim function. After the conference he had signs printed with this quotation from Bill's speech, and placed in each of the company's claim offices.

After the close of the year and the filing of all the necessary financial statements, Bill called in his brother, Bob Acme, the controller and chief financial officer. "Bob," he said, "now that we've got all this year end work done, I'd like you to take a look at our loss reserves using these actuarial methods that were talked about at that seminar in New York last year."

"Sure, Bill," Bob agreed. "I've always been curious about how Dad set up his IBNR formula that we use for the Annual Statement. I'll get right on it." Each year Bob set up 5% of earned premium as an IBNR reserve for Schedule P, and that had worked well ever since both could remember.

Two days later Bob rushed into Bill's office. "Look at this!" he shouted, as he slammed a piece of paper onto Bill's desk. The paper showed the following table:

ACME MUTUAL INSURANCE COMPANY
LOSS RESERVE REVIEW
REQUIRED RESERVES AT 12/84

(amounts in $1,000's)

ACCIDENT YEAR	ESTIMATED ULTIMATE LOSSES	REPORTED INCURRED @12/84	REQUIRED IBNR RESERVE
1975	$35,550	$35,584	($34)
1976	$41,350	$41,822	($472)
1977	$48,410	$49,045	($635)
1978	$53,130	$53,830	($700)
1979	$55,365	$55,034	$331
1980	$61,550	$60,105	$1,445
1981	$67,710	$64,916	$2,794
1982	$106,650	$98,656	$7,994
1983	$139,515	$121,002	$18,513
1984	$203,975	$138,665	$65,310
	$813,205	$718,659	$94,546

"I just can't believe these numbers," Bob continued. "I followed the exact instructions in that material you gave me from the loss reserve seminar. I've gone over this a dozen times, and I can't find any errors in any of my calculations."

"If this is right, we're wiped out!. We only have $60 million in surplus, and my IBNR is $9 million. That means I'm short $85 million in loss reserves! We have a negative policyholders' surplus of ($25,000,000)! And, what's worse, the examiners from the insurance department are coming next month for our triennial exam! What would Dad say!" Bob slumped down into the chair in front of Bill's desk. He had been up all night checking and re-checking his calculations.

"Take it easy, Bob," Bill said calmly, reaching for his pipe. "I admit these numbers look pretty bad, but let's examine this a little more closely. Perhaps we ought to have an actuary look at the numbers you've got."

-↑-↑-↑-↑-

You receive an urgent call from the president of Acme Mutual. The attached exhibits arrive the next day by express mail. What do you tell him?

OUTSTANDING CLAIM COUNTS

EXHIBIT 1

VAL DATE	ACCIDENT YEAR 1975	1976	1977	1978	1979	1980	1981	1982	1983	1984
12 MO'S	3,531	4,264	4,759	5,017	5,800	4,851	4,904	6,871	7,829	10,021
24 MO'S	1,425	1,791	1,951	2,113	2,341	2,029	2,046	3,036	3,640	
36 MO'S	884	1,075	1,190	1,289	1,376	1,305	1,168	1,876		
48 MO'S	557	677	750	857	843	785	807			
60 MO'S	370	450	499	567	504	522				
72 MO'S	262	319	353	403	359					
84 MO'S	191	232	258	294						
96 MO'S	119	145	161							
08 MO'S	65	79								
20 MO'S	30									

CASE RESERVES ($000'S)

EXHIBIT 2

EVAL DATE	ACCIDENT YEAR 1975	1976	1977	1978	1979	1980	1981	1982	1983	1984
12 MO'S	11,395	15,342	19,093	22,441	28,927	26,976	30,407	47,503	60,350	105,443
24 MO'S	8,438	11,825	14,363	17,343	21,425	20,705	23,279	38,516	63,033	
36 MO'S	5,939	8,052	9,939	12,003	14,287	15,108	15,077	33,054		
48 MO'S	4,107	5,565	6,875	8,758	9,606	9,974	13,996			
60 MO'S	2,894	3,925	4,853	6,148	6,093	8,615				
72 MO'S	2,152	2,921	3,605	4,588	5,579					
84 MO'S	1,624	2,199	2,727	4,242						
96 MO'S	1,042	1,416	2,146							
108 MO'S	583	968								
120 MO'S	336									

VERAGE CASE RESERVE

EXHIBIT 3

	ACCIDENT YEAR									
VAL DATE	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984
12 MO'S	3,227	3,598	4,012	4,473	4,987	5,561	6,200	6,914	7,709	10,522
24 MO'S	5,922	6,602	7,362	8,208	9,152	10,204	11,378	12,686	17,317	
36 MO'S	6,718	7,490	8,352	9,312	10,383	11,577	12,908	17,620		
48 MO'S	7,373	8,221	9,167	10,220	11,395	12,706	17,343			
60 MO'S	7,823	8,722	9,726	10,843	12,090	16,503				
72 MO'S	8,214	9,158	10,212	11,385	15,541					
84 MO'S	8,501	9,479	10,569	14,427						
96 MO'S	8,756	9,763	13,327							
08 MO'S	8,975	12,251								
20 MO'S	11,207									

AID LOSSES ($000'S)

EXHIBIT 4

	ACCIDENT YEAR									
VAL DATE	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984
12 MO'S	9,555	11,456	12,925	13,886	15,885	16,210	17,087	24,995	28,474	33,222
24 MO'S	19,935	23,345	26,950	29,590	30,575	32,034	34,786	51,474	57,969	
36 MO'S	25,690	29,693	34,725	37,441	38,650	41,429	44,977	65,602		
48 MO'S	29,343	34,189	39,288	42,589	43,856	47,589	50,920			
60 MO'S	31,827	36,847	42,434	45,980	47,325	51,490				
72 MO'S	33,287	38,621	44,556	47,911	49,455					
84 MO'S	34,452	40,050	46,160	49,588						
96 MO'S	35,038	40,651	46,899							
08 MO'S	35,213	40,854								
20 MO'S	35,248									
LTIMATE										

CLOSED CLAIM COUNTS

EXHIBIT 5

EVAL DATE	ACCIDENT YEAR 1975	1976	1977	1978	1979	1980	1981	1982	1983	1984
12 MO'S	26,468	29,990	31,993	32,520	35,179	33,946	33,837	46,806	50,422	55,631
24 MO'S	36,780	40,742	44,472	45,258	45,809	44,688	45,889	64,211	68,381	
36 MO'S	37,947	41,968	45,872	46,743	47,256	46,250	47,481	66,111		
48 MO'S	38,476	42,630	46,641	47,479	48,071	47,188	48,168			
60 MO'S	38,761	42,945	47,039	47,896	48,493	47,628				
72 MO'S	38,918	43,119	47,259	48,123	48,680					
84 MO'S	39,006	43,221	47,380	48,254						
96 MO'S	39,088	43,317	47,489							
108 MO'S	39,147	43,389								
120 MO'S	39,185									
ULTIMATE										

AVERAGE PAID

EXHIBIT 6

	ACCIDENT YEAR									
EVAL DATE	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984
12 MO'S	361	382	404	427	452	478	505	534	565	597
24 MO'S	542	573	606	654	667	717	758	802	848	
36 MO'S	677	708	757	801	818	896	947	992		
48 MO'S	763	802	842	897	912	1,008	1,057			
60 MO'S	821	858	902	960	976	1,081				
72 MO'S	855	896	943	996	1,016					
84 MO'S	883	927	974	1,028						
96 MO'S	896	938	988							
108 MO'S	900	942								
120 MO'S	900									
ULTIMATE										

INCURRED LOSSES ($000'S)

EXHIBIT 7

EVAL DATE	ACCIDENT YEAR 1975	1976	1977	1978	1979	1980	1981	1982	1983	1984
12 MO'S	20,950	26,798	32,018	36,327	44,812	43,186	47,494	72,498	88,824	138,665
24 MO'S	28,373	35,170	41,313	46,933	52,000	52,739	58,065	89,990	121,002	
36 MO'S	31,629	37,745	44,664	49,444	52,937	56,537	60,054	98,656		
48 MO'S	33,450	39,754	46,163	51,347	53,462	57,563	64,916			
60 MO'S	34,721	40,772	47,287	52,128	53,418	60,105				
72 MO'S	35,439	41,542	48,161	52,499	55,034					
84 MO'S	36,076	42,249	48,887	53,830						
96 MO'S	36,080	42,067	49,045							
108 MO'S	35,796	41,822								
120 MO'S	35,584									
ULTIMATE										

EPORTED CLAIM COUNTS

EXHIBIT 8

VAL DATE	ACCIDENT YEAR 1975	1976	1977	1978	1979	1980	1981	1982	1983	1984
12 MO'S	29,999	34,254	36,752	37,537	40,979	38,797	38,741	53,677	58,251	65,652
24 MO'S	38,205	42,533	46,423	47,371	48,150	46,717	47,935	67,247	72,021	
36 MO'S	38,831	43,043	47,062	48,032	48,632	47,555	48,649	67,987		
48 MO'S	39,033	43,307	47,391	48,336	48,914	47,973	48,975			
60 MO'S	39,131	43,395	47,538	48,463	48,997	48,150				
72 MO'S	39,180	43,438	47,612	48,526	49,039					
84 MO'S	39,197	43,453	47,638	48,548						
96 MO'S	39,207	43,462	47,650							
08 MO'S	39,212	43,468								
20 MO'S	39,215									
TIMATE										

AVERAGE INCURRED LOSS

EXHIBIT 9

VAL DATE	ACCIDENT YEAR 1975	1976	1977	1978	1979	1980	1981	1982	1983	1984
12 MO'S	698	782	871	968	1,094	1,113	1,226	1,351	1,525	2,112
24 MO'S	743	827	890	991	1,080	1,129	1,211	1,338	1,680	
36 MO'S	815	877	949	1,029	1,089	1,189	1,234	1,451		
48 MO'S	857	918	974	1,062	1,093	1,200	1,325			
60 MO'S	887	940	995	1,076	1,090	1,248				
72 MO'S	905	956	1,012	1,082	1,122					
84 MO'S	920	972	1,026	1,109						
96 MO'S	920	968	1,029							
08 MO'S	913	962								
20 MO'S	907									
LTIMATE										

ATIO OF PAID LOSSES TO INCURRED LOSSES

EXHIBIT 10

VAL DATE	ACCIDENT YEAR 1975	1976	1977	1978	1979	1980	1981	1982	1983	1984
12 MO'S	45.6%	42.7%	40.4%	38.2%	35.4%	37.5%	36.0%	34.5%	32.1%	24.0%
24 MO'S	70.3%	66.4%	65.2%	63.0%	58.8%	60.7%	59.9%	57.2%	47.9%	
36 MO'S	81.2%	78.7%	77.7%	75.7%	73.0%	73.3%	74.9%	66.5%		
48 MO'S	87.7%	86.0%	85.1%	82.9%	82.0%	82.7%	78.4%			
60 MO'S	91.7%	90.4%	89.7%	88.2%	88.6%	85.7%				
72 MO'S	93.9%	93.0%	92.5%	91.3%	89.9%					
84 MO'S	95.5%	94.8%	94.4%	92.1%						
96 MO'S	97.1%	96.6%	95.6%							
08 MO'S	98.4%	97.7%								
20 MO'S	99.1%									

PAID LOSS LINK RATIOS

EVAL DATE	ACCIDENT YEAR 1975	1976	1977	1978	1979	1980	1981	1982	1983
12-24 MO'S	2.086	2.038	2.085	2.131	1.925	1.976	2.036	2.059	2.036
24-36 MO'S	1.289	1.272	1.288	1.265	1.264	1.293	1.293	1.274	
36-48 MO'S	1.142	1.151	1.131	1.137	1.135	1.149	1.132		
48-60 MO'S	1.085	1.078	1.080	1.080	1.079	1.082			
60-72 MO'S	1.046	1.048	1.050	1.042	1.045				
72-84 MO'S	1.035	1.037	1.036	1.035					
84-96 MO'S	1.017	1.015	1.016						
96-108 MO'S	1.005	1.005							
108-120 MO'S	1.001								
120-ULTIMATE									

EXHIBIT 11

EVAL DATE	SELECTED LINK RATIO	CUMULATIVE LDF
12-24 MO'S		
24-36 MO'S		
36-48 MO'S		
48-60 MO'S		
60-72 MO'S		
72-84 MO'S		
84-96 MO'S		
96-108 MO'S		
108-120 MO'S		
120-ULTIMATE		

INCURRED LOSS LINK RATIOS

EVAL DATE	ACCIDENT YEAR 1975	1976	1977	1978	1979	1980	1981	1982	1983
12-24 MO'S	1.354	1.312	1.290	1.292	1.160	1.221	1.223	1.241	1.362
24-36 MO'S	1.115	1.073	1.081	1.053	1.018	1.072	1.034	1.096	
36-48 MO'S	1.058	1.053	1.034	1.038	1.010	1.018	1.081		
48-60 MO'S	1.038	1.026	1.024	1.015	0.999	1.044			
60-72 MO'S	1.021	1.019	1.018	1.007	1.030				
72-84 MO'S	1.018	1.017	1.015	1.025					
84-96 MO'S	1.000	0.996	1.003						
96-108 MO'S	0.992	0.994							
108-120 MO'S	0.994								
120-ULTIMATE									

EXHIBIT 12

EVAL DATE	SELECTED LINK RATIO	CUMULATIVE LDF
12-24 MO'S		
24-36 MO'S		
36-48 MO'S		
48-60 MO'S		
60-72 MO'S		
72-84 MO'S		
84-96 MO'S		
96-108 MO'S		
108-120 MO'S		
120-ULTIMATE		

END OF

CASE 1

PROBLEM DEFINITION

This Case and all names and numbers is purely fictional and no reference to any actual person or company is intended.

CASE 2

SAMPLE INSURANCE COMPANY

PROBLEM DEFINITION

CASE STUDY 2.

SAMPLE INSURANCE COMPANY

You are the product manager for the Basic Professional Liability profit center at Sample Insurance Company. Things have not been going well for your line of business. However, in the last twelve months you have taken drastic price increases, and re-underwritten your entire book of business. You feel that you are about to turn the corner on this line, and that it will soon be profitable.

You recall the day in 1978 when a young "whiz kid" from the financial department demonstrated to you and the senior executives of your company how the company could make a fantastic return on equity by writing basic professional liability at a 150 combined ratio. He is now an insurance stock analyst with a major Wall Street investment banker. You read his columns regularly whenever they appear in the trade press.

Meanwhile, your boss's profit center has been adversely impacted by the poor results of your line of business ever since the "tail" hit you in the early 1980's. As you are summoned to your boss's office late one Friday afternoon, you wonder if those rumors about the company dropping out of the Basic Professional Liability market have any credence.

Your boss shows you the attached loss reserve study conducted by Sample's actuarial department. He states that you and he have an appointment with the chief operating officer Monday morning to discuss the reserve position of the Basic Professional Liability line.

You feel that you have taken the proper corrective action for your line. How do you spend your weekend?

Sample Company / Basic Professional Liability
Claim Units Reported

Valuation Date: December 31, 1985
Cumulative Basis

Accident Year	Development Stage (in months) 12	24	36	48	60	72	84	96	108	Ult
1976	0	12	20	27	31	32	35	38	39	40
1977	39	108	190	243	262	276	291	303	309	
1978	103	184	437	506	565	592	614	629		
1979	39	169	468	587	633	654	682			
1980	60	258	641	793	851	877				
1981	94	389	832	1005	1065					
1982	161	457	993	1168						
1983	165	448	980							
1984	90	380								
1985	158									

Sample Company / Basic Professional Liability
Age-to-Age Development - Claim Units Reported

Valuation Date: December 31, 1985
Cumulative Basis

Accident Year	Development Stage (in months) 24/ 12	36/ 24	48/ 36	60/ 48	72/ 60	84/ 72	96/ 84	108/ 96	Ult/108
1976		1.66667	1.35000	1.14815	1.03226	1.09375	1.08571	1.02632	1.02564
1977	2.76923	1.75926	1.27895	1.07819	1.05344	1.05435	1.04124	1.01980	
1978	1.78641	2.37500	1.15789	1.11660	1.04779	1.03716	1.02443		
1979	4.33333	2.76923	1.25427	1.07836	1.03318	1.04281			
1980	4.30000	2.48450	1.23713	1.07314	1.03055				
1981	4.13830	2.13882	1.20793	1.05970					
1982	2.83851	2.17287	1.17623						
1983	2.71515	2.18750							
1984	4.22222								
1985									

Sample Company / Basic Professional Liability
Projected Age-to-Age Development - Claim Units Reported
Forecasted using average excluding high and low of last 5 accident years.

Valuation Date: December 31, 1985
Cumulative Basis

Accident Year	Development Stage (in months) 24/ 12	36/ 24	48/ 36	60/ 48	72/ 60	84/ 72	96/ 84	108/ 96	Ult/108	Age-to-Ul
1976		1.66667	1.35000	1.14815	1.03226	1.09375	1.08571	1.02632	1.02564	
1977	2.76923	1.75926	1.27895	1.07819	1.05344	1.05435	1.04124	1.01980	1.02564	1.025
1978	1.78641	2.37500	1.15789	1.11660	1.04779	1.03716	1.02443	1.02306	1.02564	1.049
1979	4.33333	2.76923	1.25427	1.07836	1.03318	1.04281	1.04124	1.02306	1.02564	1.092
1980	4.30000	2.48450	1.23713	1.07314	1.03055	1.04858	1.04124	1.02306	1.02564	1.145
1981	4.13830	2.13882	1.20793	1.05970	1.03774	1.04858	1.04124	1.02306	1.02564	1.188
1982	2.83851	2.17287	1.17623	1.07656	1.03774	1.04858	1.04124	1.02306	1.02564	1.279
1983	2.71515	2.18750	1.20710	1.07656	1.03774	1.04858	1.04124	1.02306	1.02564	1.544
1984	4.22222	2.28162	1.20710	1.07656	1.03774	1.04858	1.04124	1.02306	1.02564	3.525
1985	3.73301	2.28162	1.20710	1.07656	1.03774	1.04858	1.04124	1.02306	1.02564	13.158

Sample Company / Basic Professional Liability
Projected Claim Units Reported

Valuation Date: December 31, 1985
Cumulative Basis

Accident Year	Development Stage (in months) 12	24	36	48	60	72	84	96	108	Ult
1976	0	12	20	27	31	32	35	38	39	40
1977	39	108	190	243	262	276	291	303	309	317
1978	103	184	437	506	565	592	614	629	644	661
1979	39	169	468	587	633	654	682	710	726	745
1980	60	258	641	793	851	877	920	958	980	1005
1981	94	389	832	1005	1065	1105	1159	1207	1235	1267
1982	161	457	993	1168	1257	1304	1367	1423	1456	1493
1983	165	448	980	1183	1274	1322	1386	1443	1476	1514
1984	90	380	867	1047	1127	1170	1227	1278	1307	1341
1985	158	590	1346	1625	1749	1815	1903	1981	2027	2079

Sample Company / Basic Professional Liability
Reported Losses & ALAE Incurred

Valuation Date: December 31, 1985
Cumulative Basis

Accident Year	Development Stage (in months) 12	24	36	48	60	72	84	96	108	Ultimate
1976	0	38608	[illegible]	[illegible]	634848	520367	493640	616500	638241	637760
1977	524154	2150951	3713496	4941374	[illegible]	5378039	5920749	6382713	6690003	
1978	2000804	3761907	11608133	14213512	15708416	[illegible]	14963636	17174191		
1979	507617	4283346	13885052	20446508	23557987	23475841	[illegible]			
1980	1161542	6845706	21767669	29903455	29886089	30413421				
1981	2519425	14682220	34136299	42574046	46371898					
1982	4703943	17481605	41954333	41859199						
1983	5606479	17604202	41327632							
1984	2960980	16186092								
1985	3989210									

ample Company / Basic Professional Liability
verage Severity Per Reported Claim Incurred

Valuation Date: December 31, 1985
Cumulative Basis

ccident Year	Development Stage (in months) 12	24	36	48	60	72	84	96	108	Ultimate
1976		3217	17927	16283	20479	16261	14104	16224	16365	15944
1977	13440	19916	19545	20335	22571	19486	20346	21065	21650	
1978	19425	20445	26563	28090	27803	28274	27628	27304		
1979	13016	25345	29669	34832	37216	35896	33684			
1980	19359	26534	33959	37709	35119	34679				
1981	26802	37743	41029	42362	43542					
1982	29217	38253	42250	35838						
1983	33979	39295	42171							
1984	32900	42595								
1985	25248									

Sample Company / Basic Professional Liability
Age-to-Age Development - Average Severity Per Reported Claim Incurred

Valuation Date: December 31, 1985
Cumulative Basis

Accident Year	Development Stage (in months) 24/ 12	36/ 24	48/ 36	60/ 48	72/ 60	84/ 72	96/ 84	108/ 96	Ult/108
1976		5.57258	0.90829	1.25769	0.79403	0.86735	1.15031	1.00869	0.97427
1977	1.48185	0.98137	1.04042	1.10996	0.86332	1.04413	1.03534	1.02777	
1978	1.05251	1.29924	1.05749	0.98978	1.01694	0.97715	0.98827		
1979	1.94722	1.17061	1.17402	1.06844	0.96453	0.93838			
1980	1.37063	1.27983	1.11043	0.93132	0.98747				
1981	1.40822	1.08706	1.03249	1.02786					
1982	1.30927	1.10449	0.84824						
1983	1.15645	1.07319							
1984	1.29468								
1985									

ample Company / Basic Professional Liability
'rojected Age-to-Age Development - Average Severity Per Reported Claim Incurred
orecasted using average excluding high and low of last 5 accident years.

Valuation Date: December 31, 1985
Cumulative Basis

ccident Year	Development Stage (in months) 24/ 12	36/ 24	48/ 36	60/ 48	72/ 60	84/ 72	96/ 84	108/ 96	Ult/108	Age-to-Ult
1976		5.57258	0.90829	1.25769	0.79403	0.86735	1.15031	1.00869	0.97427	
1977	1.48185	0.98137	1.04042	1.10996	0.86332	1.04413	1.03534	1.02777	0.97427	0.97427
1978	1.05251	1.29924	1.05749	0.98978	1.01694	0.97715	0.98827	1.01823	0.97427	0.99203
1979	1.94722	1.17061	1.17402	1.06844	0.96453	0.93838	1.03534	1.01823	0.97427	1.02709
1980	1.37063	1.27983	1.11043	0.93132	0.98747	0.95777	1.03534	1.01823	0.97427	0.98372
1981	1.40822	1.08706	1.03249	1.02786	0.93844	0.95777	1.03534	1.01823	0.97427	0.92316
1982	1.30927	1.10449	0.84824	1.02869	0.93844	0.95777	1.03534	1.01823	0.97427	0.94964
1983	1.15645	1.07319	1.06680	1.02869	0.93844	0.95777	1.03534	1.01823	0.97427	1.01308
1984	1.29468	1.12072	1.06680	1.02869	0.93844	0.95777	1.03534	1.01823	0.97427	1.13538
1985	1.32486	1.12072	1.06680	1.02869	0.93844	0.95777	1.03534	1.01823	0.97427	1.50422

Sample Company / Basic Professional Liability
Projected Average Severity Per Reported Claim Incurred

Valuation Date: December 31, 1985
Cumulative Basis

Accident Year	Development Stage (in months) 12	24	36	48	60	72	84	96	108	Ultimate
1976		3217	17927	16283	20479	16261	14104	16224	16365	15944
1977	13440	19916	19545	20335	2[illegible]571	19486	20346	21065	21650	21093
1978	19425	20445	26563	28090	27803	28274	27628	27304	27802	27087
1979	13016	25345	29669	34832	37216	35896	33684	34874	35510	34596
1980	19359	26534	33959	37709	35119	34679	33215	34389	35016	34115
1981	26802	37743	41029	42362	43542	40862	39136	40519	41258	40196
1982	29217	38253	42250	35838	36866	34597	33136	34307	34932	34033
1983	33979	39295	42171	44988	46279	43430	41596	43066	43851	42723
1984	32900	42595	47737	50926	52387	49162	47086	48750	49639	48362
1985	25248	33450	37488	39992	41139	38606	36976	38283	38981	37978

Sample Company / Basic Professional Liability
Projected Reported Losses & ALAE Incurred

Valuation Date: December 31, 1985
Cumulative Basis

Accident Year	Development Stage (in months) 12	24	36	48	60	72	84	96	108	Ultimate
1976	0	38608	358539	439630	634848	520367	493640	616500	638241	637760
1977	524154	2150951	3713496	4941374	5913483	5378039	5920749	6382713	6690003	6686481
1978	2000804	3761907	11608133	14213512	15708416	16738157	16963636	17174191	17904488	17904507
1979	507617	4283346	13885052	20446508	23557987	23475841	22972348	24760540	25780260	25774020
1980	1161542	6845706	21767669	29903455	29886089	30413421	30557800	32944662	34315680	34285575
1981	2519425	14682220	34136299	42574046	46371898	45152510	45358624	48906433	50953630	50928332
1982	4703943	17481605	41954333	41859199	46340562	45114488	45296912	48818861	50860992	50811269
1983	5606479	17604202	41327632	53220804	58959446	57414460	57652056	62144238	64724076	64682622
1984	2960980	16186092	41387979	53319522	59040149	57519540	57774522	62302500	64878173	64853442
1985	3989210	19735500	50458848	64987000	71952111	70069890	70365328	75838623	79014487	78956262

Sample Company / Basic Professional Liability
Projected Loss & ALAE Reserves

Valuation Date: December 31, 1985

Accident Year	Ultimate Losses & ALAE		Losses & ALAE Paid		Loss & ALAE Reserves
1976	637760	-	637760	=	0
1977	6686481	-	5739360	=	947121
1978	17904507	-	14869433	=	3035074
1979	25774020	-	19048190	=	6725830
1980	34285575	-	22244509	=	12041066
1981	50928332	-	30282753	=	20645579
1982	50811269	-	12841675	=	37969594
1983	64682622		6706048	=	57976574
1984	64853442	-	21[illegible]	-	42473644
1985	78956262	-	43507	=	78912755
Total	395520270	-	114593033	=	280927237

Sample Company / Basic Professional Liability
Projected Ultimate Loss Ratios - Losses & ALAE

Valuation Date: December 31, 1985

Accident Year	Ratios
1976	0.35594
1977	0.83703
1978	1.43142
1979	1.89306
1980	2.16620
1981	2.86867
1982	2.81080
1983	3.17385
1984	2.69569
1985	2.86665

END OF

CASE 2

PROBLEM DEFINITION

This case and all names and numbers is purely fictional and no reference to any actual person or company is intended.

Panel Session 5C

LOSS RESERVE TECHNIQUES III

Moderator: Rebecca A. Moody, Assistant Vice President
C & F Underwriters

Panel: Thomas L. Ghezzi, Consulting Actuary
Tillinghast, Nelson & Warren

Note: This session was also presented by
Douglas Kline
and
Paul Hough

1985 Casualty Loss Reserve Seminar

Kansas City, Missouri

I would like to welcome you all to Session 5C - Loss Reserves Techniques III. It is nice to see so many of you out this morning so bright and early. My name is Becky Moody; I am an Assistant Vice President and Associate Actuary with C & F Underwriters Group, which is part of Crum and Forster. I am moderator for this session and I also will be presenting about half of the material. My co-panelist is Tom Ghezzi who is a consulting actuary with Tillinghast in their Boston office.

As moderator, I have a couple housekeeping type announcements to make, which I am sure you already heard in the other sessions you were at yesterday.

The first is that the views expressed here are our own and not necessarily those of the Casualty Actuarial Society, the American Academy of Actuaries, or our employers.

The second is that this session is being taped. So, when we get to the question and answer session, I would like to ask everyone who has a question to go to the microphone in the center of room so that the question can get on the tape and become part of the transcript.

As stated in the abstract for this session, we are going to be covering four difference, but somewhat related, topics. I will be presenting the Bornhuetter-Ferguson IBNR method, as it's generally known, and Tom will be talking about the other three topics, which are the separation of the IBNR produced by the Bornhuetter-Ferguson method into true IBNR emergence and development on case reserves, the importance of the use of tail factors in both paid and incurred loss development techniques, and the use of external data in all aspects of the reserving process.

Let's begin with the Bornhuetter-Ferguson method. In case you're wondering, this is called the Bornhuetter-Ferguson method because it was first proposed in a paper written by Mr. Bornhuetter and Mr. Ferguson, who both worked for General Reinsurance Corporation at the time. As you might suspect, their primary concern was reserving for reinsurance, not primary insurance, but one of the advantages of this method, which we'll get into a little later, is that it can be used for primary insurance as well as reinsurance.

My first exhibit (Exhibit I) is just an example of the method. As you can see here, this is an accident year method, in wich IBNR is based on the expected losses for each accident year, which are simply the product of the earned premium in column 2 and an expected loss ratio of 60%. I'll discuss the derivation of the IBNR factor in a minute; for now, just note that IBNR is equal to expected losses times the IBNR factor. The last column represents the ultimate losses for the accident year, which is just the sum of the IBNR (defined as the unreported losses) and the losses incurred to date (also known as reported losses). The original Bornhuetter-Ferguson paper stresses the calculation of the IBNR only, but I think most of us in practice use this method as a way of obtaining ultimate incurred losses by accident year.

Before I go to the next exhibit, I should say that the IBNR factors and in incurred (reported) losses used in this exhibit are from the incurred loss data that was used in the Loss Reserve Techniques I session. The next exhibit (Exhibit 2) compares both the ultimate losses for each accident year and the IBNR produced by the Bornhuetter-Ferguson meghos with those obtained using the incurred loss development method in Loss Reserve Techniques I. I should point out here that the results of the two methods will not always be so close; they depend on how each method reacts to its underlying assumptions.

The next exhibit (Edxhibit 3) shows the derivation of the IBNR factor, which is applied to

the expected ultimate losses. The IBNR, as defined for this method, represents that portion of the ultimate losses not incurred on a case casis, or the difference between ultimate losses and losses incurred to date. A little algebraic manipulation of the terms, along with the substitution for ultimate losses on the next to last line, produces the formula IBNR factor = 1-1/(LDF to Ultimate).

This exhibit (Exhibit 4) actually shows the calculation of the IBNR factors which were used on the first exhibit from the incurred loss data from Techniques I. The incurred losses shown in the top part of this exhibit are identical to those you saw in Techniques I, but we've updated the accident years slighly. The development factors in the middle are also identical. In Techniques I, you heard about different ways of selecting age-to-age development factors, calculating various averages, etc. Here we just show the selected age-to-age factors and the cumulative factors, or the LDF's to ultimate. The IBNR factors are then derived from the cumulative factors; for example, .1773 is 1-1/1.2155, and .0442 is 1-1/1.0462.

Let's review briefly, to use the Bornhuetter-Ferguson method to set IBNR, you need three pieces of information for each accident year -- the earned premium, an expected loss ratio, and an IBNR factor. Although I'm not going to spend much time discussing earned premium, I'm sure some of you are aware that getting accident year earned premium is not always as simple as it sounds -- particularly with treaty reinsurance, where accident year data often isn't available at all. We generally use calendar year earned premium, but there are cases where this really isn't acceptable.

The next exhibit (Exhibit 5) lists some of the considerations in establishing expected loss ratios for each accident year. You'll recall that in the example, we used an expected loss ratio of 60% for each accident year. Although this is nice because it's simple, it may be too simple. That is, you shouldn't necessarily expect the expected loss ratios to be constant for all years. There are various reasons for this, which we've tried to list here. One of the most important, especially in the past few years, is premium adequacy. As with many fo the reserving techniques, what's important here is not the absolute level of premium adequacy, but the relative level. In other words, if premiums are alwasys 10% inadequate, the expected loss ratio will reflect this, and there's no problem. But if premium adequacy has changed or is changing, you should expect the expected loss ratio to change too. Other changes which can affect the expected loss ratio include changes in operations such as reinsurance programs, underlying limits or deductibles, claims made versus occurrence coverage, and changes in the mix of business (sublines within a major line of business, for example). The second item on this list is underlying pricing; this refers to one way of obtaining an expected loss ratio, which is the difference between 1 or 100% and the sum of the expense and profit ratios. Those of you familiar with ratemaking or pricing will recognize this as the normal way of calculating an expected loss ratio. It can certainly be used in this context also, but remember that it can also change from year to year doe to the types of changes I've just mentioned.

My next exhibit (Exhibit 6) is really two. The first one lists the assumptions of the Bornhuetter-Ferguson method, and some sample situations which should cause you to examine the assumptions before applying the method. The first is that premiums are an inaccurate measure of exposure to loss. Obviously this ties to the whole area of premium adequacy, or pricing inconsistency as it's referred to here. The second assumption is that the expected loss ratio is predictable, which as I've just explained, is often not the case. In low frequency-high severity lines of business, for example, the accident year loss ratios often vary greatly, simply due to the nature of the losses. The third assumption is a constant reporting pattern, so that the IBNR factors derived from historical patterns are appropriate for current use. Situations which can cause problems for this assumption

include the introduction of an automated claim system, which is expected to speed up the reporting of claims, or any backlogs in processing, which can occur with both manual and automated claims systems. The second page of this exhibit is a copy of the one from Loss Reserve Techniques I which lists assumptions and problems with loss development factor analyses. Since the Bornhuetter-Ferguson IBNR factors are derived from incurred loss development factors, the same assumptions are problems apply here as well.

As a way of leading into the advantages and disadvantages of the Bornhuetter-Ferguson method, the next exhibit (Exhibit 7) shows a comparison of three reserving methods for one accident year at a particular stage of development. As shown at the left of each of these sections, the expected pattern for this accident year at this age is that both reported (or incurred) and unreported (or IBNR) losses are 50% of expected losses. The two sections demonstrate how each of the three methods reacts to reported losses which are very different from expected. In the loss development method, IBNR is based on reported losses; in this case the IBNR is always equal to the reported losses, whether the actual reported losses are twice as large as expected, as shown on the left, or virtually zero, as shown on the right. The expected loss ratio method is the other extreme; in this method, the ultimate losses are fixed, and the IBNR is simply the difference between those ultimate losses and the reported losses. If the reported losses are equal to the ultimate losses, IBNR is zero, and if the reported losses are very small, IBNR is very large. The Bornhuetter-Ferguson method bases the IBNR on the total expected losses, so the IBNR is unaffected by a difference between actual and expected reported losses; you can see that on both sides, the IBNR produces by the Bornhuetter-Ferguson method is the same, and equal to that in the expected pattern. I should point out here that if your actual reported losses are much different from expected, they may lead you to modify your expected loss ratio, which of course will result in a different IBNR from the Bornhuetter-Ferguson method.

My final exhibit (Exhibit 8) lists advantages and disadvantages of the Bornhuetter-Ferguson method. The first two advantage4s were demonstrated by the previous exzhibit -- it compromises between the loss development and expected loss ratio methods, and it avoids an overreaction to unexpected incurred losses to date or reported losses. The next two advantages are also related -- the method is suitable for a new or volatile line of business, and it can be used with no internal loss history, assuming, of course, that external data is appropriate and can be obtained. The final advantage is that it's easy to use, expecially in a loss runoff situation. IBNR factors and expected loss ratios can be determined once, and IBNR reserves can be calculated for as many future years as necessary. I've already talked about two of the disadvantages in discussing the assumptions and potential problems-- these are the uncertainty of the projected ultimate loss ratio, and the accuracy of earned premium. Tom is going to be talking about what we mean by the broad definition of IBNR; basically, though, the IBNR produced by the Bornhuetter-Ferguson method includes both pure IBNR emergency and development on case reserves. Some of us view that as a disadvantage of this method. The remaining two disadvantages are related -- it ignores losses incurred to date (for IBNR calculation purposes only, not for ultimate losses), and it assumes that case development is unrelated to reported losses. It seems more logical that subsequent activity on reported claims is somehow related to losses incurred to date; on the other hand however, unreported losses are not necessarily related to reported losses, so the Bornhuetter-Ferguson method may work better on this part of the IBNR reserve.

I've just touched lighly on some of these issues, because Tom will be talking about them in more detail. If there are any questions, please hold them until after Tom's presentation.

Tom: I am going to discuss the various definition of a term we have been throwing around - IBNR. I am sure that term has been mentioned quite a bit between your sessions yesterday and Becky just mentioned it quite a few times. Because it has been brought up so many times, you would expect that it is a fairly well defined term, but it is not. The are various ways to look at what is referred to as IBNR.

The most common words that are associated with those initials are Incurred But Not Reported. And that sounds like it is fairly well defined but it can mean different things to different people at different times during the reserving process. This chart shows various defintions of IBNR, going from the least broad to the most broad definition. As Becky said, the Bornhuetter-Ferguson method as well as any accident year reserving method gives you an estimate of number five, the most broad definition of IBNR. I will work down to that one going from least broad to most broad.

The first definition can be called true IBNR. By that we mean losses and claims that have taken place but which nobody in the company knows about yet. An example would be a medical malpractice situation where a claim takes years to come forward. The occurence already happened but it has not been reported to the company.

The second IBNR definition is pure IBNR plus claims in transient. Claims in transient are those claims that the claimant has filed but which hasn't gotten on the books yet.
An example is a claim which reached your company on December 31st. This claim certainly won't be into your computer system by the end of that day, and so it's not going to be recorded on year end data reports.

The third category of IBNR includes number two plus development on known claims. Once a claim does get on your books, it gets on the books at a value established by a claim adjuster. The day the adjuster puts value on the claim is the date that he knows the least about that claim. Once this claim is finally settled, the value of it becomes much different in most cases than the initial value. This change in value from the original estimate to the final settlement amount is another aspect of IBNR that we try to measure.

Another category of IBNR pertains to Reopened Claims. These types of claims occur from time to time in certain lines of business. In this situation, a claim that has been settled needs to be reopened at some future date for whatever reason. An example might be a workers comp claim where someone hurts his back, gets rehabilitated and goes back to work but then the back starts to act up again and the claimant has to miss work. In such a case, additional loss payments may be necessary and so the claim is reopened.

Lastly, the broad IBNR definition is simply the combination of all of the above. It includes the true IBNR, the Claims in Transient, Development on known Claims and Reopened Claims. Any accident year reserving method will give you an estimate of this broadly defined IBNR. It would also be advantageous to know the components. In order to estimate what each of the components are, different data formats than an accident data base would be required.

The next exhibit will help show how one can arrive at the various components. The line I am showing here displays the incurred losses at various points in time. As of the end of '78, the end of '79 and so forth all of the way through the end of '84, regardless of when the accidents and claims are reported. If one only had accident year data, you would know about is that as of 12 months, you thought accident year 1978 claims were going to cost $8,400. But as of 84 months (at the end of 1984) these claims ended up costing

$10,300. That is about a 23 percent difference between the initial reserve date or the first evaluation and the ultimate value. Again, if accident year data was all you had all you would know is that your claims went up by 23%. You would not know if that increase was caused by claims that took a while to get on your books or if the claims adjuster just missed in the aggregate by 23% as of 12 months.

If you were able to break down accident year '78 into the year in which the claims where reported, then you would have report year data within accident year. That would enable you to segregate the 23% development into late reported cases and the adverse development on unknown claims. This exhibit basically shows what happens in an hypothetical example. The $8,382 obviously was generated by claims reported during '78 on accidents that occurred during '78. Instead of going up by 23% as the aggregate did, those first year reports grew by 8%. Based on this, you now feel a little bit better about your Claim Department. They didn't miss by 23%, they only missed by 8 on those first few claims. The rest of the 23% occurred because it just takes a while until all the claims get on the books. Some of the delay is due to the fact that it takes a while for the claimants to come forward; it takes a little longer once the filed claim to actually get zn the books. This box here is what you could call the true IBNR as of 12/78. If you draw a box here you would have the true IBNR as of twelve '79. A box here you would give you true IBNR as 12/80.

The way total development from $8,382 up 10,292 is broken down is that the claims that generated $8,382 as of 12/78 went up to $9,044 by the end of 1984. Therefore reported cases went up by that amount and the rest of the total development came from the pure IBNR number. The sum of these columns is equal to $10,292 minus $9,044. I think this chart helps you see why it would be useful to know how that overall development of 23% can be broken down.

The next exhibit provides a list of advantages of separating pure IBNR and loss emergency on known claims.

The first advantage is that changes in loss emergence or reporting patterns can be more easily identified. As you go from accident year to accident year, it is conceivable that you would start to notice that the pure IBNR component grows or declines as a percentage of the total development. What that would indicate is that the process that takes place in getting claims on your books has changed. You can then look for reasons why it changed. If all you had was accident year data and there was a change you would'nt know if the change was caused by it taking longer for claims to hit the books or if the causes for the process to take longer would be changing your mix of business, changes the lines or the amounts of insurance you write or some law changes. Quite a few things could occur to change the timing between date of accident and date the claims hits the books.

Knowing the development on your known claims can be useful in managing the claim operation. It is was probably pointed out yesterday in your Techniques I and II sessions that consistency in reserving is one the more important aspects in doing a loss reserve analysis. If your data triangle is on a consistent basis, then you have a little more confidence in using that history in projecting the future. If instead, one year the adjusters were putting up cases that adequate and the next year they were putting up cases that were 50% overreserved and the year after 50% underreserve and so forth, you would have trouble using your data triangle to project the future. If you did have the report year data, you wouldn't know if the flucuations were caused by different reserving practices or different lags in reporting. So, being able to know how much your development is due to the job the Claims Department is doing is useful in reserving and is

useful in managing the claim operations. If you notice big changes in how they do things. you probably want to take some action.

Another advantage is that changes in claim handling practices can be more easily identified. An example is when management mplements a new procedure for handling claims. Becky mentioned automated claims processing systems. It is also possible that a new system of the paperwork that has to take place in handling claims could be implemented. If you had data broken out into more detailed fashion that we talking about, you would be able to to measure what impact those management decisions were having.

The fourth advantage of identification of the adequacy of the components is useful for managing the overall operation. Knowing the components will help you identify how each of the components are interacting and through time how they are changing. Obviously, the more you know the better job you can do in managing an operation.

Another reason to know hoe overall loss development is made up is that improper statement of loss reserves results inproper statement of unallocated loss expenses. Many companies use a formula to arrive at the reserve for unallocated loss adjustment expense. That formula depends on the two components of the broad IBNR. It depends on the case reserves and it depends on the IBNR. If you cannot slot these two properly then your formula will be applied inproperly. So, it does have an impact even beyond the nice sort of thing in the first four advantages. It can actually impact the numbers you put into your statements.

The next chart will give you an idea of what types of data organization is necessary in order to produce the various types of estimates. As we mentioned at first, accident year data will produce a broad IBNR estimate. It basically will produce line five of the very first chart that I talked about. It will give you total loss reserves regardless of where they came from. You won't know whether your loss development is from late reports or if it is from the development on known cases.

The next refinement that one could make would be to compile the data by report year, that is, losses slotted into the year in which a claim is first reported. Regardless of the date of accident.

The most refinement would be have to a data base that is constructed by report year within accident year. That would allows you to estimate everything we have talked about so far. You can identify the pure IBNR. The late reported claims. You can identify the development on known cases and you can get an estimate of the total loss reserves. So report year by accident year is the ultimate. It is the best data base that you could construct. It is very complex and would involve quite a bit of data processing as opposed to the others. But it could give you those other advantages that we spoke about. By the way, in many instances not even accident year data is available. That really gives the loss reserve analyst a tough time. So, we are talking about accident year as kind of the least detail you would want. But, be assured that there data bases that are even less detailed than that.

The next topic we want to cover here is the topic of "Tail Factors". I know in the Techniques I and II sessions yesterday you talked about age-to-age factors and factors to ultimate and Becky talked about two things today briefly. But, as you can remember, the triangle of data that you all saw ended as of 84 months through the most mature year, 72 months for the next year and so forth. So, you have experience pertaining to what happens between 12 and 84 months. But, now the remaining question is what is going to

happen from 84 months all the way out to when all the claims are settled. One estimates those sorts of things with use of Tail Factors. That takes up a significant amount of time in any reserve analysis. Trying to figure out what the tail factor should be. It has a fairly large leveraging affect as I will show on the next chart.

The tail factor in our example was 1,000. To recall, we all assumed that there would be no more development on incurred losses after 84 months. And that lead to an estimate of ultimate incurred losses of $102,840. Subtracting off the paid to date of $75,000 leaves us with a reserve for future payments of $27,746. Again, starting with the $102,840 and subtracting off the incurred to date that gives and IBNR estimate of $47,507.

The bottom half of this chart shows the effect a one percent error in the tail factor will have on each of those three estimates. Obviously, if you make a one percent error on a $102,840 the dollars impact would be $1,028. So, the only impact that has on you ultimate is one percent. The impact it is going to have on the case reserves plus IBNR is going to be the same dollar affect ($1,028). But it is going to have a four percent impact on your reserves. An even larger impact is felt on the IBNR estimate. That same $1,028 error or mis-estimate will be a 22 percent impact on IBNR reserve. $1,028 divided by $47,507 gives you 22 percent. So, because of the leveraging effect that the tail factor has it essentially is applied to every single accident year in your history. So, it has a very leveraged affect on the numbers. And your reported to date - at least in the example - was estimated to be just about 95% of all your reports and that is how you get an impact of over 22 percent.

So, tail factors are important. It is good to spend as much time as possible trying to get a good tail factor. Unfortunately, it is the part of the triangle that you know the least about.

Fortunately, the tail factor can be derived from the company data that is being analyzed. There are several techniques that are used to try and get a feel for the tail factor.

The two columns on the next chart use the exact same arithmetic. so, I will just go down the paid column and the incurred will work the same way. The paid losses for accident year '78 as of 72 months are 9,400. From 72 months to 84 months the experience showed that another $351 were paid. And so that gives you $9,759 as of 84 months. One technique in arriving at tail factors is to base your tail factor on the development that occurred during most recent interval. In this case, most recent interval was 72 to 84 months. So, the first tail factor technique would be to take the percentage change from 72 to 84 - and that is 3.73 percent - and assume that from 84 to ultimate you will get the same percentage increase as you got during the last interval.

Another variation on that would be to assume that the same dollars would occur from 84 to ultimate as took place between 72 and 84. So, you would then ratio $351 to $9,759 and get 3.6 percent as your tail factor.

As you can see, these two estimates are essentially the same except that one assumes the same percentage growth from 84 to ultimate as occurred between 72 and 84, and the other assumes the same dollar growth from 84 to ultimate as was experience3d between t=72 and 84 months.

One last technique that can be applied to the company data is to use whats called the Half Rule Age-to-Age Factor. Essentially, this technique uses the product of

hyporthetical age-to-age factors that are equal to one-half of the prior age-to-age factor. So, 1.87 is one-half of the 3.73. Ninety-four is one-half of 1.87. Forty-seven is half of 94 and so on. And then the product of these is taken as the assumed tail factor. This approach has intuitive appeal because one would expect age-to-age factors to be continuly decreasing. There is good reason and theoretical sense involved in assuming that as you go through time less and less will be paid during each 12 month interval.

In our hypothetical example, this product of the one-half factors would generate a tail factor of 3.81.

One other little more detailed and harder to apply approach would be to actually fit a curve to the observed report-to-report factors. There are two curves that are commonly used when this technique is adopted. One is called is an expoential curve; the other one is the inverse power curve. These two curves seemed to work well because they have the right shape. The next graph shows examples of these types of functions.

As I mentioned earlier you would expect your report-to-report factors to be continually decreasing. Both continually decrease. One thing to point out is that in early evaluations the curves aren't quite as good of a fit as they are out towards the tail. There is a third line on this graph. You can see that at the higher maturities, they are almost all the same. So, either curve is a pretty good estimate of a tail factor. But, you will have to hesitate before you use one of the functions at the very immature points in the curve. Here is your actual up here a little over 1.8. The inverse power curve gives you something a little over 1.7 and the exponential gives you something down in 1.55 range. But essentially they can be used for evaluations out in this area with some security that you are not going to miss by too much.

Another situation exists, aside from the statistical differences at the low end of the curving which needs to be considered before relying on one of the two curves mentioned here. There are certain lines of insurance which are affected by statutes of limitations and so forth that cause your curve to look more like this. It goes up a bit and then down. But once you get out from the fairly immature part of the curve, that downward sloping shape is pretty common.

All of these approaches discussed so far are the methods that can be used based on the internal data to arrive at a tail factor. Another approach that is very commonly used and one that I kind of like is to use external data. There are various sources of data that show loss development patterns on an industry-wide basis on some kind of other insurers. So, if you can get your hands on that kind of data and see what the industry has experience from 84 months to ultimate, then you have another measure of what you can expect to occur on your books from 84 to ultimate.

Another reason you would use external data would be if you are analyzing the results of a company with limited or inconsistent data. What do you do if you if triangle has only one line on it. In this case, it is not really a triangle. You still have to estimate what's going to happen on that one year from 12 months to ultimate and you don't have any internal data to base the projection on. In that case you would probably look for external development patterns and make the assumptions that your internal data will develop the same way. Before you made that assumption you should try and find out if there is any reasons to believe it that is a bad assumption and if anything you find indicates that you shouldn't make that assumption.

Another situation that would call for external data could exist even if you have a couple years of experience. The volume may be small and the age-to-age factors that you calculate on the triangles might jump all over the place. If your denominator on any kind of ratio is small, random flucuation could cause a major impact on the ratio. In that case, you would probably supplement your company data with the external information to try and get a good feel for what is going happen.

Another application for external data would be trending. Everybody is familar with the CPI and that sort of thing. There are lots of other CPI-types of information available. Many of them are slotted to the kinds of inflation one would be expected to affect a particular line of business.

Another very common application of external data is to do an anylsis by size of loss. This would be important if you are analyzing data for a line of business that is volatile. If a line is suspectible to million dollar claims you might you might to cap all of your data, say, at a $100,000. This way, one large claim wouldn't be allowed to overly impact your age to age factors. Then, you could look at an industry index to move from the $100,000 base to an ultimate base. In this way, you could smooth out what happens on the large claims. You know, in any kind of reserving it's reasonable to expect that the large claims are relatively fortuitous and they are relatively random. So, if you just happen to have one before you are doing the reserve study you don't necessarily want to assume that you are going have a much worse result than the industry as a whole experience. So, especially for an immature type of business, you would want to do an increase limits factor analysis to smooth out the effects of large claims.

There are various organizations that collect and publish industry-wide statistics. One that I use quite frequently is published by the Reinsurance Association of America. Reinsurance reserving is one of the more difficult tasks that an actuary is asked to do. Because reinsurance by its very nature has longer lags. By the time the primary company hears about a claim and reserves it and reapplies the reserves and so forth, there is more lag built into the reinsurer. And that becomes even more significant if the reinsurance is on one of the high layers on a particular coverage.

The Reinsurance Association of America publishes data from excess insurance contracts and from a combination of many reinsurers. It shows development patterns and loss ratios for various lines of business like workers comp, medical malpractice, general liability and so forth.

Another data source is the annual statements of similar companies. You could combine annual statement data from those company's to try and get an estimate of what your compant's data will eventually look like. Again, you are making assumptions as to the similarity between the company your are analyzing and the companies you look at. In many cases, such an assumption would be a valid component that one could use.

On a broader scale, if you want to look at a lot of annual statement data, the A.M. Best Company publishes the Schedule P data from all insurers that submit annual statements. So, one could go to one source and get a combination of many annual statements that can be used to derive development patterns and loss ratios by accident year.

Ratemaking data from ISO (the Insurance Services Office) and the NCCI, which is the National Council on Compensation Insurance are also good sources of externmal information.. These two organizations compile statistics from many insurers. ISO has roughly half of the insurance industry reporting their statistics to them. And they put

those statistics in a useable format that is the kind of format that is needed for loss reserve analyses, rate making analyses, and so forth. So, it is a very good source of information. They also publish the increase limits factors that I referred to earlier. NCCI does the same kind of thing.

The National Association of Insurance Commissioners publish a Close Claim Survey for some of the long-tail lines, (e.g., medical malpractice and products liability). That is a source of information that can be used to make comparisons between the company you are analyzing and a industry average. You would have to be very cautious though because these are only closed claims. To apply any assumptions that you derive from a set of close claims to a set of open claims can be very inappropriate, because those that close early are different than those that stay open. So, you have to be very careful with that. It does have a use, though, if you want to compare your close claims to industry closed claims as of various maturities.

Other economic indexes such as Masterson and some of the various CPI components can be used in trending analyses. All of which would have a role in a loss reserve analysis.

At this point, we have concluded our prepared comments and we would like to answer whatever questions you have. Feel free to ask whatever comes to mind.

Becky: No questions.

Question and Answer Period

When analyzing claims-made coverage, can one use the methods you descrived to estimate gross IBNR, which should really only cover development on known claims.

You can use the Bornhuetter-Ferguson method to project ultimates on almost any kind of policy. The key assumption you would make on the claims-made policy versus an occurrence policy would be your reporting pattern.

A claims made policy is going to reach ultimate much much quicker than an occurence type policy. Because you are not covering the tail. So, the answer is yes you can use Bornhuetter-Ferguson and any other technique. The only distinction is that you have to be careful concernine how you arrive at your reporting pattern.

Becky Let me add to that a little bit too. In our company we currently write a very small volume of claims made business. Our systems do not distinguish it, they treat it as if it was occurrence business. In other words, the actual accident date gets reported. And if you only had accident year data you are going to get, say if you have a claim reported in 1984 which is covered by a 1984 claims-made policy that actually occurred in 1980, that is going into the 1980 accident year.

Becky So, you have to be very careful as to how your data base is set up to do that. I think, really, report year data is better for claims-made. Because that's really all you are concerned about theoretically. As you implied in your question, there is no pure IBNR on claims made. So, you just have to be very careful as to how your data is set up.
In my company, we have a separate system that does IBNR and it is based on accident date and report date. And we have all this late-reported data coming through for our claims made business. But that is because it treats the accident date and the report date

on a claims made claim the same way it treats them on an occurrence claim.

Tom And that system would produce good estimates as long as the percentage of claims made doesn't change significantly. But if you are going along and you are writing say ten percent of your business or claims made historically and all of a sudden you are trying to reserve a year that is 50 or 100 percent claims made, then you have problems using the historical data to predict the future on those claims.

Question In trying to differeniate between the Bornhuetter-Ferguson Method and the incurred loss development method, it it true that the only distinction is that Bornhuetter-Ferguson bases IBNR on an expected loss level while the loss development method uses actual incurred results?

Becky Essentially yes. The mechanics are a little different. With incurred loss development you are applying the factor to the reported losses. If you just want the IBNR part you would take 1 minus what ever your loss development factor to ultimate, apply that to reported losses and that gives you your IBNR.

For the Bornhuetter-Ferguson Method you take the inverse of that and apply that to the expected ultimate loss level.. But yes, they are based on the same development patterns.

Tom The major goal of Bornhuetter-Ferguson is not to let something that's unusual in the losses reported to date to translate into something unexpected on your IBNR. You know, it could be that you have a good estimate of what the total is going to be. But you just got the reports quicker than you expected for whatever reason. But, you were right in the way you compared the two projections.

Question Are there any other approaches for a very small company that has invalid data to use in arriving at its IBNR estimates?:

Tom Bornhuetter-Ferguson is very good for that type of situation. But you still need within some estimate of the reporting patterns and some estimate of ultimate loss ratio. For a small company, you would probably get those estimates primarily from external data. You would try and check out what lines of business you are trying to reserve, Llok for whatever industry patterns are available on those types of business, and move forward cautiously knowing that you have used some external data and applied it to what you've hoped is typical of external data.

Question What steps would either of you take if your Claims Department were impacted simultaneously by both a speed up in handling of claims as well as a speed up in reporting claims as opposed what has historically been the case?

Tom Let me put the triangle back up on the screen and then use that as an example. Suppose of instead of taking 36 months to get to $16,066 you were getting there at 24 months. Then you would be noticing a 12 to 24 factor that is larger, then had historically been the case.

Now if that was a recent change you might only have one or two points that are showing the change. But, I think, that in that case you have to review the claims operations, talk to the company people who know that a speed up has occurred, and then with some caution again, say assume that the diagonal is probably more typical of what we can

expect for the future than the historical factors. So, you would look for evidence of what you described in the data but you would have to supplement quite a bit with information from the company. And then, essentially, use some judgement as to how much of a speed up has occurred.

Becky One thing that is important to keep in mind whenever you have a change like that is that it really affects your data in two ways. One is that it affects the development factors in the year in which the change occurred. We really didn't talk about this too much before in this session, but each diagonal of your triangle there represents a calendar year or the result of another calendar year's activity. So, if for instance, in 1983 you had these changes taking place in your last diagonal there, chances are the last development factor in each column the one on the diagonal, would be a lot different than the previous ones. So, whenever you see something like that, especially if had been consistent, you say it looks like something's different.

The other concern is that the data points, or the dollars, are different. And this is the point that Tom was making, they are different than previous data points were. So, that if you believe those latest development factors and apply those to your latest data, chances are you are going to double count the effect of the change. So, the ways that we get around that are to either eliminate the diagonal develompment factors that are unusual, and say well this is sort of a one time occurrence and I really expect the future to be the same as the past was, then you apply the old factors to the current diagonal of dollars. Or to try to restate all of your dollars to what your new ones represent and recalculate your development factors. Neikther of those are very simple to do, obviously.

Question There seem to be more requirements recently in the annual statement to break out IBNR reserves gross reinsurance versus net. And again, I guess this might be only directed for a small company. I suspect a significant number of small companies may have just concerned themselves with calculating the net like we have?

Becky Big companies do that too.

Question Continues And I am thinking not so much forward here but more on what comments or guidance would you have now that it appears that we going to have to show a gross because of the reinsurance recoverable problem and so on?

Tom Yes.

Becky We set our IBNR reserves net and then we do a direct to net or net to direct conversion. And that is done solely based on premium. The relationship of direct premium to net premium is applied to the net reserves to get direct reserves. It is not very sophisticated and we know it doesn't work very well. Especially, because we only use current premium relationships. that's what's used for our Page 14, which has to be direct. And we always get problems, especially, from our rate making people who have to report Page 14 data. Any time there is a big change-for instance, in some of our workers comp business recently we were putting in a new pricing plan. That caused business to switch from one company to another or participating or non-participating, I don't remember all the details. But anyway whenever there is a big change in a year that gives really distorted numbers. That is what they have to go to the regulators with, because that is the data that the regulators see; that's when we get complaints. We are the first ones to admit that is not a very good method. But it is simple.

Question comment Do you have direct IBNR factors by line and state then?

Becky We calculate the direct to net premium ratio by line of business and apply that to all states and everything within each line.

Question Is that a pretty common approach do you think?

Becky As far as I know it is. I have only worked at two companies, but that is what we did at both companies I have worked at.

Tom The approach we generally use with our clients is to do our analysis on a gross basis. Then, as Becky was describing try and move from a gross answer to a net answer. Based on some relationship of either premiums or if there is evidence that premium ratio the net to gross premium ratio is not right. We would supplement that with some information on the recoveries to date.

Question comment She said she went the other way.

Tom Well, O.K. essentially the same excerise but in different directions. We do derive though the net numbers from gross data. Mostly because many of our clients have different reinsurance situations over the history. And if you are doing a triangulation on say five years worth of data where the retentions and so forth were much different, then you don't have consistency of homogeneity that has been referred to. So, in a lot of our projects we have found it better to go with gross analysis.

If in a particular case ,though, there is also a net triangle available and the reinsurance program has been relatively stable we try and validate our results by also doing a triangulation on net numbers.

It is very important issue. Especially, do the Letters of Credit situiation that are being required. You have got to have a fairly decent estimate of what part of your IBNR is going to be recovered. And some states are going to require Letters of Credit for that amount.

Becky O.K. if there are no further questions thank you all for your attention.

Tom Thank you.

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BORNHUETTER-FERGUSON IBNR METHOD

AUTOMOBILE LIABILITY

Accident Year	Earned Premium	Expected Losses	IBNR Factor	IBNR	Ultimate Losses
1978	$17,153	$10,292	.0000	$ 0	$ 10,292
1979	18,168	10,901	.0012	13	11,263
1980	21,995	13,197	.0025	33	12,758
1981	24,173	14,504	.0063	91	14,504
1982	25,534	15,320	.0169	259	16,325
1983	31,341	18,805	.0442	831	17,607
1984	38,469	23,081	.1773	4,092	20,653
				$5,319	$103,402

Expected Losses = Earned premium x .60
IBNR = Expected Losses x IBNR Factor
Ultimate Losses = IBNR + Losses Incurred to Date

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INCURRED LOSS DEVELOPMENT VS. BORNHUETTER-FERGUSON
AUTOMOBILE LIABILITY

Accident Year	Bornhuetter-Ferguson Ultimate Losses	Bornhuetter-Ferguson IBNR	Incurred Loss Development Ultimate Losses	Incurred Loss Development IBNR
1978	$ 10,292	$ 0	$ 10,292	$ 0
1979	11,263	13	11,264	14
1980	12,758	33	12,757	32
1981	14,504	91	14,504	91
1982	16,325	259	16,342	276
1983	17,607	831	17,551	775
1984	20,653	4,092	20,130	3,569
	$103,402	$5,319	$102,840	$4,757

DERIVATION OF BORNHUETTER-FERGUSON IBNR FACTOR

$$\text{IBNR Factor} = \frac{\text{IBNR}}{\text{ULTIMATE LOSSES}}$$

$$= \frac{\text{ULTIMATE - INCURRED TO DATE}}{\text{ULTIMATE}}$$

$$= 1 - \frac{\text{INCURRED TO DATE}}{\text{ULTIMATE}}$$

$$= 1 - \frac{\text{INCURRED TO DATE}}{\text{INCURRED TO DATE X LDF TO ULTIMATE}}$$

$$= 1 - \frac{1}{\text{LDF TO ULTIMATE}}$$

EZ INSURANCE COMPANY
INCURRED LOSSES
AUTOMOBILE LIABILITY

ACCIDENT YEAR	MONTHS OF DEVELOPMENT 12	24	36	48	60	72	84
1978	$ 8,382	$ 9,781	$10,110	$10,219	$10,268	$10,280	$10,292
1979	9,337	10,847	11,092	11,192	11,235	11,250	
1980	10,540	12,205	12,551	12,690	12,725		
1981	11,875	13,832	14,238	14,413			
1982	13,343	15,542	16,066				
1983	14,469	16,776					
1984	16,561						
	DEVELOPMENT FACTORS						
1978	1.1669	1.0336	1.0108	1.0048	1.0012	1.0012	
1979	1.1617	1.0226	1.0090	1.0038	1.0013		
1980	1.1580	1.0283	1.0111	1.0028			
1981	1.1648	1.0294	1.0123				
1982	1.1648	1.0337					
1983	1.1594						
SELECTED FACTOR	1.1618	1.0285	1.0108	1.0038	1.0013	1.0012	1.0000
CUMULATIVE SELECTED FACTOR	1.2155	1.0462	1.0172	1.0063	1.0025	1.0012	1.0000
IBNR FACTOR	.1773	.0442	.0169	.0063	.0025	.0012	.0000

NOTE: LOSS AMOUNTS ARE IN THOUSANDS OF DOLLARS

CONSIDERATIONS IN ESTABLISHING EXPECTED LOSS RATIOS

- PREMIUM ADEQUACY
- UNDERLYING PRICING
- CHANGES IN OPERATIONS, E.G.
  - REINSURANCE
  - UNDERLYING LIMITS, DEDUCTIBLES
  - CLAIMS MADE VS OCCURRENCE
- HISTORICAL CONSISTENCY
- CHANGES IN MIX OF BUSINESS

BORNHUETTER-FERGUSON
ASSUMPTIONS AND PROBLEMS

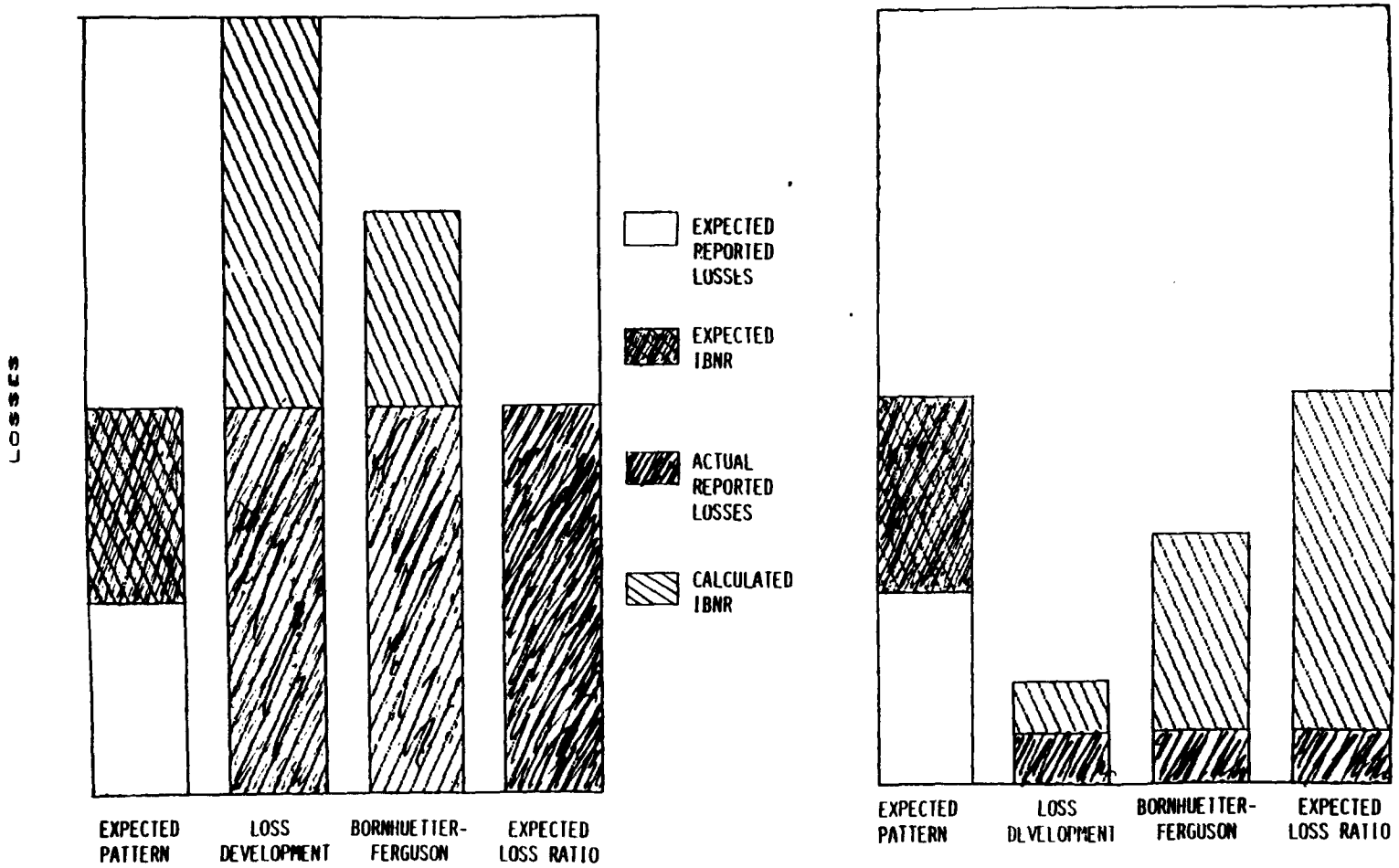
ASSUMPTIONS	SAMPLE PROBLEMS
- PREMIUMS ACCURATE MEASURE OF EXPOSURE	- PRICING INCONSISTENCY
- EXPECTED LOSS RATIO PREDICTABLE	- INSTABILITY IN ACCIDENT YEAR LOSS RATIOS
- CONSTANT REPORTING PATTERN	- INTRODUCTION OF AUTOMATED CLAIM SYSTEM - BACKLOG IN PROCESSING

A N D . . .

KEY ASSUMPTIONS AND POTENTIAL PROBLEMS INHERENT IN BORNHUETTER-FERGUSON ANALYSES

ASSUMPTIONS	SAMPLE PROBLEMS
CLAIM SETTLEMENT PATTERNS UNCHANGING	- INCREASING DELAYS IN CLAIMS CLOSING RATES
CASE RESERVING PRACTICES & PHILOSOPHIES UNCHANGING	- CONSCIOUS EFFORT TO IMPROVE CASE RESERVING ADEQUACY - INTRODUCTION OF NEW CASE RESERVING PROCEDURES
NO CLAIM PROCESSING CHANGES	- CHANGE IN DATA PROCESSING - REVISED CLAIM PAYMENT RECORDING PROCEDURES
POLICY LIMITS HAVE NO IMPACT ON LOSS DEVELOPMENT	- INCREASING FREQUENCY OF FULL POLICY LIMIT CLAIMS - CHANGING POLICY LIMITS
LOSS DEVELOPMENT UNAFFECTED	- SURGES IN INFLATION - INCREASED LITIGATION - DIMINISHED POLICY DEFENSES
NO CHANGES IN MIX OF BUSINESS	- CHANGES IN REINSURANCE COVERAGES - INCREASED "LONG-TAIL" EXPOSURE - INTRODUCTION OF NEW OR REVISED COVERAGES
NO CYCLICITY IN LOSS DEVELOPMENT	- CLAIM SETTLEMENT OR RESERVING IMPACTED BY BUSINESS OR UNDERWRITING CYCLES
NO DATA ANOMALIES	- CATASTROPHIC OR UNUSUAL LOSSES REFLECTED IN LOSS EXPERIENCE - UNUSUAL CLAIM SETTLEMENT/ REPORTING DELAYS

COMPARISON OF RESERVE METHODOLOGIES



BORNHUETTER-FERGUSON

ADVANTAGES	DISADVANTAGES
. COMPROMISES BETWEEN LOSS DEVELOPMENT AND EXPECTED LOSS RATIO METHODS	. BROAD DEFINITION OF IBNR
. AVOIDS OVERREACTION TO UNEXPECTED INCURRED LOSSES TO DATE	. UNCERTAINTY OF PROJECTED ULTIMATE LR
. SUITABLE FOR NEW OR VOLATILE LINE OF BUSINESS	. IGNORES LOSSES INCURRED TO DATE
. CAN BE USED WITH NO INTERNAL LOSS HISTORY	. RELIES ON ACCURACY OF EP
. EASY TO USE	. ASSUMES THAT CASE DEVELOPMENT IS UNRELATED TO REPORTED LOSSES

IBNR RESERVES

1. "TRUE" IBNR - UNREPORTED
2. "TRUE" IBNR + CLAIMS IN TRANSIT
3. (2) + DEVELOPMENT ON KNOWN CLAIMS
4. (2) + REOPENED CLAIMS RESERVE
5. (2) + DEVELOPMENT + REOPENED

BORNHUETTER-FERGUSON METHOD AND ALL ACCIDENT YEAR METHODS PRODUCE IBNR DEFINED AS IN (5)

EZ INSURANCE COMPANY
ACCIDENT YEAR 1978 EXPERIENCE

REPORT YEAR	12/78	12/79	12/80	12/81	12/82	12/83	12/84
ALL	$8,382	9,781	10,110	10,219	10,268	10,280	10,292
1978	$8,382	8,801	8,977	9,022	9,044	9,044	9,044
1979		980	1,039	1,065	1,071	1,074	1,074
1980			94	101	104	105	105
1981				31	33	34	34
1982					16	17	18
1983						6	7
1984							10

BROAD IBNR = $10,292 - $8,382
PURE IBNR = $10,292 - $9,044
CASE DEVELOPMENT = $9,044 - $8,382

ADVANTAGES OF SEPARATING PURE IBNR EMERGENCE AND DEVELOPMENT ON KNOWN CLAIMS

1. CHANGES IN LOSS EMERGENCE OR REPORTING PATTERNS CAN BE MORE EASILY IDENTIFIED.

2. DEVELOPMENT ON KNOWN CLAIMS CAN BE USEFUL IN MANAGING THE CLAIMS OPERATION.

3. CHANGES IN CLAIMS HANDLING PRACTICES CAN BE MORE EASILY IDENTIFIED.

4. IDENTIFICATION OF ADEQUACY OF COMPONENTS IS USEFUL FOR MANAGING OVERALL RESERVE OPERATION.

5. IMPROPER STATEMENT OF LOSS RESERVES RESULTS IN IMPROPER STATEMENT OF UNALLOCATED LOSS EXPENSE RESERVES, ASSUMING ULE IS BASED ON 50% OF CASE + 100% OF IBNR.

DATA ORGANIZATION AND RESERVE MEASUREMENT

ACCIDENT YEAR	- BROAD IBNR
	- TOTAL LOSS RESERVES
REPORT YEAR	- DEVELOPMENT ON KNOWN CLAIMS
REPORT YEAR WITHIN ACCIDENT YEAR	- PURE IBNR
	- DEVELOPMENT ON KNOWN CLAIMS
	- TOTAL LOSS RESERVES

EZ INSURANCE COMPANY
IMPACT OF TAIL FACTORS

ULTIMATE LOSSES FROM INCURRED LOSS DEVELOPMENT (ASSUMING NO DEVELOPMENT BEYOND 84 MONTHS)	$102,840
REQUIRED CASE + IBNR = ULTIMATE - PAID TO DATE = $102,840 - 75,094	$ 27,746
REQUIRED (BROAD) IBNR = ULTIMATE - INCURRED TO DATE = $102,840 - 98,083	$ 4,757
EVERY 1% OF DEVELOPMENT BEYOND 84 MONTHS INCREASES:	
ULTIMATE LOSSES BY $1,028	1%
REQUIRED CASE + IBNR BY $1,028	4%
REQUIRED BROAD IBNR BY $1,028	22%

EZ INSURANCE COMPANY
HALF-RULE TAIL FACTORS

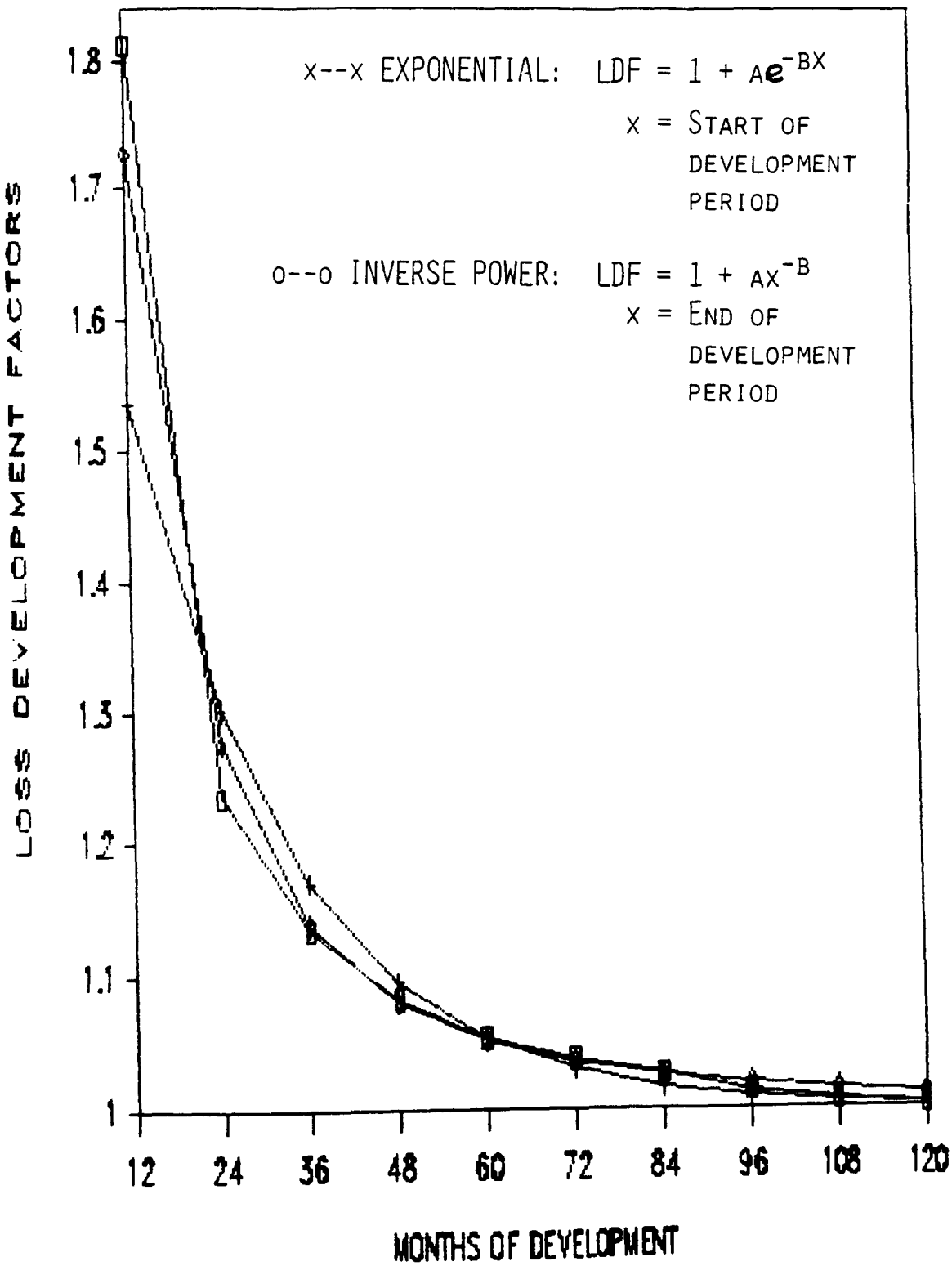
	PAID	INCURRED
AY 1978 LOSSES AT 72 MONTHS	$9,408	$ 10,280
72-84 MONTH DEVELOPMENT	$ 351	$ 12
LOSSES AT 84 MONTHS	$9,759	$ 10,292
DEVELOPMENT FACTOR	1.0373	1.0012
TAIL FACTOR = LAST AGE-TO-AGE FACTOR	1.0373	1.0012
TAIL FACTOR = 72-84 MONTH DEVELOPMENT/ LOSSES AT 84 MONTHS	1.0360	1.0012
TAIL FACTOR BASED ON HALF-RULE AGE-TO-AGE FACTORS	1.0381*	1.0012

*1.0381 = 1.0187 X 1.0094 X 1.0047 X 1.0024 X 1.0012 X 1.0006 X 1.0003 X 10002 X 1.0001

EZ INSURANCE COMPANY

TAIL FACTORS THROUGH CURVE FITTING

PAID LOSS DEVELOPMENT



USES OF EXTERNAL DATA

- TAIL FACTOR

- LIMITED OR INCONSISTENT DATA

  - NEW LINE OF BUSINESS
  - SMALL COMPANY/BRANCH OFFICE
  - PARTIAL YEAR

- TRENDING

  - EXPLICIT IDENTIFICATION OF INFLATION

- ANALYSIS BY SIZE OF LOSS

  - CHANGING REINSURANCE RETENTIONS

SOURCES OF EXTERNAL DATA

- REINSURANCE ASSOCIATION OF AMERICA LOSS DEVELOPMENT
- ANNUAL STATEMENT
- BESTS SUMMARIES OF SCHEDULE P DATA
- RATEMAKING DATA FROM ISO, NCCI, ETC.
- NAIC CLOSED CLAIM SURVEYS (MEDICAL MALPRACTICE, PRODUCTS LIABILITY)
- MASTERSON OR OTHER ECONOMIC INDICES

Panel Sessions 5D/6D

CURRENT EVENTS

Moderator: Jerome A. Scheibl, Vice President
Wausau Insurance Companies

Panel: Jeremiah J. Harrington, Staff Accountant
Securities and Exchange Commission
Jeffrey J. Miszner, Manager
Ernst & Whinney
Richard J. Roth, Jr., Assistant Insurance Commissioner
California Department of Insurance

1985 Casualty Loss Reserve Seminar

Kansas City, Missouri

Scheibl: I am to remeind you that this session is being taped. Even though we have very cozy arrangements here, when we get to question and answer session pleae use the microphone or you are going to drive someone nuts when they try to type this up.

People will continue to come but we may as well get started. This session is a little different than some others you've attended in that we don't have a topic. We have something called current events and these currents events were defined for us about eight or nine months ago when we put this program together. I thought that was pretty good forecasting in itself. I think we might have more properly called this Timely Topics. There is some currency to what we are talking about but, very few of these things are actually all that new. We will get into one very new event later in the discussion. As a matter fact, the ink is still wet on that. I suppose if we'd want to get into current events we'd talk about the effects of mid term cancellations on loss reserves, or the effect of new super fund obligations that may be imposed on the industry if legislation now being debated in Congress goes through. We might talk about the day care liability situation, municipal liability and all that.

Well, we have a few things on this mornings schedule that are a little more developed than that. Which will be of some interest to you. We have three speakers this morning, speaking on three different topics. There is a thread through these topics and I think you will may be able to detect that thread by the time we finish. I would like to have a general discussion question and answer period at the very end. However, before we go from one speaker to the next if there are any points of clarification or explanation that you would like, feel free to ask the question then and there. I think it might be better to do that in the context of the presentation.

Our first speaker this morning is Jerry Harrington from the Securities and Exchange Commission. He is a staff accountant in the SEC. His responsibilities include the study of significant accounting and disclosures issues and evaluation of current reporting by registrants. Jerry participated in drafting the disclosure requirements that became effective at the end 1984 with respect to property casualty loss reserves and he now serves as SEC observer on the Financial Accounting Standards Boards Industry Issues Advisory Group. Before joining the SEC Jerry was an audit manager at Alexander Grant & Company.

This rule was first exposed while drafted I would say in 1983. It was exposed in the Federal Register in February of '84 and the final the draft which incorporated many of the comments that were received. Jerry, if I recall, you had help from about 40 outsiders and I think you did a commendable job working these recommendations into the final report. If I speak any more I am going to be taking Jerry's thunder away so Jerry will you tell us not only about the new SEC rules but also now that we had one go-around what impact this may have had on disclosure reporting.

Harrington: Good morning ladies and gentlemen. My first duty is to advise you that the views that I present are my own. They do not necessarily Commission policies nor the views other on the staff of the Commission. Just to give you an idea of how much time on insurance. Most of my time is spent on auditors independents questions and quasar reorganizations and similar subjects. My exposure to property casualty reserves began several years ago during an investigation of registrants whose reserves for assumed workers comp business were in question. In the meantime I have attended three casualty loss reserve seminars and here I am.

Because some of the people in the room may not be familiar with F.R.R. 20 I will described it briefly. The intent of the F.R.R. is to improve disclosures concerning the

claims reserving experience of property casualty underwriters. The disclosures are intended to assist investors to understand registrants' reserving practices and their effects on financial statements. The Commission wanted the investors to be aware of the effect on income of adjustments reserves established in prior periods and it wanted to permit investors to compare the PC reserving experience of different registrants. The F.R.R. was exposed for comment as a proposal in February '84. It became effective for filings that included year end '84 balance sheets.

It is divided for rulemaking purposes into three parts: the industry guides, Regulation SX; and Regulation S-K. The industry guides require disclosures that appear in the descriptions of business item of form 10K reports or prospectuses. They principally expect disclosures in narrative about practices and events that may affect year to year comparability of reported earnings and reserves. The matter suggested for discussion include: discounting; portfolio loss transfers; other material re-insurance transactions; and usually large loss and gains from any source. They also include reconciliation of reserve balances for the latest three years and a loss reserve development table for the last eight to ten years. Many of companies integrated the information required by the guides into the MD and A presentation.

The second part of F.R.R. is a schedule specified in Rule 12-18 of Regulation SX. This schedule requires reporting property casualty reserves, earned premiums, incurred losses and other financial statement items related to the registrant's property casualty business if those items are not presented separately in the registrant's audited financial statements. It is intended to permit computation of ratios associated with the PC business of diversified registrants for comparison with ratios of registrants for which PC insurance is the principal business. The schedule is covered by the auditor's report and is known as Schedule X if the registrant files with the SEC as an insurance company or Schedule XIV in other cases.

The third part of the F.R.R. is the exhibit described in Item 601 of Regulation S-K. It calls for the presentation on a combined or consolidated basis of the Schedules O & P filed with State Regulatory Authorities and footnote disclosure of the nature and amount of any differences between aggregated statutory reserves at year end and the reserves reflected on Schedules O & P. This exhibit was not required as of December 31, 1984. It will be required as of December 31, 1985 and subsequent year ends.

The F.R.R. disclosures are required of SEC registrants whose PC reserves are material in comparison with consolidated stockholders equity. If a registrant's reserves for claims and claims adjustment expenses at the beginning of a year are more than 50% of its consolidated equity at that date it must provide the F.R.R. 20 disclosures.

More than fifty companies have supplied the F.R.R. information. Because registrants' reports are not examined every year and because PC insurance is not the principal business of every registrant who files F.R.R. 20 information. we probably will not be certain of the total of number of companies that supply this information for a couple of years and possibly not until Edgar, the computerized filing system being developed by the Commission, gives the capability to search all reports electronically.

Most filings by registrants whose principal business is insurance go to branches nine or ten of the Division of Corporation Finance. A preliminary screening of those form 10K reports find a high level of compliance. Reviewers concluded that most companies had a made a prima facie effort to comply with disclosure requirements. Of course, we will have some comments on substance of some of the disclosures.

The overall impact is that disclosures about reserves and reserve related effects on results of operations were more explicit and informative than had been the case in prior years. They appear sufficient to allow a non-specialist to differentiate between registrants whose operating results are frequently affected by material adjustments to prior years reserves and those whose operating results have not usually been so affected. Disclosures about the effects of material re-insurance transactions was also more explicit.

The staff of the SEC is impacted two ways in addition to allocating time for the examination of the additional disclosures. The Division of Corporation Finance is evaluating the new information to see how it can best applied in determining which registrants filings merit a full review. This usually indicates a priority review.

The staff also recognized the existence of unintended gaps in prescribed disclosures. For instance: we now understand that the discounting of reserves may not be the only difference that Generally Accepted Accounting Principles may permit between reported reserves and estimated ultimate liabilities. I will mention some others later.

The existence of any direct impact of F.R.R. 20 disclosures on the actions of public investors and their advisors are still not clear. We have heard comments on the usefulness of the narrative discussions of reserving practices and re-insurance transactions. At least one magazine, The Institutional Investor", reported an article that discussed the size of some companies loss reserve development over the latest eight years. Recently, however, Coopers and Lybrand has published examples of the F.R.R. 20 disclosures by 25 large registrants. We have also learned that sometime in October Ernst & Whinney will publish an analysis of disclosures by 42 companies and Tillinghast, Nelson & Warren expect to publish analysis of disclosure of 50 registrants. I should say Jay Cushing has also published an analysis of reports of, I think 24 companies. We assume that the availability of information in comparative form for a number of companies will make the information a lot more useful to investors.

Disclosures made in response to F.R.R. indicate that registrants that have historically been slow in providing reserves can be identified, as can others that have maintained reserves within limited range over or under amounts which later prove to be adequate. The five year cummulative loss reserve development as of December 31, 1984, showed a ranged from a deficiency of about 75% to a redundancy of 10% for 12 registrants whose reports happened to be on desk at the time I was thinking about this. They did not all run to eight years. This is why I do not give the additional amounts. Almost all of the companies provide for inflation implicitly in the case of reported claims. A few make explicit provisions for inflation in computed IBNR and other bulk reserves.

No management has been willing to state unequivocally that it is satisfied that its provision for inflation is adequate. A number of companies did state that all of the reserves were carried at ultimate. We had been hearing everybody discounts, well may be only 50% discount. Discount rates observed were in the three and half percent to 12% range. Almost all were between three and half percent and eight percent. Reconciling factors between statutory and GAAP reserves included: salvage and subrogation, re-insurance contacts that were treated differently for statutory reporting than for reporting under General Accepted Accounting Principles, reserves that were discounted for statutory purposes but grossed up for reporting in accordance with General Accepted Accounting Principles, reserves related to foreign subsidaries and reserves discounted at a larger discount rate for GAAP purposes than for statutory purposes. In connect with the last reconciling factor mentioned, the staff interprets ABP opinion number 20 to indicate that a change in the method of selecting the discount rate used is a change in

the method applying accounting principles. If a registrant changes from the use of statutory discount rate for a rate based on historical experience and the effect is material the change should be disclosed in the accountant's report and the effect should be disclosed in a footnote to financial statements. A preferability letter from the independent accountant should also be supplied.

The Division of Corporation Finance is making a thorough analysis of a sample group of property casualty companies as the first step in integrating the new information into its selective review system. The analysis will involve among other things consideration of relationships derivable from a loss reserve development table and other quantitative data required by the F.R.R. It probably will not be completed until sometime next year. Consideration of the disclosures made in response to the F.R.R. has made us conscious of some disclosures that are not currently made but which would assist investors in evaluating a PC company's financial condition.

One is the nature and amount of any differences between estimated ultimate reserves and by that I mean the amount you ultimately expect to pay out as opposed to what may be a trade term and the amounts reported in financial statements prepared in accordance with generally accepted accounting principles. The effects of discounting, the effects anticipating investment income and computing premium deficiencies are two possible differences of this type. The manner in which retrospective premiums are accounted for may present another.

A second item that could assist investors would be an indication of the pattern in which reported reserves are expected to be paid out. As the amount of unpaid claims expected to be outstanding for periods materially longer than five years becomes more and more material it becomes more nearly necessary to provide investors and their advisors with an indication of the pattern in which unpaid claims are expected to be liquidated. A recent report to analysts by Aetna Life and Casualty made the point that two PC companies with same balance sheets numbers are not in same financial condition if the reserves of one would be paid out in three years, while the reserves of the other would be paid out in twenty years. We understand that a committee of the NAIC is presently considering problems related to this type of disclosure and we will be interested in their conclusions.

To go to another topic the Emerging Issues Task Force of the Financial Accounting Standards Board concluded in June that issuers of financial guarantees should make appropriate disclosures in GAAP basis financial statements if exposures are material. The staff of the SEC has only recently become aware of the increasing importance of financial guarantees, especially guarantees of long-term corporate and municipal bonds. We have heard the premiums are low and the probability of loss is considered low. But the severity of a possible loss may be very high. We understand that many of the registrants directly concerned believe that it is inappropriate to provide for estimated losses on much of this business until an event of default is imminent because of the provisions of Financial Accounting Standard 5. Because the nature of the risks undertaken in connection with long-term financial guarantees differs so greatly from other risks assumed by property casualty underwriters, the SEC staff believes that the registrants with material exposures under these guarantees should consider the need for disclosure concerning the nature of risks involved. We have been advised that the Insurance Companies Committee on the AICPA will consider at its November meeting, whether there is a need for guidance to auditors on the application of the Emerging Issues Task Force announcement to insurance companies. Thank you. Are there any questions?

This is a perennial current event and it seems to become more popular as we approach the end of each year. Especially in the underwriting climate we've found ourselves in the last two or three years.

Loss Portfolio Transfers and the debate goes on. Is this reinsurance as some people claim or an investment as others claim? In November of '85 Tennessee Commissioner John Neff, who was then Chairman of NAIC Financial Conditions Subcommittee indicated that such loss reserve transactions could alter nine of the eleven IRIS tests.

The NAIC adopted an official change in the annual statement to require disclosure of certain information, including the cumulative impact of these and all such prior transactions on surplus. Several states went beyond this and still are going beyond this in establishing new disclosure rules. The FASB has issued two statements on this subject with regard to how they ought to be handled in GAAP accounting.

Jeff Miszner has considerable experience with regard to loss reserve or loss portfolio transfers. He is a senior manager in the New York Insurance Group of Ernst & Whinney. Jeff will be describing some of these transactions and commenting on the impact that these arrangements are having on reported industry results. I also understand he will be giving us some insight into some new methods of accounting for these transactions. Jeff educate us.

Thank you, Jerry. I have copies of my outline at the back of the room -- so if someone doesn't have a copy of my outline, possible they can be passed forward. Jerry indicated that I am going to talk about new accounting methods for accounting for loss portfolio transfers. I guess from an accountant's standpoint I don't really belive there are any new methods of accounting. I believe the accountants, the AICPA and NAIC, have finally clarified what they think should be done with loss portfolio transfers.

Before I go on, let me define a loss portfolio transfer. A loss portfolio transfer is an agreement in which the current accounting practices allow theceding company to recognize current gains as a result of making a payment to theassuming company which is less than the loss reserves that are transferred. This is the American Institute of CPA's definition and also the New York Insurance Department definition for Rule 108. An additional definition for New York Rule 108 is that the consideration paid by the ceding company be based upon present value discounting concepts. I am not really sure why New york added the second criteria. It seems to me that most of the loss portfolio transfers are going to be identified by the first definition.

I have included in my outline a very crude example just to be sure we understand what impact a typical loss portfolio transfer has on the financial statements. Obviously, in practice, the portfolio transfers are very complicated. In fact, they get so wordy and complicated with payments going back and forth, it is easy to loose sight of what is really happening. As accountants, we try to determine the affect a transfer has on income or surplus. We try to determine if a true transfer of risk has ocurred. We have to ask ourselves if this contract is a financing agreement. In my example, a ceding company transfers loss reserves that have a gross basis of $20 million (i.e., not discounted). The ceding company also transfers assets equal to discounted value of $16 million. The assuming company usually reimburses losses to the ceding company based on some predetermined payment schedule, possible over the next four or five years. When the agreement is complete, the amount reimbursed to the ceding company by the assuming company would be more than the ceding company originally transferred as assets. The assumer probably reimburses the cedent an amount equal to the original assets transferred plus interest. Traditional statutory accounting would allow the ceding

company to take down loss reserves of $20 million, reduce assets by $16 million, and record a $4 million gain in the income statement. The assuming company picks up assets of $16 million and usually picks up the discounted losses of the $16 million so there is no affect on the assuming company's books.

The potential problem with these contracts is that there may not be a true risk transfer, and that is what bothers accountants and regulators. They try to look through all the transfers and find out what really happened. The loss portfolio may really be a financial agreement. Is theassuming company on the hook for the losses? Many times the original ceding company recaptures all losses. A finacing agreement usually only provides temporary gains because the ceding company will ultimately recapture the reserves transferred. Another problem with a financing arrangement is that it may hide a surplus deficient company. Originally, the most common reaosn for doing loss portfolio transfers probably was to provide surplus relief, especially for statutory purposes. These financing arrangements camouflage reserve development. It is difficult to find out how your losses are developing when the assuming company is reimbursing the ceding company on some predetermined schedule.

From an assuming company standpoint, the financing arrangement may overstate revenue. Gross revenue is my example of $16 million for the assuming company. The reinsurer ultimately is going to return that amount. This accounting method may not affect the bottom line of net income, but it does affect the total revenue and the balance sheet. There probably are many assuming companies out there that have grossed up their premium revenue because of loss portfolio transfers, or financing arrangements.

Recently, I suspect the primary reason for doing loss portfolio transfers is that it is a way of discounting loss reserves. You know accountants have had a sort of a problem with discounting loss reserves and if you are going to discount, you have to disclose a few things. I think some people think they don't have to make as many disclosures if they do a loss portfolio transfer. Generally, GAAP and SAP frown on discounting, but a reinsurance financing arrangement usually accomplishes the same result.

As Jerry said, the New York Insurance Department issued Rule 108 which was effective November 30, 1984. The American Institute of CPA's issued a guidance letter to FASB in January, 1985. The guidance letter is not top level GAAP but is generally accepted until the FASB acts differently. The FASB is the ultimate rule setting body of the accounting profession. The American Institute is the organization of CPA's and it does not establish GAAP, but makes recommendations to FASB. Companies do not have to follow the guidance letter like they would a FASB statement.

Within the AICPA there is an Insurance Companies Committee, made up of people from industry and the major accounting firms. There is a task force on Reinsurance Accounting and Auditing that reports to the Insurance Companies Committee. The Reinsurance task force developed the AICPA's recommended guidance. That guidance has gone through the Insurance Companies Committee and the Accounting Standards Executive Committee or ACSEC. ACSEC issued the letter to FASB. FASB can put out a Statement of Financial Accounting Standards, or the FASB may turn it back to the Institute. The Institute could put out a statement position. Right now, nothing has happened.

In addition to the general definition I mentioned earlier, the AICPA and NAIC have several other criteria for determining if a loss portfolio transfer is a financing arrangement. The AICPA and the New York Department essentially define a financing agreement the same way, so I have combined the two rules. These additional criteria

follows.

The assuming company should reimburse the ceding company on a current basis for actual losses. The rules are trying to get away from reimbursing the ceding company on a fixed or predetermined schedule. The rules want to make sure there is a real risk transfer and that the assuming company is paying for losses as they occur.

The consideration paid by the ceding company should be a fixed amount. TIle original reinsurance premium should not be contingent on future loss development. Here again, the rules are just trying to make sure that the ceding company pays a set premium to the assuming company and that the assuming company is on the hook for the losses as they actually develop.

There should be no side agreements. Again, the rules are trying to make sure that whole agreement is embodied in the reinsurance treaty and that the agreement really transfers risk.

The agreement should not result in any financial burdens to the ceding company upon cancellation.

The agreement should provide for the indemnification of the ceding company by the assuming company. This requirement is to make sure the assuming company pays for all losses on a current basis.

A couple of additional criteria based on Rule 108 are:

- There should be a quarterly reporting by the ceding company to the assuming company. This requirement is to ensure that there are no long delays in settling up the losses.

- There should not be any direct or indirect commissions to either party. Again, I believe this requirement is to make sure that there is no contingent commission that may effectively transfer the risk back to the ceding company.

All of these rules are designed to say, hey, is this a financing agreement? If there is to be a true transfer of risk then the assuming company should be on the hook for the losses.

The GAAP accounting requires you to record the agreement as a financing arrangement, if the reinsurance agreement does not pass the preceding rules. The ceding company recognizes the assets transferred (probably cash) to the assuming company as a deposit, or loan. The assuming company recognizes the amount as a liability. The arrangement should be recognized for what is is - a loan by the ceding company to the assuming company. The ceding company also retains the gross loss reserves.

Loss portfolio transfers are financing arrangements, should not affect income or surplus, other than the financing charge. In other words, the full impact the loss portfolio transfer should not hit the financial statements. In my crude example, $4 million was the difference between the amount the ceding company transferred and ultimately recovered over 4 years. The ceding company recognizes the amount as interest income over the period of the contract. In my example, we are getting $20 million back over four years, but we only tranferred $16 million. THe $4 million should be recognized as interest income to the ceding company over four years. The assuming company really has aloan and it should recognize the amount paid to the ceding company as interest expense over the period of the contract. That is a very summarized GAAP accounting approach.

Statutory is a little bit different. Rule 108 says the amount of deposit is a nonadmitted asset if it does not meet the criteria requirements. Each party to the trety has to segregate the affect of the agreement on the annual statement on pages three and four. The ceding company and assuming company should segregate the losses transferred as a separate line item on page three of the annual statement. The ceding company would show it as an off-set liability and the assuming company would show it as an additional liability.

Surplus gains should be segregated until they have completely run off. You keep a separate line item on page four of the surplus statement section, calling it gain from loss portfolio transfers. The assuming and ceding companies have to segregate the gain or loss on the income statement. Also, for New York, you are required to file an additional exhibit detailing several individual items about the loss portfolio transfer. For example, you should disclose the amount of reserves transferred, the amounts paid, the amounts recoverable, the amounts recoverable to date, theincurred years affected, and the lines of business transferred. You are also supposed to identify the assuming or ceding company. If there are any letters of credit involved you should disclose the amounts. In general, GAAP recognizes a financing arrangement and records the interest expense or income. Statutory requires you to disclose many details.

Jerry mentioned the SEC Reserve Disclosure Rules. He also said E&W is putting out a book in a couple of weeks on the analysis of the top 43 companies in the country that made loss reserve disclosures in SEC filings. Some of those disclosures affected loss portfolio transfers.

On a preliminary review, we noticed ten companies made disclosures about loss portfolio transfers. Four were assuming companies and six were ceding companies. Of the six ceding, and these are GAAP financial statements only now, three considered them to be reinsurance contracts and recognized the full impact on the GAAP statements. In other words, they didn't recognize them as a loan. However, three others recognized them as financing arrangements under GAAP. Remember the guidance from the FASB is not final. So there is really not a requirement that you record them as financing arrangements.

There were some additional disclosures by the three that recognized the portfolio transfer as a financing arrangement. One indicated that it had done loss portfolio transfers in all three yars of the GAAP financial statements. This company disclosed that pretaxed earnings had increased in '84 by 3/10 percent, 83 by 1.6 percent, and '82 by 4.4 percent. Another company said it had done only one loss portfolio transfer, which was done in 1984, and it decreased the operating loss by about 25 percent. The third company said it had done one loss portfolio transfer in 1983, and that increased earnings by about 24 percent. I suspect that these were specific loss portfolio transfers just to clean up the income statement and balance sheet for statutory purposes.

One of the companies that collapsed the treaty and recorded it as a financing agreement made what I consider an excellent footnote disclosure in the financial statements. I am just going to summarize what they said: "In 1983 the registrant entered into two loss portfolio transfers where the registrant ceded unpaid losses for X million dollars through the ABC Reinsurance Company and the XYZ Insurance Company for cash payments of X million dollars. (They disclosed the amount cash paid to each individual company.) The Company's consolidated financial statements reflect these payments as long-term investments. The investment income is accrued at approximately nine and a half percent until the monies are repaid by the assuming companies. Reinsurance recoveries are

limited to an annual maximum recovery. (The detail of the maximum amount recoverable is disclosed).

They also went on and said, "For statutory reporting purposes the difference between the liability ceded and the cash payments of X million dollars was recognized as underwriting income". They then went ahead and said, "There is no loss portfolio reinsurance agreement in 1984 and thus no impact on the financial statements".

The ceding comanies made pretty good disclosures. The four assuming companies provided a little less information. Two said, however, that they recorded the reserves received at the ultimate or gross value. That is, the reserves were not discounted. And one company didn't really disclose the specifics of how they accounted for the loss portfolio transfer.

We seem to see most of these transfers late in the year when people are trying to clean up their balance sheets and income statements; maybe to improve their Best ratings. A couple of treaties I have seen were dated around the 25th or 26th of November 1984 just before the New York Rule became effective.

I don't think Rule 108 is going to stop loss portfolio transfers. If GAAP starts discounting loss reserves, that may stop many loss portfolio transfers first. Just another aspect about the future of loss portfolio transfers is that the NAIC's Reinsurance Committee is thinking about additional disclosures in the annual statement. One of the more significant ones is to disclose the reserves and premiums based on the type of reinsurance treaty, not by line of business. It is pretty hard to split reinsurance treaties byline of business shown on annual statement part three. The Committee was talking about splitting proerty ans casualty coverages, or maybe by quota share treaties and excess of loss treaties. That may be the future direction of loss portfolio reinsurance. Thanks.

Scheibl: Thank you Jeff, I am sure their will be some questions on that subject as we get into to the discussion session. I would like to see a show of hands of those who attended the session yesterday on reserve discounting? Could we have some idea of how many people were exposed to that? Dick, that might help you a little bit when you give your presenttation. So far we have had as I said before, a thread going through these two presentations, even though they dealt with two distinct and different problems. That, of course, is the matter of reserve discounting. As is always true in our business profession the Insurance Commissioner has the last word and that is why Dick Roth, who is Assistant Commissioner of California will be ending up this discussion telling us about the new NAIC statement requirements which are heard about in the other panel. He will run us through it briefly to bring those of you who were not in that panel up to date, and then shove some of his own thoughts on this general subject of loss reserving. Dick is very flexible person, he is an engineer, an actuary and a lawyer. To demonstrate this versatility, he has agreed to take on the second topic. A very timely one, as a matter of fact, we just added this to the agenda last night.

In view of what has happen in Mexico City in the last several hours with the major earthquake, we thought it might be appropriate for Dick to discuss a study that the California Department has done on the possible impact of major earthquake in major metropolitan areas in California. This, of course, has loss reserving implications and in order to fit it into to the program, I hope Dick at least uses the words "loss reserve" once or twice while he's talking about it. As I said, Dick has a varied background and is Assistant Commissioner in California. His responsibilities includes just about everything. He is responsible for issues relating to property liability insurance, specifically re-insurance, workers compensation, medical malpractice, the availability

and the affordability of automobile and property liability insurance and the ever increasing demand for earthquake insurance. How about that? I think it is probably more in demand today than it was yesterday. As the Chief Property Casualty Actuary, he is involved in issues of solvency and the actuarial portion of the financial examination of property casualty companies. Dick Roth.

Roth: Subject of this portion was loss reserve discounting and this topic was covered extensively yesterday, in fact, by the Commissioner of Insurance, Bruce Brunner of California. I would like to cover this very briefly. In California we do not allow discounting of loss reserves of any kind. We able to get away this because medical malpractice is written on a claims made basis. Because of that we can require no discounting. I might add that in California we like to see medical mal-practice surplus to be at least equal to one-third of undiscounted loss and loss adjustment expense reserves. We have told mal-practice companies we do not want to see over four to one. With a four to one ratio, if under reserved by 25 percent then you are out of business.

On the workers comp line there are very few life contigencies reserves it turns out. In other states they are a much greater proportion and therefore there is a larger issue. The reason why we don't allow discounting is a practical reason. We feel that we need the buffer of the undiscounted reserves and also when we put a company into liquidation, we usually find that the investment income just about covers the overhead expenses of running a company. When a company is put into liquidation all the policies are cancelled so you do not have any more premium income. You did need some income or some resources somewhere to pay overhead expenses and usually the company is underreserved. So, we need the investment income to cover the overhead expenses. Those expenses are in addition to whatever the provision might be for the unallocated loss adjustment expenses.

Now, the subject of discounting is being discussed extensively at the NAIC and I understand they passed a proposal to include additional disclosure in the forthcoming annual statement. This disclosure amounts to additional questions in the blank and also additions to the instructions. The instructions will read that Schedule P liabilities should be completed gross of non tabular discounting and there are a series of questions. One of the questions says, if a tabular basis is used then you have to identify the table and rate of discount and so forth. Usually there will be only tabular discounting, in the case of worker comp. If there is non tabular discounting you have to indicate the rate of discount, the amount of discount, the amount of discount liability carried in the annual statement and in additional you have to complete a supplimentary Schedule P.

So effectively then, if you do discount non tabular discounting you will have submit two Schedule P's. One gross of discount and the other net of discount. The problem is that when you discount the loss reserves on Schedule P, which is designed mainly to show run-off of these reserves, you are going to get a adverse run-off. The reserves will constantly increase, therefore, show an adverse run-off. Thus, making it very difficult, if not impossible, to use Schedule P for loss reserving methods. We at the California Department have computerized Schedule P and at any one moment can produce a loss reserve analysis based on the preceeding five years Schedule P. This is a very useful tool for us and when Schedule P reserves are discounted this greatly reduces the effectiveness of this computer program and of Schedule P entirely.

The question may be asked how extensive is discounting? I have here a listing of all the amounts of discount that were reported on the 1984 annual statements. This was compiled by Texas Department and shows state by state the amount of discounting. There are a couple companies listed here for California. These companies that were

quickly notified that their discount was not allowed. There are other states that apparently allow discounting. One example is Connecticut, for five compaines domiciled in Connecticut, I think four of those five are actually Travelers. The amount of discount is $835 million of the companies listed here. Their total surplus was $1,654 million. If you take out the discount that leaves with a surplus of $818 million so in effect you cut the reported surplus in half by the discount. The other states that are much less than that. But the purpose of the exhibit is to make extensive reporting of the discount. The NAIC instructions make it clear that just because we ask if there is discounting that in no way implies that discounting is permissible. If the particular domicilary state allows discounting then we want it fully reported. But the states, and it is made clear, have the complete right to not allow discounting. The reporting does not by implication allow it.

Now I would like to get into the topic of Earthquake Insurance. The subject of Earthquake Insurance was assigned to me when became Assistant Commissioner. Because somebody else in the department who was handling it retired. I thought it was going to be a small project and take up a little bit of my time. It has exploded way out of portion of what I thought was. It brought me into contact with people at Lords in London and it has brought me into contact with the entire re-insurance community. It has gotten my name on the front page San Francisco Chronicle. If you are familiar with the San Francisco Chronicle, unless you have committed rape or something like that it is virtually impossible to get on the front page of the San Francisco Chronicle. And in most of the papers and radio stations in California. The department has an annual questionnaire which we send out to all companies licensed in California, property casualty companies, and they are required to submit that detailed questionnaire every year. That questionnarie is computerized and we publish an annual report giving the results of that questionnaire, plus additional commentary on what transpired in area of the subject of Earthquake Insurance in the past year. It is now available and if you leave your business card with me I'll be happy to send you a free copy when I get back to office.

In the report this year as every year, I list all of the major earthquakes which occurred around the world that year. In 1984 there were 48 major earthquakes around the world. A major earthquake is an earthquake that greater than is roughly five or there was a loss of life. The earthquake in Mexico City was 7.8. Seven point eight is very large. The San Francisco earthquake in 1906 was about 8 to 8.25. The earthquake 1964 in Alaska was between 8 and 8.25. So, 7.8 is less than 8 but it is quite a large earthquake. This year we have found the interesting result that the total exposure to the insurance industry dropped. What this questionnaires measures is strictly structural loss; damage to buildings. It does not include life insurance, it does not include workers comp, does not inclue automobile, just strictly structural damage to insured buildings.

In San Francisco area, which includes all the way to San Jose and up, the exposure in 1983 was three billion 944. This dropped in 1984 three billion 381. In Los Angeles the corresponding number in 1983 was 5 billion 483 that number dropped to 4 billion 660. Now, this drop was a reverse of long-term trend towards increasing exposure. Now, why was there a drop? Well, we looked at the data very carefully and made some special runs. I got on the telephone and called and my staff called the major companies in country and asked them why their results decreased over the year. We asked about 15 companies who submitted large numbers to re-verify the numbers. The reason is commercial underwriting. The problem, is the high earthquake exposure on commercial buildings. What we do is take the insured loss and multiply it times the factor or percentage. A percentage can be any where from to two percent on to 50 or 60 percent. For commercial buildings our percentages are in the of range 40 to 60 percent. So, commercial buildings have a high exposure to earthquake damage. Now,

over the past years, the companies have been realizing this and they have been greatly reducing their exposure on commercial buildings. However, the exposure on homes and residential have increased and the assumed exposure for re-insurance companies increased. But, those two increases were not enough offset the large decreases on the commercial.

Let me describe some of the risk factors involved in earthquake insurance. Because I am asked this all the time by the general public. There are basically four risk factors:

One is the construction of the home. Whether it is wood frame and masonry. Masonry is far more hazardous than wood frame. With masonry which if it was made out of brick and the brick actually supports roof, there is considerably more danger to total loss or extensive damage than for wood frame.

Another factor is the soil condition. You can have solid firm ground or you can have landfill or a hillside. Landfill is particularly danagerous because of a phenomenon which occurs when there is an earthquake. An earthquake involves oscillating, shaking and this creates a phenomenon called liquifaction. The soil actually liquifies, it takes on the characteristics of mud. The building just sinks and you can have a well constructed building, reinforced beams with metal straps, and tight construction but if it is poor soil it just goes down. Last year we had a major earthquake in the San Jose area called Morgan Hill. Much of the damage was due to the failure of the soil, not so much the failure of the building and structure.

Another earthquake risk is the proximity to the fault and that an obvious one. The closer you are to the fault area the more likely you will have damage. In fact, also the type of building that you are in relationship to the distance of the fault matters. An earthquake propagates long waves and short waves. The longer waves travel further and the short waves dissipate quickly. If you have a low rise building, a building only two or three stories and you are far away from the earthquake you are probably less likely to be have damage. If you have a tall building which is more susceptible to the longer waves then you can have damage even though you are farther away. That is why the questionnaire divides the building into those under eight stories and those over eight stories. Because the buildings over eight stories are still susceptible to damage even though they might quite away from the fault area.

Another risk factor is building codes. The building codes in California have been upgraded substantially over the years, so, that they require earthquake resistant features. These buildings codes are incorporated in what is called the Uniform Building Code. These have been upgraded substantially since World War II so we divide the buildings into two groups. Those built after World War II and those built before World War II. The questionnaire does not get into this. Buildings built before World War II are highly susceptible to earthquake damage. This was clear in an earthquake which occurred in Coalinga in California about two years ago. If you drove through the town you would find that the older the buildings masonry building were almost completely destroyed. Newer buildings, particularly the wood frame buildings, were left almost untouch. Not every building in Coalinga was damaged. The amount of damage and extent of damage depended very greatly on the type of construction.

These factors are factors to be taken into consideration when you buy insurance. Also, they should be taken into consideration by insurance companies when they sell insurance.

I would like to get into a new bill which was passed in California last year. It is called AB-2865. That bill required every insurance) company writing residential insurance

which means homeowners insurance to offer to earthquake insurance. The reason for that bill is as follows:

There has been a series of court decisions culminating in what is called the Theory of Concurrent Causation. In Northern California there lived a man named Garvey. He had a home and he built an additional on to his home and the land above his home shifted. It caused the addition to separate from his home. Well, he put in a claim on his homeowners policy with State Farm. State Farm denied the claim because under the homeowners policy there is exclusion for earth movement. Unfortunately for State Farm, Garvey is a professor of law. At coffee he sat around with his fellow professors and discussed this situation and went back and sued State Farm under the following argument.

Yes, there is an exclusion for earth movement. However, what I have is all risk insurance policy and the earth movement was only one contributing factor. Another contributing factor was that the builder that I hired to build this addition, built it negligently. Because if he had built it properly it would not have separated from the house, the addition would not have separated. The rest of the house is O.K., it is just the addition that was damaged and the court agreed. The court reasoned, if you have any contributing factor which is covered under the policy then the policy must pay all of the damage, so, State Farm became liable. State Farm has since appealed this case, However, even though it is under appeal it still is considered the law in California.

Then the earthquake in Coalinga came along and the companies realized that they faced a serious problem. If they had homes insured under all risk homeowners policy and if they denied the claim they felt they would probably lose. In any event they exposed themselves to punitive damage. So, they went ahead and paid all of the earthquake losses in Coalinga even on those policies which clearly excluded damage from earth movement.

There was a test case by Safeco by agreement with some of the homeowners in the Fresno Superior Court. The basic underlying decision of the Garvey case was upheld. So, therefore, the insurance industry faced a prospect of giving everybody in California free earthquake insurance. Because, if an earthquake occurred and their house was damaged and the neighbor's house was untouched all they had to do is argue negligent construction and they had earthquake coverage.

Well, I developed an analysis last year showing that this increased the exposure from five billion to about thirty billion in Los Angeles alone if everybody insured with earthquake insurance at practically no deductable. In response to this horror, the insurance industry went to the California Legislature and asked for relief. The relief was in the form of AB 2865. What that saysis that if an insurance company offers earthquake insurance and you turn it down or they offer it by certified mail and you don't reply you are presumed to have received the offer and turned it down. If they make that offer and you don't take it then if an earthquake occurs the concurrent causation argument does not hold up. If an earthquake occurs there is an exculsion even if there were other contributing factors such as negligent construction. So, what is done to overrule of the Garvey decision. But that offer must be made and you must either decline it in writing or they must issue a certified letter. What happened was this law was effective January 1st of this year and these mailings went out around February. February was about the time Postal Department increased the postage from 20 cents to 22 cents. So, the Post Offices was filled full of people getting 22 cents stamps and also diluged with these certified mailing. There are about 10 million to 13 million homes in California. State Farm is the largest writer and they sent out a mailing well over a million certified letters. People

received one of these letters and thought they won some kind of sweepstakes and went down to the Post Office. They took off from work waited in line behind all of these people wanting 22 cent stamps, and they got this offer for earthquake insurance. They were just absolutely fuming. They called the department. They called their assemblymen. They wrote letters to the assemblymen. Even some of them went and cancelled their homeowners insurance. So, they got a new homeowners insurance policy and another certified letter. Fortunately, they only have to offer it once to each policy holder. That is what we have gone through for the past year.

What is the availability of Earthquake Insurance? The market currently is very tight. The reason it is tight is because the re-insurers. The re-insurers are very nervous about earthquake insurance. The people in London write hardly if any of it. The price has gone up. Another thing that has happened is the deductible has been raised to about 10 percent. So, in California when you buy earthquake insurance on your residence you will have pay about 10 percent deductible. Ten percent is quite high on a hundred and fifty dollar house. That is 15 thousand dollars. But, they are using their deductible to limit their exposure to strictly the catastrophic level. Also, by doing this we at the department generally agree with this because this then does not provide such a strain on the surplus and affords the consumer basically what is catastrophe insurance. We feel that is what most people want any way is the catastrophe insurance. Some people want the first dollar. The first dollar coverage is almost entirely gone now. Thank you very much!

Scheibl: Thank you Dick. Just to make that legitimate, in all of that I read some particular problems with regard to loss reserving. Especially when you don't know whether you are going to have a major catastrophe or not during the term of a policy. I would like to open this to questions now. Remember that we do have actually four presentations up here; the SEC presentation, the loss portfolio transfer, the Insurance Department or the NAIC's position on discounting loss reserves and, of course, Earthquakes. Would you please use the microphone and identify yourselves so we get this on the tape.

Audience: Yes sir, My name is Jay Cushman I am from Morgan Stanley. I have a question for Jerry Harrington. With regard to F.R.R. 20. When the 1985 crop of SEC 10ks is published can you give us some inkling as to whether there will be a change in terms of the loss development table that is set forth there? We begin in '84 most companies began with what I call reserve year 1976 and end with reserve year 1983. So for '76 you have development experience in trends through eight years. Is it the Commission's intention to continue the 1976 column so that we'd have nine years in the Sping of 1986 to look at or will you simply leap frog forward and drop 1976 and start with '77?

Harrington: Seventy-six will remain for 1986 I think for 1987 also, because we are moving from eight to ten years. I think we tried to make the move concurrently with the move on Schedule P.

Audience: As I understand we will have two more years of development in other words.

On another subject, you mentioned in your prepared remarks something about the impact of retrospective premiums obtained from retrospective rating plans.

In my own work on that 24 company composite that I discussed yesterday, only one of the companies made a disclosure about retrospective rating and indicated that they were incorporating such premiums in the loss development table and by implication reducing

paid losses and the impact of any cummulative deficiencies. That seems to me that is something that you ought to come back hard on in terms of requiring companies who are doing that to so indicate. To indicate by how much this affects the development. In this company's case it turns out to make its loss development experience look extraordinarily favorable.

Harrington: What we know is that that is a subject at which we have to look at. That is all we know at the present.

Scheibl: I don't see a sea of hands. I wonder if any of the panelists might have a question of the other panelist. I don't want to leave you fellows out of this.

Miszner: Jerry would you please answer a question for me? Because I am interested in getting some indication of payment patterns. I have no idea what can be done. I realize there is a problem in estimating what you are going to pay next. But I also realize that some of the payment streams are expected to last 30 years or 20 years or 10 years. I believe I have read somewhere that there was NAIC Committee working on the subject of presenting some sort of an indication of the expected payout period. I have asked a few people since I have been here yesterday and today. I really don't find any trace of that NAIC Committee. I wonder whether Dick could tell me if he is aware what anybody is working it directly.

Roth: The answer is no I am not aware of it.

Miszner: I guess I had better go back to my sources. If I can find them.

Scheibl: For the record that answer was no. We want to be sure that is recorded. I have a question for Jeff. You had mentioned the suddent flurry of activity with regard to loss portfolio transfers, shortly before the New York Regulation 108 took effect. Do you have any feel as to how many of these were stimulated by 108? The idea that either do it now or you may have some problems doing it later. Or how many might have already decided to do it and it was just a bit more convenient to do it at that time. Do you think that there was any encouragement that came out of this possible regulation?

Unintended, of course.

Miszner: Well, unintended or intended I suspect that it is not a coincidence these treaties were dated like November 27th or November 26. I just want to say I can't speak for the industry as a whole. I know about two may be three treaties that were dated in November. I think in this case they wanted to get in before the Rule became effective. I don't know if they would have gone on any way or not. I guess the effect I have seen of Rule 108 in New York and just transferred to New York last December. I spent most my formative years in Chicago in the insurance business which is a little bit different. But, what I have seen I guess is the re-insurers, the assuming companies are somewhat more reluctant to do loss portfolio transfers as opposed to prior. But then there are still people around that want to them but may be tax motivated reasons for doing them, as opposed to the surplus relief treaties. While I am up here I will ask a question of Jerry. The primary disclosure rule the SEC disclosures is that the triangles are reserved date are balance sheet run off data. They are not accident year data. A lot of loss reserve analyst try to look at loss reserve development by accident year, obviously. In fact, when I say F.R.R 20 came out the first thing I did with example I thought it was an accident year data and tried to make sense out of it and it wasn't it was reserve run off data and reserve balance. I know a lot of people have tried to convert the balance sheet run off data to accident year data. In fact, we are doing in our book and I think ----- is

doing in their book is a little bit of trouble. But you can convert to accident year data for the eight years or ten years and a couple years. You ar missing the first accident year because you don't have what happened in that most current year. However, it is another schedule that shows you what the development was for the most recent three years. So, we got kind of goofy liking triangles. We got the first accident is missing for everything but three most recent years. I just wonder if there is ever going to be some time in the future where the SEC is going to require or think about requiring accident year data?

Harrington: I think the answer is that we got most information in there that we could. There is an absolute abhorence on the part of the Commission to require registrants to provide additional pieces of paper .....

Panel Session 5E

ALLOCATION OF PROFIT CENTERS

Moderator: Richard A. Lino, Vice President & Actuary
Continental Insurance Company

Panel: David Skurnick, Consultant
Joel S. Weiner, Consultant
Towers, Perrin, Forster & Crosby

1985 Casualty Loss Reserve Seminar

Kansas City, Missouri

Moderator: Richard Lino, Wisconsin Insurance

ALLOCATION OF RESERVES TO PROFIT CENTERS

Before we get started, just a few house cleaning chores. One is that you see in the evaluation form in your package and material, please the take the time to fill it out, the program committee goes back through them quite thoroughly and learn alot about your thoughts and how to plan for future seminars. Please drop it off at the registration desk, if you forget it you could always mail it in to the Academy once you get back home.

Just like to mention that the opinions expressed here are not the opinions of the CAS or AAA and basically it is the opinion of the panelist on these subjects.

We're going to have to take questions during the discussion, feel free to interrupt if something that you want expanded on or clarify, but I'll ask you to speak into the mic because this session is being recorded and the questions will become part of the transcripts.

This is the third time that a session on allocation of reserves to profit centers has been given in the loss reserves seminar.

Obviously there's still on going interest and, the reasons for that interest are probably because we're all, many of us are faced with trying to come up with better ways of allocating reserves to profit center so that we can meet some of the objectives that we probably have been given and that is to provide a better way to measure profit so that we thereby give a better information for on which management can make appropriate decisions.

In one of the speakers last year sessions, basically the measurement of profit is only as good as your allocation systems. And I believe that, I think that in order to know where you are and how profitable you and where you ought to take action you need to have a good allocation system, so that you can make those decisions.

But allocation is not isolated by it self which is part of the, what I would call life cycle of actuarial estimates.

I'd like to view it as a circle. Setting rates is on the top only, like in ---, but basically you might set rates for a new product and gain experience, get some experience and establish some reserves that the companies liable for in those products. And then you might take those reserves and allocate it to the profit center, so that yo could analyz the underwriter results on that product. You also have to forecast results. Typically, the actuary gets involved in forecasting results.

Those forecasting of results, hopefully, uses the same assumptions that used in setting rates. So the cycle completes it self.

We tried very hard to intergrate those four items as much as possible because due to the different functions used some where data and need to be consistent in your application of data. I think I'd like to keep the allocation of reserves in its perspective and how it fits in to the total picture.

Just one other point before we start on the main point of the session, I also believe in having a historical perspective. I know that we've probably all heard about the actuary looks out the back window tell management where they've been, and I don't want to be

accused of looking in the past. But, I think one needs a historical perspective to learn about things you've done right in the past or done wrong. I think professor ----, we had in our Toronto meeting the CAS expressed it reasonably well, I'm talking about superstition learning.

If you learned that by not having adequate information, if you learn and believe that a certain action produced a certain result and a good result you'll continue to do that. Even though it may not produced the result, you though it did, because you didn't have the information to evaluate that and lets admit if we continue to provide this calendar year information to our branches and not giving them a flavor for how loss development really works and you know, how they are or are not contributing through profit of the company and we're not giving them the tools to learn and do their job a little bit better.

Now basically we've got two different view points on the subject in that we're doing. Joel Weiner will be dealing with the risk management aspect with allocation to profit centers and Dave ---, will be dealing with the company view point.

Joel will be speaking first. Joel is currently a consultant with Powers, Perrin, Forster and Crosby. He's gotten there by way of General Accident and INA. Right now he does all phases of insurance consultanting for insurance companies and risk managers. Even though we will be focusing on the risk managment perspective of allocation, he's well equipped to relate that to the company view point as he spent 5 years at INA and was responsible for loss reserves including allocation of loss reserves. He will provide three actual risk management examples, which will drive on the point that there's no one method that is right for every application.

Joel: Thank you Rich. Good morning.

I was trying to think of a joke this morning to get our guess to loosen up a little bit more, and I'll be honest with you. In fact, Dave and I were just kidding a moment ago, allocating reserves to profit centers is just not a very funny topic. There is a story though that I do want to relate to you before I get started that will drive home one of the points that Rich was making. The point being that I think that it is imperative to allocate these reserves to profit centers or to branches. We will intend to use those words profit centers and branch interchangably. I think that there must be a reasonable allocation method. Its surprising that when I go from company to company, and even more so in risk management situations, that either the risk management department or the actuarial department is not allocating the reserves down to the local level. This happens too much. There are all kinds of practical reasons why we, those companies, don't allocate reserves. For example, the systems can't do it, and so forth. Nevertheless, we do need to do it.

Now this story will tell you why. I remember when I first started setting reserves back at INA. We had to look at the marine book of business in a completely different way than we had ever looked at it before. Basically what we had done was chopped it up and look at yachts and hull and P&I and cargo and so forth, separately. Before we had looked at it as marine in total. What happened, which was what often happens when you take things and break them apart in more detail, particularly when the P&I was getting worse overtime, the results were bad and we had to tell management. Now the amazing thing was that the day after we told this person who was in charge of the marine business that his results were bad by a million of dollars more than he thought for that year, he got on the phone the very next morning, called up all of his underwriters all over the world and immediately raised his prices by some significant percentage, I forget what it was exactly, but it was like 25 or 50%. The next quarter that we looked at that business it

had turned around, just like that. I've always remembered it, because there's not very many lines of business where you have your hands on the prices and have the control over the prices like you do in the international marine business that INA had and still does. The key in that situation is that we were able to alert the underwriter about the results by telling him the fully allocated reserves for his area of responsibility.

Unless we tell that underwriter or that claims center manager or that profit center manager or that branch manager what those results are he can't do any thing about it. So, if it is a significant cost and obviously its becoming more and more a significant cost in many lines of business and many businesses that we're in, it has to get allocated. It has to be allocated in a reasonable way.

The agenda that I would like to talk through with you this morning, is to go over some allocation basics. What I'm going to call the 1-2-3 of allocating. This is, these concepts have seemed to me to be in all allocation systems in some fashion. Then I want to compare, rather I should say contrast the situation of a insurance company with a risk managment situation.

Now by a risk management situation, what I'm talking about is a corporation that is not an insurance company. We're talking about the captive exposures. They may have bought insurance, they might be self insuring, or some combination. However, these companies will have divisions, or different profit centers, and they have to allocate claims costs to them.

I suspect that most of the people in the room are working in insurance companies, and in fact let me ask the other side of the question.

Who is dealing in a risk management situation in the room today? Okay, good, there are some people. For those of you who aren't, I still the think the contrast tells us something about the insurance company situation.

How to select an allocation model. I'm going to talk through three live examples that are camouflaged a little bit. These are actual situations that I've seen. The first one is a manufacturing company; the second one is a transportation company, and the third one is a diversified company. I've selected these situations because they represent an increased complexity of the allocation method and for good reason. There's a situational, aspect to it that I'll talk about.

The insurance allocation basic at the risk of over simplifing, I think boils down to these three things. You first decide what it is that you are allocating. Secondly, you decide what media to use. By media I mean that thing that is in the data base and is determining what portion is going to the unit one verses unit two verses unit three (or profit center one verses profit center two verses profit center three).

For example, if there were two profit centers and one was getting 75% of the allocation and one was getting 25% of the allocation, whatever it was that we were using to determine that this is the 75% or the 25%, those ratios, is the media. And we have a lot of choice as to what you could use as the media. We will talk about those choices.

And third, there is a basic decision having to do with how many years of media we use that does two things in the allocation model. There is a trade off that we're going to talk about caused by the complexity of using many years, which is more accurate. However, that complexity sometimes makes it harder to implement the allocation.

I also want to rest here for one more second. In prior discussion in the previous meetings on this topic, there's a lot of talk about bottom up verses top down methods. I have a point of view, which I will admit is personal, but its a strongly held one. When we're talking about allocating we're talking about a top down approach. That, if in fact we said to ourselves, there was good reason to look at something from the bottom up approach, for example by individual treatee, by detail line of business, by state or by some break down, then what you're doing is setting the reserves at that level of detail. That is, that's one problem coming up with the reserves in the first place or what the insurance cost in the first place, rather than an allocation problem. That level of detail for estimating the reserves themselves should be as low as it needs to be. That's the bottom up approach. Once you have determined the total reserves, allocating is always top down. And so one requirement of my allocation model, no matter what it is, is that when you're all done it better add up to something. It better add up with which answer you started.

The first thing that we have to decide is whether we're allocating costs hink about if for a second, on an off --- basis, at the beginning of the year, there is a forecast of what the costs are going to be or what the expected losses are going to be for the verses reserves. At the beginning of the year there is a forecast of what the costs are going to be or what the expected losses are going to be for the coming year. In the insurance company environment it makes no sense to allocate that, because it isn't incurred yet. In a risk management situation, you always allocate the beginning of the year projection. The profit center manager says, "What am I going to budget next year for insurance (or for casualty claims or whatever it's called in that corporation". So, it is allocated prospectively.

So, in a risk management situation there is a distinction right away between cost and reserves. Whereas the cost can be prospective and you might allocate costs prospectively, reserves prospectively are zero. It is only in retrospect that we have reserves. That is, only after we have some passage of time in an accident year, can an insurance company or risk manager allocate the reserves.

Now in the risk managers situation, if he has prospectively allocated the cost there's nothing that says that he must go back and reallocate the cost given that sometime has past and he has some actual experience. Whether he will reallocate the costs based on actual retrospective experience.

Sometimes he may want to reestimate based on actual results but he doesn't have to. Now at the bottom of the chart, there is the expected loss ratio method which is prospective, but it is a valid actuarial method. At the beginning of the year, in a risk managment situation, if you were allocating your costs to these profit centers prospectively, essentially you are using the expected loss ratio method versus some retrospective method. Retrospective methods usually involve a loss development approach or some combination approach of both prospective and retrospective methods, which I called the Bornhuetter - Ferguson Method. For those of you who aren't familiar with this particular combination approach we'll talk about it in a moment.

Besides deciding whether we're allocating costs or reserves we must make a decision as to what the claim account detail is that we are allocating. For example we could allocate loss allocated losses, adjustment expense, unallocated loss adjustment expense, combined or separate, or loss expense combined and losses separate and so forth. Also we might allocate basic limits, total limits, excess limits or some combinations of those. We might allocate the excess limits and the basic limits by different methods.
If it turns out that we decide that we are going to use the same allocation method for

basic limits and total limits and loss expense and losses, than why allocate them separately to begin with. Mathematically you get the same answer by allocating them together using the one media that we talked about, as by allocating them separately and then adding the total. The only reason that you might allocate them separately is in a situation where the profit center manager wants to analyze those accounts separately.

Besides the claims account detail, we have to decide a line of business detail, a different cut of detail. We could talk about some broad categories, property verses liability verses compensation. In risk managment situations, the line of business breakdowns often are not finely broken down.

In insurance companies it is typical to have finer breakdowns for allocation purposes. We might take general liability and break it down between premises and products, this obviously could also be done in a risk managment situation. There could also be break downs by state. There could be break downs by any other category.

Lastly, there are leftover allocations or what we might call fudge factors and other adjustments that might get allocated.

An example would be the current years excess costs over the prospective estimate. In other words, suppose there was an initial allocation done prospectively. At the end of the year the actual results will be an additional amount, an excess, or there could obviously be a redundancy. What do I do if there is a difference between the actual and the expected, what do I do with that. I could allocate that back to those profit centers.

If I didn't do that for the current year I have to think about what I'm going to do for the prior years accumulative excess cost. Thinking back to the example that I mentioned previously where the risk manager is saying, "I'm only going to di it prospectively", he still has to worry about the fact that throughout the year and throughout prior years he is accumulating some variance that he has to allocate. There are also overhead expenses of the risk management department that could get allocated. These left over allocations are more common than in a risk managment situation than in an insurance company situation.

The second thing that we said we would decide, after deciding what we're allocating, is what media we're going to use to allocate. The media is that thing that determines the proportion that each profit center is going to get allocated. The first type of media that we could look at is exposure. A measure of exposure could be premiums or the rating exposure themselves.

Premiums would be approriate to allocate either costs or reserves. The rating exposure could also be used to allocated cost or reserves. The rating exposures aren't typically used in an insurance company, because there is too much variation in an insurance company in the types of exposures in use. Thus, for an insurance company utilizing exposures usually presents system problems.

However, in a risk management situation where you have the payroll by division, which is an exposure measure, it might be absolutely appropriate to use payroll to allocate the cost for, say, workers compensation.

Now lets stop here for a second and talk a little bit of theory. If I use premiums as my allocation media, then what I am doing? I am estimating my cost at the profit center level using the Bornhuetter - Ferguson approach.

The Bornhuetter - Ferguson approach, which is named after Ron Bernhuetter and Ron Ferguson at General Re: who wrote a paper describing this method, says that the expected loss is a weighted estimate between these two other estimates of the ultimate loss shown on the chart. One of these estimates is the earned premiums times the expected loss ratio, and the other estimate is the reported losses times the loss development factor. Both of those terms project ultimate losses.

The weighting factor are what are shown in the brackcets, on the chart. But notice that the weighting factors are based upon the loss development factor . Those two brackets added together equal 100%. The first one, one minus one over the loss development factor is one you may have to think about. Essentially, it is the portion of the losses that are unreported. One over the loss development factor is the portion of the losses that are reported. If we use those weights, to weight these two different projections of ultimate losses, then that is essentially the so-called Bornhuetter - Ferguson method.

Notice that we define the IBNR as being the ultimate loss (or the expected loss) minus reported losses turns out to equal the earned premium times this amount in braccets, which the expected loss ratio times one minus the one over the LDF loss development factor. Now, that is the same percentages in that square bracket we just spoke about. It represents the portion of the premium which is the IBNR. If I use that percentage of the premium and I go to every profit center and I say "This is a portion of premium you have to put up in IBNR," what I've done is I used the Bornhuetter - Ferguson method to establish the IBNR at that local level.

Again using premiums as the allocation media is using the Bornhuetter - Ferguson method.

Besides exposure, I might use loss experience to allocate these cost or reserves. I can look at prior year claims, and use that to allocate the cost on a prospective basis.

However, it doesn't make any sense to allocate the reserves for the current year based upon last years claims. But it's common in a risk management situation, to say that next year's cost is whatever portion of last years losses that you contributed.

Another example would be to use the current years claims to allocate reserves. That is nothing more than using the loss development method at each profit center level. Essentially, you would be saying, what percentage of claims for each of the accident years do I add on for IBNR? This is the loss development factor.

I could use a number of claims which would typically be used where there is some method of getting cost that is based upon averages of numbers of claims times an average. Its not typically used in an insurance company, it maybe used in a risk management situation. What it does do, it limits the fluctuation due to a single large loss in one profit center.

I don't think its common in an insurance company environment because the accounting that it generates tend to get unwheedling.

Number of incidents, could be used to allocate cost, but I don't like it. And the reason why I don't like is, that it tends to allow for manipulation in the reporting of incidents. And there is a situation that I could remember where there is a hospital management company and one of the things that this hospital management companies for profit, do very well is control their cost. And obviously one of their major cost is myle practice, actually their called professional liability.

It was very important in their procedures that they knew about the procedures very, very quickly because they had registered the nurses who would follow up on every single incident and using bedside manner and early adjustment of claims which were indeed justified claims, they controlled their cost very, very well. If a hospital was induced not to report an incident it was counter productive to the whole corporation. I think that is typically in a risk managment situation. You would not want to use incidents as the way that you would allocate costs. In fact, you would not want branches to report all incidents, even if they doubted that a claim would result. You would say, "If there is a question about an incident being a real claim or not, give us the benefit of the doubt. Let me know about the incident, and we will decide whether we have to do something about it."

Lastly, we have these allocations that we have made. We could use that as media. What I'm saying is that we have gone through and made allocations of the cost and that in itself could be what we use to allocate the excess cost.

If I allocated basic limits and I want to allocate may excess limits costs as a percentage of the basic limits allocation, it might be perfectly reasonable to do that.

It would also be perfectly reasonable to use to allocate over head expenses or whatever the fudge factor is using the results of basic limits allocation.

The last basic, is how many years of media do I use.

Now in the back of the room you may have some trouble seeing the chart. But if I have one media, what that top box says is that I have the reserve for 1983 through 1985. That's 3 years worth of reserves. The second box below that is 1985 sales. I'm using 1985 sales and one years worth of media to allocate all the required reserves and I used 3 years of reserves in this example. That determines what would go to unit one versus unit two verses unit three.

Now on the right, the 1983 reserves are allocating using 1983 sales. The portion of sales in 1983 for unit one determines unit one's allocation for the 1983 reserves only. The 1982 claims reserves are allocated based on unit one's portion of sales in 1982, and so so.

Similarly, the 1984 reserves use the sales for 1984 and the 1985 reserves use the sales for 1985. The reason that you will very often see what is on the left hand side is because it's simple. It makes the computer system and the explanation to the branch much easier to understand and implement. But it is misleading and causes inappropriate allocations. The following will demonstrate this.

Whenever there is an uneven growth of the units to which you are allocating suppose on the left hand side that unit 3 is a brand new unit, we open up a brand new division, or we have a brand new profit center in some part of the country that we never had before. Why should they get any portion of the 1984 and 1983 reserves when they weren't around.

So the multiple media is more accurate.

Obviously, lines of business differ in importance. If it is a short tail line of business it may not make sense to have of the added complexity of using multiple medias. If it's a long tail line like liability then the added complexity may make sense. Remember that the system and the explanation to whomever it is thats getting allocated is much more complicated with the multiple media. However, one of the nice things about the multiple

media, and unfortunately this is true in an awful lot of insurance companies, is that there often are very poor management information systems at the profit center level. It turns out that if you have multiple media and you are allocating reserves by a loss category using multiple media, you have in your data base a lot of information that can be useful to local management. The information reports can show the contributions to the current calendar year from all the accident years, and it is a by-product of the allocation method.

We've talked about these basics, 1-2-3, what to allocate, what media to use, how many years to use in the data base to allocate it. Now lets contrast the insurance company situation and the risk management situation a little bit more.

Some general observations. The audience in an insurance company is sophisticated or at least it's supposed to be sophisticated. In the risk managment situation the audience for the allocations are not insurance professionals. Note that I'm not talking about the risk manager, please, but the audience to whom we are allocating. Therefore, a risk manager would hesitate to use a complicated system such as the multimedia type of system, since it is harder to explain to his audience.

Profit center organizations, in general, tend to fall into one of two categories: either a line of business breakdown or a geographic breakdown.

In an insurance company, if we have a line of business organization, then typically the actuary will want to look at the reserve by line of business anyway. Therefore the bottom up method of estimating up the reserves is already at the level of which that detail is needed. There is less need for a line of business allocation, unless we're talking about going to class within major line. But there is less need if the insurance company has a line of business manager organization. On the other hand, if the insurance company has a geographic organization, which is also common, and most insurance companies have matrix organizations both branch and line, then you want to take your line of business reserves and allocate them down. That's common.

In contrast, after the risk management situation may have a line of business organization, but it is not the insurance line of business. Manufacturing companies don't organize themselves by liability verses property, it is widget A verse widget D. And so you've got property and liability, claims costs, but its different from the risk manager's lines of business. The allocation, thus, can be complicated in a risk managment situation.

In a geographic organization on the risk management side it very rarely is the case that a company is so homogeneous that that is the only allocation that we need. There is almost always in my experience at least one subsidiary or division that has unusual problems, e.g., extreme product liability problems or they have an airplane and they have trouble getting excess coverage for that and so they're handled a little bit differently. There is usually a combination of both the geographic as well as some special case.

The importance of the allocation in an insurance company is obviously crucial, you need it for product pricing. The story that I told you about the marine business at INA is an example that if you don't know what the IBNR is than you don't know what the cost is. If you don't know what the cost is how do you price. So its crucial in an insurance company. It's not always crucial in a risk management situation; It depends on how much of the cost side of the income statement are insurance or casualty claims, and it sometimes is not a big piece.

If we think about what is being allocated, I said that cost or reserves are a choice. In the insurance company situation its almost alway retrospective. Therefore you are only allocating reserves. In a risk management situation it is feasible and sometimes appropriate to allocate cost prospectively.

Premiums receivables, Dave is going to talk about an example where premium receivables are allocated down the profit center, sometimes are allocated in an insurance company environment. Often times it is not, but sometimes it's done. I have hever seen it done, I can't even imagine what it means, in a risk management situation. It simply doesn't apply.

Investment income: on the insurance company side you have two schools of thoughts. One is never tell the underwriters about the investment income, because they're surposed to get 5% underwriting profit. The other one is, we're never going to get a 5% underwriting profit, so lets allocate the investment income so we know, as accurately as possible, how we're doing. In any case, its a management decision whether or not to allocate investment income to profit centers when its done and its almost always done separately from the reserves allocation.

On the risk managment side it is almost always in combination. You are typically talking about the present value of the reserves or the present value of the cost, so they are not separated.

In thinking about what media to use, the insurance company usually will use premiums or claims. As I've already mentioned, the risk management situation might be able to use rating exposures. However, you can utilize exposures if the rates are relatively consistent from profit center to profit center.

How many years of media, whereever practical in the insurance company situation multiple years of media should be used. It is rarely practical because of the complexity in the risk management situation.

Now we're going to talk about 3 examples quickly, a manufacturing company, a transportation company and a diversified company.

The manufacturing company makes one family of products. They differ a little bit by these 3 divisions. But the divisions are broken down by customer grouping. Think of it as large customer, medium customers and small customers that require a different kind of a sale source, but essentially the product is very similar.

They're very worried about products liability, but they also believe that it happens, and it also is a function of the manufacturing. It's not the fault of one of the sales division when one of these products causes a liability situation. And they want to smooth those claims costs. We'll come back to that.

The transportation company has one product. They're moving things around. Their profit centers are geographic. The philosophy here is that automobile liability is a major cost for them, and that it is controllable by safety and so forth. Therefore, attention to it at the local level is necessary, and so what they want to do is get quick feedback to these local levels. They also want to give them responsibility for their losses, so its a slightly different situation.

The third example is a diversified company. Heterogenous businesses. We used to call the conglomerates, but they don't like to be called that any more. Their philosophy is

that the division are all automonous. So we have very different businesses, and need a different kind of allocation system.

The manufacturing company, remember they had three customer groupings, with a similar product they want to smooth the results across the division, what do they have to allocate. Prospective costs for their self insured retentional liability. Their going to do it prospectively only, and they have excess liability insurance.

Now because they're doing prospective costs for the current year, they also have an adjustment for the prior year because years cost did not turn out to be what they thought it was, so they had this adjustment this year that they are going to reallocate back in the current year to the division and they have workers compensation. Those are the five pieces.

Lets make a decision on what media is appropriate to allocate these things using. The liability retain losses we're going to use, this company uses prio years claims, now notice that there is instead of, on each of the profit centers to control they're cost, cause eventually they'd pay for their own cost and if I have a loss this year is going to detemine what is going to affect my budget next year because I am a bigger percentage of the whole.

The liability excess premiums, I'll use the same basis and simply use payroll to allocate my workers compensation cost both the current year premiums and any adjustment its a very simple model.

How many years of media are we going to use, well there is one set of media. For liability, we are using a 3 years of the combined losses, now this is an important point, notice that we could use 3 years of the prior years combined losses but its only one media, cause I've added them together, so I've got a little bit of smoothing in here but its still simple to program and for workers compensation use the current year payroll.

Now come and look at this transportation company. Remember there was a geographical organization, they want the cost to be allocated quickly back to the divisions its also automobile liability so its a relatively fast reporting line of business there is a good bit of IBNR but it all comes in within 12 months its more stable then products liability. The lost development facts tend to work is what I'm saying.

What are they going to allocate, the reserves for automobile libility and premiums for workers compensation. We're not going to worry about reserves for workers compensation, its not their major cost. So what media do we use. For the automobil liability reserves the case incurred losses. Essentially their just using their loss development factor method, taking a loss development factor and multiplying it by each division case incurred losses and that gives them the ultimate loss by division.

For worker compensation they use payroll, their still using the simple model like in the manufacturing example for workers comp. because its not a big deal.

How many years are..., one year, for both workers compensation and auto mobil liability, so its still relatively a simple model.

Lastly, lets come to the diversified company. The divisions are autonomous and homogenenous, in this situation I am allocating the reserves for the liability and the reserves for the workers compensation and I've got a cat cover I've got to figure out how I'm going to allocate that.

Products liability reserves and the workers liability reserves we are using expected premiums, now remember our degression for whats being done in this company is that they're using the Ferguson method to allcoate the reserves they're using the premiums. The cat covers is being allocated based on sales, which is using the rating exposure cross the board, relatively simple because we're..., its a small cost and its kind of going across, use to be a small cost, going across the division.

How many years of media is being use, six, we have a complicated model. Its necessary for this diversified company because they're adding and subtracting divisions. We've got very uneven growth and we have some very long tail products liability situation. For the catastrophy coverage, we're using just one years worth of sales to allocate.

You may have some trouble, do you have trouble seeing those numbers in the back. Okay good.

I'm going to show you the multiple media method simplyfied, for how it works for this diversified company and show you why the multiple media method makes since and is better than one media.

I have two divisions, division A and division B and this year in the current year my claims cost are 1,000 dollars and I've got a prior years adjustment of 300 dollars. Division A represent 75% of the current year but there were 90% of the last year, or to put it differently, notice that division B is growing like a bandit, from 10% to 25% of the total.

The correct allocation would to be give division A 75% of this years cost but 90% of the prior years adjustment, because they were 90% of the last years sales. One media allocation which is not what this company is doing, what would happen is that division B would get 75% of the current year but also 75% of the last year, and so division B is getting $325 instead of 280 dollars of allocation and so thats not appropriate, they're penalizing their growth.

In summary, there is some trade offs to consider, there is a correct way and there is a simple way. The correct way is to have a more and more line of business detail and also to use multiple year media. Both of those things cost complexity interms of understanding and in terms of getting the computer system to make it work.

Its also trade else in terms of stability verses responsiveness. The expected loss ratio method gives us stability, the loss development method gives us the most responsiveness in combination methods like the Ferguson method or obviously some sort of balance. And finally there is no one way, and it depends on the company particularly in a risk management setting where theres is such a diversity that you must do a situation in analysis to determine what is appropriate.

Thank you.

Thank you Joel. Do you have any questions for Joel.

Question: Do you recognize the profit centers different development patterns when you're doing the allocation. And if you do that, how do you make things add back to the total.

Answer: I'm saying no you don't. If you really think that one profit center has got a different loss development pattern than another, set the reserves in the first place by

looking at those profit centers separately. Its the actuarial department in the case of a insurance company that should say, if one state got high benefits or escalating benefits, and so those loss development factors are very different, don't think that its all workers comp. and I'm going to allocate on premiums to branches. Look at those states as a separate reserve line in the first place.

Speaker: I'm going to tell you what I'm going to do now, I'm going to ask you to hold your questions on Joel presentation until after Dave makes his presentation, so just in case we have any time problems.

Our next speaker is Dave ------, he's currently at F&G ---, and that's a pretty new development within the last week and I guess after we've been trying to figure how to apply his experience at INA and the California Inspection Rating Bureau to the reinsurancing which is quickly changing as we all know. The interesting thing about Dave's presentation is when I talk to him and told him how interested I was in it, his presentation, how I thought the audience might be really egored to how something like this was actually done. So gee, its really quite simple, isn't it, and I thought to my self, why any body who has tackled the California Table L, would probably think allocation reserves the profit center is pretty easy.

With out taking any more of his time, Dave.

Dave: Let me start off by telling you a story, a true story, eating dinner last night with the reserves actuary, for a large insurance company, multi-line company, and naturally the discussion turned to operating results, how are doing, and I said well we monitored the rates and our rates are going up very rapidly but we're not getting the loss ratio improvement that you would expect from this amount of weight and premium increase. So I said well there is a problem that you're having adverse loss development from an earlier years and thats wiping out the improvement you're getting in the current year from the higher rates. His answer was well we don't know, we can't tell from the data that we have. So I don't know how terrible that is, thats really a lack, thats a problem. If you are a business, an insurance company doing business and you're using calendar year results and you cannot answer that question and if you look at the traditional insurance reporting, lets say on the annual statement, traditionally its calendar year.

When you look at that result and allocate it to division, and now we use the term division here, and division and branch interchangeable terms, so by division we just mean a sales, an operational sub-office in a state. You have the same problem. If you look at results on a calendar year basis you don't know, but when the results improve or get worse whether its some current development or whether its something in the past.

Now --- an insurance company where this was developed, specializes in casualty business, infact its about 80-90% workers compensation premium. General liability and myle practice accounts for the rest, the workers comp. business that they write tends to be written on a loss sensitive plan. For that I mean, that the policy holder will get either a rectrespective rating return or policy holder dividend after policy expiration depending on the loss experience of that policy. And those rectro and dividends, are very important parts of the marketing, they're very large amounts of money and so again those need to be reflected and of course the traditional annual statement doesn't even treat the policy holder dividen as a part of premium. It shows up some where in the surplus account I guess. And if you don't allocate the dividend cost to your branches and division offices, than you don't know how much of the premium their actually giving back, so that could be a problem.

There has been alot of discussion over the years in the decades about underwriting profit and investment income, etc. and I guess the philosiphy based on questions just raised at ---- at least is investment income is real allocated to the division and so we infact have done that, thats part of the method.

Let me show you, if you look at exhibit one, this is the final, answer, the final form that we came up with, I want to run through it in summary and then go back and explain the details of how it works.

This will be a report for a particular division office. As you can see we have 7 lines down before we ever get to the premium.

And what we're doing in those seven lines is adjusting for the dividens and the rectro's and the reinsurance as well as having an opportunity to make a manual adjustment for timing changes.

The losses are starting on line 8 are on a accident year basis which is separately developed for each division by line and it includes allocated loss adjustments and expense.

Lines, the 2 lines at the bottom, the loss discount and the cash collection adjustment is the application of investment income. As you could see this particular office even after including investment income at 1982 only had a 3.3% return in 1983 had a 8.1% loss after investment income and for the first 9 months of 1984 had a 4.8% loss. So these were quite bad results. Lets show how this is built up, really it starts with the accident year losses. Infact historically this thing grew out accident year loss. At one time we kept our books on a calendar basis and we had the accident year loss development as a separate supplementary exhibit, something that you could look at. And then later we said lets put them together.

I think all the actuaries here are going to be pretty familar with accident year loss development triangles.

I'd like to make a couple of points on the way this one is done. Number one, take a look at loss development factors. For example on the 1976 line you will see that the loss development factor was 1.06% additional loss development on a year, 8 years old. A lot of companies don't even look at years, 8 years old when they calculate their IBNR's. What we had done, we tried to be very realistic, and said, well if we're going give the investment income, we better not kid our selves about the loss development, so we developed out, essentially the 20 years, we showed 10 here and then our final factors an additional 10 and there is a moral there for those of you don't develop out the 20 years.

In coming up these loss development factors, we look at both the country wide pattern and the pattern of the divison office it self. And for the larger division office, we try to use their own patterns to some degree and then what we do is we made up a creditabilty formula out of the air, just basically the larger the division the more credibility we'll give to their loss development factor.

What this exhibit shows is how we do the credibility waiting the particular example shown here was so large that we gave a 100% to their credibility to their losses. Incidentally, the top down, bottom up, this is a bottom up method of course and it may not agree with the companies total results. So what we've done here is taken the division LDF and the country wide LDF and have the credibility weighted out, which here in this case is the same as the division. We also have room for an adjustment factor. This work

is done by the actuarial department and there are times when the actuaries have reason to think that the loss development factors that come out of 3 year averages or 5 year averages or 10% - 20% - 30% weight, whatever, just aren't right. I know that there was a paper written by Bob Fingerson years ago, where he listed about 30 reasons why formula loss development factors might not be right, but the most common reason with in the company is that the case reserves strenghten an office change dramatically. That really happens. You could get home off his claims audit, go out to the office and they will review the claim files and put in an audit before you could say, you're substantially under reserve. And if you monitor the average reserve, you'll just see the new claims might go up reserves 30% or 50% higher than what they were just like a step or sometimes its a change in staff, or sometimes its the activity of the managment of the office. So thats the most common thing. We do infact look at average severity and this case the average severity is shown as one of your exhibits. If you look at the figures in column one, its really pretty dramatic, they were at an average serverity, should be at one accident year, there was an arrange of $4,000 per claim, $3,000 - $4,000, it wasn't even going up with inflation. Sneaked into the $5,000 range in 1981 and 1982 it was still less than $6,000 and then all of a sudden, boom $7,800 - $8,700 a suddent dramatic increase and that was caused by 2 things. Number one, the state where this office is located did have a very large increase in benefits and that increase in benefits properly was reflected and very large increase in reserves. Second is that there was a change in the manager of the office and there was a reaction to what was considere to be under-reserving that had taken place in the past. So we made a calculation and said, how much should the reserves have increased due to the benefit increase, and that turned out to be a little bit less than the amount that the reserve, that the average claim gone up in this column. So we put an adjustment factor in, based on that increase, as you could see of the .961 and the .983 for the last 2 years and that was because we felt that the division had overstated the increase somewhat. There are other reasons why you might want an adjustment factor of one typically example is where you have an office that write the small amount of business lets say on a liability line, and they capture claim at full limits. Now this document that we use here happens to be a before reinsurance because the reinsurance isn't programmed, its a computer and so if you get a million dollar claim and obviously that would distort your loss development pattern if your liability factor for an earlier year might eaisly be development factor of 2 or 3, you really wouldn't want to forcast 2 or 3 more million dollars claims. So you would want to adjust in those cases.

And so the actuaries would make those adjustments that seem appropriate and the result is again that you get these accident year loss development numbers.

So thats the first step, and these year results have been used for along time in the company.

Now lets talk about premiums adjustments. We have seven different kinds of premiums listed here and what are we doing. We start with the direct premiums earned and that actually is the direct premium earned before rectro-adjustments is the starting point. The final audit adjustments item is actually more than final audit adjustment its any adjustment.

Every so often you'll get a very severe distortion of premium that throws a large amount of premium into the wrong year. And one possiblity is you got an account with some huge final audit amount and it doesn't get booked, which it should, maybe the account was affected January 1, in a year and the estimated premium for the account was a million dollars and then the final audit is done, thats another million dollars and thats hitting the wrong year. Because it will hit the next subsequent year but all the losses are on an asset year basis will hit the year the policy was enforced or again, real world kinds

of problems, you have policies true story, policy, 4 million dollars policy covering a number of states and the person decoding it into the system had to code it into 3 different companies because of tax advantage situation, wound up coding the whole 4 million dollars in 3 times so you had 12 million dollars worth of premium on the books for a little while until that was discovered and then you have 8 million of negative premium on the books. So you get those kinds of distortions from time to time and we left that line there, so that when the actuaries were told about some very major distortion they could shift and as you could see, in this example they did shift a million 3 between the 2 years because of some problem that had it in the wrong year.

Retrocrual, companies obviously pay retro-returns and collect retro-additionals and companies set retroreserves, I guess the retroreserves don't necessarily tend to be that big and the change in retroreserves doesn't ten to be that significant. What we're doing here is calculating what portion of that premium earned before retro's will be returned to policy holders in general, I guess its more returns than additionals. When you look at an old year like 1982 a large, a certain portion of that already been returned. When you're looking at the, a year like 1984, it represents a forecast of what you're going to return.

The way we do the retroaccruals there is an article in the CAS proceedings written by Chuck Berry who gives a method of approximating the anticipated retroaccruals using the data that you have, I guess setting a loss ratio so we use that method. Thats a policy or method. We do that by each office and then we get a conversion of the policy to the accident year by again you could look and say that each accident year is made up of certain portions of 2 policy years that have overlapsed.

Dividend accrual is pretty similar, we'll make some kind of a model by policy year to reflect the amount of dividens we expect to return to policy holders then convert from the policy year to the accident year for the more current year we could take into account any changes in the dividen plans. We'd been returning dividens at 20% but new dividend plans just went into effect that are more generous we might want to approximate 23% for this method and really I guess one of the things that we use to sometimes hear and phrase that the president of a company would say, oh the actuary changed their minds, which basically means that the actuary got some new loss development factor and applying the loss development factor throughout the triangle had some enormous impact on the current month or the current quarter operating results and if any of you do loss reserves know just what I'm talking about. By having this whole accident method and accrual method the actuary can change their mind and give the most accurate or what the actuary considers to be the most accurate estimate generally without having some enormous effect, the enormous effect would be over many years. If you take a look at the sum of the retro or the dividen of the accruals you could see why its so important for them to pay attention to them. You see for 1982 you're talking about 5.7 plus 22.4 you're talking about 28% of premium in 1982 that was anticipated would be returned to policy holders and by 1984 you're talking about a 9.8 plus 26.7 so you're talking about 36 and ahalf percent of premium that would be returned to the policyholders in the form of dividens or rectro-returns. Which is one reason why theyt made that small operating profit in the 1982 and the loss in 1984. And this exhibit really points it out I think pretty well.

We show ceded premium separately because it comes out another system and then you get down to the adjusted --- and premium where in this terminology used by the company adjusted means after the dividen accrual, strikly speaking from an accounting stand point dividends aren't part of premiums, but they treat them here as premium which actually makes sense to the policy holder that dividend is a return of premium.

Gee are there any questions by the way. I forgot to say if you have any questions throughout...,

Expenses here are just a normal counter to your expenses. We didn't have any reason or any basis to change them so you got the unallocated loss expense and the net underwriting expense as shown and these expenses are broken down in finer detail in other company documents.

And now we get to the investment income. The question is, how should investment income, once you bit the bullet, say we're going to allocated investment income to branch and division offices, how should you do it. We came up with an answer which says, split the investment income into 2 pieces. The investment income in effect on the loss reserves and the investment income on the premium reserves and we found that by that spliting up of the investment income really simplifies things that are really makes it more comprehensivable and easier to deal with.

On the loss reserve side, the division office has little or no effect, little or no inpact on the investment income. Well let me step back one step first. We certainly don't want to measure the actual investment income for this purpose, again this is the bottom of the result, and we don't have to tie the company results Argonal Insurance Company has tended at certain point in the past to invest very heavily in stocks. At one time they had a bond portfolio which due to rising interest rates was valued below market and they swapped it for compreable bonds and in order to realize the large capitol loss of tax purposes, they sold off large blocks of stock and made very large capitol gain, obviously you don't want this kind of inpact on yor division operating results, because its not any thing under the control of the management of that division.

So the investment income that you reflect has got to be something theoretical investment income. It has got to be base on some kind of a normal attainable interest rate in the market. I don't think that there is any qustion of that.

Secondly, we split it into the premium and the loss side. One reason is that the management of the operating division really has very little impact on how long it takes to pay the loss. In fact, the company policy is we certainly don't want the manager of a division to delay paying a loss in order to get more investment in income, because thats just not proper handling. If you owe the money you should just pay it. If you have a claim that needs to be settle you should be properly working on settling it. So we didn't want to use the true amount of time that it took to pay the loss. So what we wound up doing was giving investment income on a loss reserve by just using a loss development or payed loss development pattern and then relating it to the loss reseve and giving a factor which turned out to be 20% for the workers compensation as a discount factor.

The question came up as geographical differences one office which was Hawaii was able to demostrate that they paid their losses much slower then any body else and so they were given a 30% factor.

There is another difference here, when you discount losses, you're taking the investment income that you expect to achieve on the losses that you're incurring this year. Thats very different from what you get in the annual study statement, where your allocating to line your actual investment income, thats your investment income on your past business. We felt that this was a more meaningful way again to think about a company or an office which decline very rapidly inside. They might have a great deal of investments income from past years when they wrote a lot of business and that could make the small amount of business tht they're writing now look quit profitable but that isn't so. We

really want to reflect the investment income that the current businesses are going to generate.

Question: (Inaudible)

Answer: Dave Hartman asked is a discount a future lossess or available cash and what happens if your loss ratio goes over 100% so that you have no cash to invest.

Our answer to that would be that it doesn't make any difference what your loss ratio is, or very little difference because the time value of money is such that a dollar of loss paid a year from now is better than a dollar of loss paid now and the difference is what ever the prevailing interest rate is, whether you think of your self as investing the dollar and earning interest by paying it next year or whether you think of yourself as having to borrow money in order to pay the dollar this year which you didn't have, either way a dollar paid now is that much better than a dollar that much worst than a dollar paid a year from now. So we don't distinguish in any way.

Now I suppose if we wanted to take that a step farther we could say well, if you could invest money you get a certain rate, but if you had to go borrow market money you'll probably have to pay a little higher rate, maybe a couple points higher and so you might want to try to use two different rates. But that would be a small difference but I guess its my belief that either way the later you pay the losses the better off you'll are.

Okay on the premiums side this is where the division really have a lot of control over the way the money is collective. Number one, the payment pattern on the policy it self, they can sell annual prepaid policies which are not too common in large casualty business at least it wasn't at Argonant maybe you big companies are able to do it. But at Argonant they are pretty willing to give monthly or quarterly payments at no particular charge.

The opportunity is there to demand the full annual premium up front or to use a premium finance company and get the premium up front or you could go with a monthly or a quarterly policy or they have the cash flow policies which have become so prevalent in the last 5 or 6 years where the customer doesn't pay the full premium, lets say a typical modest plan at the start you have some customer and based on its past loss ration you think he is probably going to generate a 30% rectro return. So you say, well okay just pay 70% of the premium and then we come to the first retro adjustment you'd probably won't owe any thing more but if you do, we'll just collect it than. And so your defering the premium to that first adjustment which is just almost 2 years.

Then they drop to the most extreme plan where the paid loss retro plans. Where they say well pay us, lets say your basic and a small fund to pay paid losses out of ad you don't have to pay us anything more than that and maybe 5 years out we'll close it out on incurred basis. So on a deal like that of course, the insurance company isn't gietting any investment income at all truly and infact if they, because Argonal is an agency company and collects in premium through the agents that gives another delay. Another area is that whole collection area.

One of the things that Actuaries don't always focus on is the difference between written premium and collected premium. The written premium generally the same as the bill premium. Well its one thing to bill it, its another thing to have the money in your had. If you're collecting through agents you generally use socalled 45 day collection terms and when you look at that the 45 day collection terms actually turns out to 75 days in most cases and then people don't always pay their bills on time. Now a division office have a certain amount of control over getting that money so it seems reasonable to reflect how

fast they're getting the money and what it wound up, what we wound up doing was creating this concept of a cash collection adjustment and the cash collection adjustment is something like the current interest rate on the unearned premium, not the unearned reserve but the premium deficit or excess for that office. See the unearned premium, lets say if you have an unearned premium reserve in the division you'd say okay we're monitoring ahead, we can earn interest on that unearned premium reserve but then you better deduct out of that your receivables, because thats the amount that you've shown on the books that you don't have. So we came up with this cash collection adjustment and in effect gave credit to those divisions who were ahead in their premium collection and we've charged interest for people who are behind in their premium collection and in the example shown here you see that they have been behind in 1982 and so they were charged 3.5% and by 1984 I think they speeded up their policy insurance and they got ahead. Thats the often reason. So that's the last piece and that adds up to the company return.

Thats all I have to say.

Thank you Dave. We only have about 3 or 4 more minutes left in the session. We'd like to answer a few of your questions and if we go a little bit over were willing to stay a few minutes, to answer your questions. I think you got between Joel and Dave we've got a bit of experience in this subject and we might be able to answer some of your questions about actual mechanics or concepts. Any questions.

Question: You said that the result of that allocation is different than your published result. How much difference was there.

Dave: In terms of the total of incurred losses wasn't very different at all, because we used the IBNR also using an asset year development and we also look, it was more or less the same method, we tried to look at changes and case reserve adequacey although it was done for the company as a whole. And so, and because Argonal books whatever they see, they don't manipulate the results and so there wasn't generally very much difference.

Ann Lee from Flint Industries and I'd like to ask Joel from a risk management stand point if one assume that excess insurance costs are reflective of catastrophic exposure would you comment on the correctness of using workers compensation manual premiums or insurance companies standard premiums for liability as a method of allocating excess insurance costs.

Joel: Thats a hard question but its a good one though. I think that the issue boils down to whether the standard premiums, the workers compensation standard premiums or the manual premiums for liability reflect the excess exposure and obviously to an extent that they do, you're going to get higher premiums than one division versus another because of the level of the benefits. But there is other things that are going on too, at the basic limits level that would make those things different. It would be a little bit better although harder to impliment to take difference in increase limits factors or excess loss premiums factor from the published rate which is to be use as the media to allocate the excess premiums.

Greg Taylor from -----, its a similar question, I've got with me an example of an allocation to profit centers which points out this very problem. This was in fact a company with an 120 profit centers and some of them are quite small and there were 3 particular ones whose manual premium rates were $120,000 respectively so they're clearly quite small and the claims are recorded in the year to which those manual premiums related where respectively $14,000 and $191,000 and to do nothing about

smoothing those claims, would obviously dismay the profit of one of those centers and increase enormonously to profit of the other. So it was necessarily to take some sort of compromise between using just manual rates and using the rule experience of those 2 centers.

MEASURING DIVISION OPERATING PROFITABILITY

Insurance companies traditionally measure their division office profitability in an accounting sense. Premiums, losses, and expenses are shown on a calendar year basis. Dividends to policyholders are either ignored or shown on a paid or declared basis. Retrospective return reserves and IBNR reserves are calculated countrywide, then distributed to divisions using the "meat axe" method. No adjustment is made for investment of unearned premiums or loss reserves. This accounting type report will accurately tie to the company totals, but is inadequate for management of a division.

It is said than an actuary is content to be approximately right, while an accountant would rather be exactly wrong. We have developed an "Argonaut Return" of operating results by division office and line (Exhibit 1). Argonaut Return actuarially reflects loss development, retrospective rating plans, dividend plans, reinsurance, cash flow plans, and investment income. Losses are on an accident year basis. A retro accrual is deducted from the premium for retrospective returns paid or anticipated. A similar adjustment is made for dividends to policyholders. Large audit premiums appearing in the wrong year are adjusted to the proper year. Reinsurance ceded is deducted from premiums and losses.

Division investment income is split into two components. Investment income reflecting the fact that losses are paid out over a period of time is handled by an incurred loss discount factor, which varies by line of business. The investment income gained or lost based on the speed with which the premium is collected is measured by a so-called Cash Collection Adjustment. Our top management uses the Argonaut Return as the primary measure of division profitability.

The starting point is accident year loss development by line, by division office. An example is shown in Exhibit 2. Since the investment income is explicitly credited to the divisions, there is no cushion for adverse loss development. Therefore, loss development factors must be fully adequate. We develop losses to 10 years, with an additional factor to a 20 year ultimate. This development also provides an IBNR balance by division, which is used in internal calendar year reports.

In order to improve the accuracy of the loss development factors, we use a weighted average of division LDF's and countrywide (Total) LDF's. (See Exhibit 3). A credibility weighted LDF is selected, where credibility is:

$$Z = \sqrt{\frac{\text{\# of division claims in last 5 years}}{10{,}623}}$$

In the example shown, the division is large enough to receive full credibility.

An adjustment factor is used when it appears that the formula derived loss development factors may not be appropriate. These adjustment factors are somewhat judgmental. The most common reason for an adjustment would be a change in average severity, shown in Exhibit 4.

For example, the 1984 adjustment was derived by comparing the average value at age 1 (8761) with a projection based on the five prior values. These earlier values were increased corresponding to a change in workers' compensation benefits and trended for inflation, producing a projected 1984 value of 8612. Presumably the actual value is higher than the projected value because the 1984 case reserves are stronger than they were during the period used for deriving the LDF's. Hence we adjust the 1984 LDF by a factor of .983 (8612 ÷ 8761).

Another situation in which an LDF adjustment would be made would be a $1 million (policy limits) liability claim in a division with only $2 million of incurred liability loss, for an immature accident year. We would reduce the LDF, since this large claim could not develop adversely.

Adjusted Net Premium Earned, shown on line 7 of Exhibit 1, is the amount we expect to retain after after retrospective returns, dividends to policyholders, and reinsurance. Line 1 of Exhibit 1 is the calendar year direct earned premium. Line 2, Audit Adjustments, gives the actuary an opportunity to correct the premium for large final audits or coding errors that have transferred premium from one year to another. The sum of lines (1) and (2) corresponds more closely to the accident year losses than line (1) above.

The dividend accrual on line 4 of Exhibit 1 represents the dividends to policyholder paid or anticipated, by accident year. In order to estimate this number, we compute dividends paid and dividend reserves by policy year. The accrual (paid and reserve) for a more recent year is estimated from the amounts paid in older years, taking into account changes in the dividend plans used by the division. The accident year accrual rates are weighted averages of the policy year accrual rates, based on the distribution of premiums by policy month.

Retro accruals are handled in a similar fashion. Policy year retro returns follow the Berry method with individual input by division.[1]. The accident year retro accrual rate is a weighted average of policy year retro accrual rates. The use of accident year retro and dividend accrual ratios provides much more stability than the use of calendar year retro and dividend returns.

[1] C.H. Berry, "A Method for Setting Retro Reserves," PCAS LXVII 1980, p. 226

Expenses shown are the same as the calendar year expenses done by the accountants.

Line 13 of Exhibit I shows an accident year underwriting profit or loss. However, in today's insurance world there are several reasons to take investment income into account. First, the true operating profit of a company is significantly due to its investment income, especially as relates to casualty lines. Also, the division management has the power to affect the rate at which premium is collected. In some cases, the full premium may be collected at policy inception. Alternatively, the premium may be paid in monthly or quarterly installments and the deposit percentage can vary. With cash flow retro policies, a substantial percentage of the premium may be deferred until the first retro adjustment. In a paid loss retro plan, the company collects only the retro basic and the paid losses, with the reimbursement for loss reserves deferred to the fifth retro adjustment or even later.

We decided to handle investment income in two pieces. The investment income on the loss reserves is measured prospectively by discounting incurred losses. We discount the loss payment patterns for our various lines of business at an assumed interest rates. As a result, workers' compensation losses were discounted at 20% in most states. (We chose to discount incurred loss rather than apportion interest to loss reserves in order to encourage prompt claims settlement. Also, we preferred to reflect estimated future investment income on the current accident year rather than actual current investment income on past accident years.)

The investment income on the premium is measured by comparing the collected premium to the earned premium. If the all-time collected premium is greater than the all-time earned premium, the division receives interest on the difference, currently .9% per

month. If the all-time collected premium is less than the earned premium, the division is charged at the same rate.

The difference between the all-time collected premium and the all-time earned premium equals the unearned premium reserve plus the dividend reserve plus the retrospective returns minus the Agents' Balances.[2] Fortunately, our company calculates each of these reserve balances by division, so the calculation of our Cash Collection Adjustment is straight-forward.

The Cash Collection Adjustment properly penalizes the divisions for lost investment income when they sell cash flow policies. It also rewards them for prompt premium collection or large deposits. A policy with a large anticipated retro or dividend return will generate extra Cash Collection Adjustment, reflecting the period the company holds the premium until the return is paid.

Not only is the Cash Collection Adjustment a part of Argonaut Return, but its display also calls attention to the speed of collecting premium. It serves as a management barometer of timely policy issuance, deposit adequacy, speed of audit adjustments, and promptness of collections. One can see the improvement made by the Division shown in Exhibit I, an improvement encouraged by the company's use of the Cash Collection Adjustment.

Never before has division management had a greater opportunity to control their own profitability. Divisions have enormous pricing flexibility as well as the ability to select

[2] (Written Premium) − (Earned Premium) = (Unearned Premium Reserve) + (Retro Reserve) + (Dividend Reserve)

(Written Premium) − (Collected Premium) = (Agents' Balances)

or reject accounts. They also control the rate at which premium is collected and the commission rates. It is essential that we have a measured of bottom line profit which is stable and accurate. The Argonaut Return provides division management with a convenient and realistic measurement of the operating profit of their business.

In the past, lacking a meaningful measure of operating income, management has not always focused on the key items. A low expense ratio might be rewarded while a high loss ratio was considered bad luck or a timing problem. The appearance of proper management took priority over the substance of profitable results. The use of Argonaut Return has helped us combine all the factors and work toward achieving profit for each division, and thus for the entire company.

Dly-26

Argonaut Return
Evaluated at 9/84

Division or Branch Name:
Workers' Compensation

	Calendar and Accident Year ($000)					
	1982		1983		1984(9 months)	
1. Direct Premium Earned	$38,056	128.5%	$39,217	130.0%	$33,000	143.4%
2. Final Audit Adjustment			1,326	4.4	-1,326	-5.8
3. Retro Accrual	-1,699	5.7	-2,109	-7.0	-2,259	-9.8
4. Dividend Accrual	-6,621	22.4	-8,137	-27.0	-6,135	-26.7
5. Adjusted Direct Earned Premium	29,736	100.4	30,297	100.4	23,280	101.2
6. Ceded Premium	-126	-0.4	-129	-0.4	-268	-1.2
7. Adjusted Net Earned Premium	29,610	100.0	30,168	100.0	23,012	100.0
8. Direct AY Loss & ALAE	23,498	79.4	29,199	96.8	21,349	92.8
9. Ceded Loss & ALAE	-564	-1.9	-701	-2.3	-512	-2.2
0. Net AY Loss & ALAE	22,934	77.5	28,498	94.5	20,837	90.5
1. ULAE	1,175	4.0	1,460	4.8	1,067	4.6
2. Net Underwriting Expense	8,090	27.3	7,744	25.7	6,540	28.4
3. Adjusted Net Underwriting Income	-2,589	-8.7	-7,534	-25.0	-5,432	-23.6
4. Loss Discount	4,587	15.5	5,700	18.9	4,167	18.1
5. Cash Collection Adjustment	-1,034	-3.5	-602	-2.0	149	0.6
6. Company Return	964	3.3	-2,436	-8.1	-1,116	-4.8

Exhibit 1

ACCIDENT YEAR LOSS DEVELOPMENT REPORT
PRODUCT LINE: WORKERS' COMPENSATION
AS OF SEPTEMBER 30, 1984

DIVISION NAME:

ACCIDENT YEAR	ADJ. DIRECT EARNED PREMIUM	LOSS DEVELOPMENT - YEARS * (000 OMITTED)											LOSS DEVELOPMENT FACTOR	GROSS ULTIMATE LOSS	IBNR
		1	2	3	4	5	6	7	8	9	10	CURRENT			
All Prior	-	245,340	254,269	258,878	264,339	265,774	266,592	266,871	269,700	269,802	271,072	271,691	1.029	279,570	7,879
1975	31,043	18,369	20,111	21,124	20,503	20,795	20,716	20,512	20,760	21,097	21,336	21,336	1.060	22,616	1,280
1976	29,808	16,829	19,163	21,381	21,560	21,726	21,350	21,406	21,375	21,445		21,445	1.071	22,968	1,523
1977	42,162	22,196	24,762	25,811	26,083	26,399	26,537	26,528	27,035			27,035	1.075	29,063	2,028
1978	44,994	24,269	28,367	29,812	30,640	31,141	30,903	31,069				31,069	1.082	33,617	2,548
1979	46,906	25,082	28,341	30,759	30,710	29,890	29,897					29,897	1.075	32,139	2,242
1980	30,413	18,099	21,176	22,081	22,420	22,463						22,463	1.064	23,900	1,437
1981	32,253	18,079	22,203	23,818	23,704							23,704	1.071	25,387	1,683
1982	29,736	17,055	21,214	21,479								21,479	1.094	23,498	2,019
1983	30,297	21,532	25,886									25,886	1.128	29,199	3,313
1984	23,280	15,558										15,558	1.372	21,349	5,791
												511,563		543,306	31,743

* Cumulative dollar incurred losses at yearly intervals past each accident year.

IBNR = Gross Ultimate Loss - Current Incurred Loss

Exhibit 2

ACC YEAR	DIVISION LDF	CNTRYWDE LDF	CRD-WTD* LDF	ADJUSTMENT FACTOR	APPLIED LDF
1974	1.029	1.029	1.029	1.000	1.029
1975	1.060	1.060	1.060	1.000	1.060
1976	1.071	1.070	1.071	1.000	1.071
1977	1.075	1.061	1.075	1.000	1.075
1978	1.082	1.070	1.082	1.000	1.082
1979	1.075	1.067	1.075	1.000	1.075
1980	1.064	1.068	1.064	1.000	1.064
1981	1.071	1.072	1.071	1.000	1.071
1982	1.094	1.109	1.094	1.000	1.094
1983	1.174	1.174	1.174	0.961	1.128
1984	1.396	1.403	1.396	0.983	1.372

* 100.0% X DIVISION LDF + 0.0% X COUNTRYWIDE LDF

Exhibit 3

ACCIDENT YEAR	AVERAGE SEVERITY - EXCLUDING M.O.'s, CWP's, & CZP's									* NOTE 2	
	1	2	3	4	5	6	7	8	9	10	CURRENT
All Prior											
1975	4,073	3,957	4,141	3,930	3,943	3,918	3,886	3,923	3,984	4,030	
1976	3,708	3,660	3,840	3,829	3,850	3,779	3,780	3,776	3,787		
1977	4,098	4,014	4,141	4,164	4,204	4,221	4,216	4,291			
1978	3,977	4,104	4,272	4,385	4,450	4,412	4,433				
1979	4,737	4,719	5,107	5,075	4,922	4,924					
1980	4,997	5,118	5,275	5,342	5,350						
1981	5,193	5,665	6,003	5,952							
1982	5,938	6,454	6,454								
1983	7,892	8,439									
1984	8,761										

* NOTE 2

Excludes from claim count and incurred loss
--Medical only (M.O.) claims
--Claims closed without payment (CWP)
--Claims closed with zero loss payment, but with allocated expense payment (CZP)

Exhibit 4

Panel Session 5F

REINSURANCE

Moderator: Patricia A. Furst, Vice President & Actuary
American Reinsurance Company

Panel: Russell S. Fisher, Second Vice President & Actuary
General Reinsurance Corporation
Mary E. Hennessy, Principal & Consulting Actuary
Towers, Perrin, Forster & Crosby
Roger D. Walker, Assistant Vice President
Continental Reinsurance Corporation

1985 Casualty Loss Reserve Seminar

Kansas City, Missouri

I am Pat Furst, I am Vice President and Corporate Actuary for American Reinsurance Company. And I am going to be the moderator for this panel.

This morning our panel is going to be discussing some of the particular reserving problems that are faced by reinsurance companies. These problems are due both to the lack of credible and homogenous data and also just to the very nature of the reinsurance business itself.

We will also be discussing some techniques that are used by reinsurers and consultants in dealing with some of these problems.

Before I introduce the first panelist, I just wanted to set the tone for what is to come by reviewing with you the results of the 1985 edition of the Loss Development Study that's produced by the Reinsurance Association of America. This study is conducted every other year.

The intent of the study is to reinforce awareness of loss development patterns for reinsurance companies that write casualty excess reinsurance business, as well as for primary companies that are writing high deductible business or umbrella business.

This latest edition contains tables showing unadjusted loss development statistics for 21 member companies of the Reinsurance Association as well as two other contributing companies. The data is limited to incurred loss and allocated loss adjustment expense excluding IBNR. It's for casualty excess business only and it is for the following lines of business: auto liability, general liability, medical malpractice and workers' compensation.

The 1985 Study contains data through the end of 1984. So, it is quite current. The study is going to be available for distribution very shortly. I believe the Board of Directors has just approved its release.

(Slide 1) This first slide that I am showing represents the ratio of cumulative incurred losses to ultimate incurred losses at the end of various report years. (In the back of the room there was a package of handouts, which includes all of these graphs.

And if you compare the handouts with the graphs you will notice some differences first of all.

The handout exhibits represent an exact copy of the graphs that are going to appear in the RAA study. On the other hand, with respect to the slides, I think the vendor who produced the slides took a couple of liberties in drawing them up. And there is also at least one error, which I will have to point out to you later. But essentially it represents the same data.

The horizontal or the X axis represents report years one through nine. And in this case report year one is defined as being at the end of the particular accident year. So if you are discussing accident year 1976, for example, report year one represents an evaluation of incurred losses as of December 31, 1976. While for the same accident year report year nine would represent an evaluation of incurred losses as of December 31, 1984.

The vertical or Y axis represents the cumulative percentage of incurred losses that are known as of various report year periods.

As you can see from this graph auto liability is the fastest reporting line of the three lines that are displayed here. As of report year one (the end of the accident year), roughly 35 percent of the losses are known. By report year three 75 percent of the losses are known. And by report year six 90 percent of the losses are known. And it develops rather quickly afterwards.

In contrast, workers' compensation and general liability are very slow developing lines. You can see that by the end of report year nine less than 65 percent of the losses are known.

(And this is the place where there is an error in the slide. If you look at your handouts, somewhere roughly between report year five and six the workers' comp and general liability lines should cross. They just don't meet and go their separate ways, they actually cross. So, the slide is in error. Your handout is correct.)

The general liability data that is displayed here excludes asbestos losses, at least those asbestos losses that could be identified. There were some companies that were not able to segregate that data.

(Slide 2) The next slide, however, illustrates the affect that asbestos losses are having on the development patterns for some reinsurers. Fourteen of the twenty-three companies that participated in the study were able to segregate their asbestos losses from other general liability losses.

And as a result, you can see that the loss emergence pattern is significantly different for GL including asbestos versus GL excluding asbestos.

The general liability data that was shown in the first slide and that is in the first handout also excluded medical malpractice losses, at least, those that could be identified. There were some companies that were not able to segregate medical malpractice losses prior to 1975. And so, those were in the data on the first slide.

(Slide 3) Again, a sample of 14 of the 23 companies were able to segregate their medical malpractice losses for all years. And this is the resulting loss development pattern for medical malpractice.

Every time that this Reinsurance Association study is done, which is every two years, comparisons are made with prior years to see how the data has changed and whether there are any trends.

In recent years it has been observed that there is a general deterioration in loss development patterns. In other words, the loss development factors that measure the change in incurred losses from one report year to the next are getting larger. And this means that, every time the study is updated, each years additional information proves that our prior estimates were overly optimistic.

(Slide 4) This first slide illustrates what is happening with automobile liability. As you can see, the 1980 study illustrated a slower emergence pattern of losses than did the 1976 study.

And again, the 1984 study has indicated an additional slowing down of the reporting of losses to reinsurers.

(Side 5) For general liability excluding asbestos the same thing is true except that the affect is even more severe.

(Slide 6) For workers comp, on the other hand, it appears that there may be some stability starting to come in. There is not a significant difference between the 1984 and 1980 studies.

The next group of slides and the next group of handouts illustrate some significant differences in loss development patterns between reinsurance companies and primary companies.

This is due mainly to the retention feature in excess of loss reinsurance business. This retention results in delays in the reporting of claims to the reinsurer. It also means that reinsurers have a larger development, a larger tail, than do the primary companies. (Slide 7) This slide is an example of the difference for auto liability. (Slide 8) The same is true for general liability except it's again more magnified; (Slide 9) medical malpractice; (Slide 10), and workers compensation.

(Slide 11) One last slide that is somewhat out of sequence, but follows the sequence of the Reinsurance Asscіation's Report, is the casualty not otherwise-classified data.

Before moving on to the rest of the panel there is one last item I would like to mention. The RAA study itself contains a list of caveats that should be reviewed before applying the data in the study to any particular application. It has to be remembered that the data represents the pooling of experience of a group of companies. The resulting average loss development distribution is not necessarily appropriate for any one company in that group or for any other company.

These companies represent a very diverse group. They have very different mixes of business. Some of the companies write over very low retentions. Some write over very

high retentions. These companies make different uses of retrocessional coverages and it has to be recalled that all of the data in the study is net of retrocessions.

Also, the companies write in very different geographical areas. They have different mixes of treaty versus facultative business. They have different underwriting rules. They write different types of coverages, for example, claims-made versus occurrance. And their claims handling practices differ significantly. So, therefore, you have to use extreme caution before you actually use any of the loss development data.

To provide an indication of the variation that can be expected, the Reinsurance Study did an anaylsis of several of the larger companies that contributed data to this study. And they calculated confidence intervals based on this data.

(Slides 12, 13, 14) The last three slides that I have here show the expected or average values based on this select group of reinsurers. And they also show the 50 and 75 percent confidence intervals. They are for auto liability, workers' compensation, and general liability. So, as you can see from those last three slides there is a very large variation in reporting patterns among the reinsurance companies themselves.

Our next speaker is going to be discussing some of the reasons why reinsurers experience significantly different loss of development patterns than do primary companies. And some of the special problems that reinsurers face.

Roger Walker is a fellow of the Casualty Actuarial Society as well as a member of the American Academy of Actuaries. Roger is the Assistant Vice President for Underwriting Services at Continental Reinsurace Corporation. Roger's group provides actuarial, financial, and research support to the corporation. And prior to this assignment Roger provided actuarial support for Continental's Special Risk Departments. Roger.

Roger:

Thanks Pat. One of the slides of the RAA study that Pat presented was particularly dramatic in showing the difference in development pattern between the primary insurer and the reinsurer. I will be discussing some of the reasons for this difference. Most of the discussion will center on qualitative factors that are not amenable to realistic quantification. Nonetheless, we should be aware of their existence and their potential impact on loss development.

Let's begin by examining some factors that impact both proportional and nonproportional reinsurance to the same extent. On the slide I have listed what I have termed lag factors. We could have simply called them delays but, lag factors sounds a little more scientific.

The first one shown is pure IBNR. I think that we can dismiss pure IBNR as a factor contributing to the reinsurer's longer development. Late reported claims are likely to impact the case loss development of both the insurer and reinsurer by similar amounts. This would be especially true for proportional reinsurance. There is no reason for it to take longer for a primary insurer to report the average IBNR claim than it takes to report other claims. Of course, there probably will be a differential on development due to very late reported claims. Such claims are inherently more difficult to adjust and probably produce larger settlement. Development of excess losses will be especially sensitive to such claims. It will probably take an insurer longer to cede such a claim thereby extending a reinsurer's development period.

The second factor shown the length of the reporting trail, does contribute to the reinsurer's longer development.

Thirdly, we have what I term unusual processing lags. This is not the normal delay associated with the processing of a claim. Such lags belong in the length of reporting trail category. Here are the delays stemming from errors or the lack of proper information. Naturally the longer the reporting trail is the greater is the risk that errors will be made.

Moving back now to the length of the reporting trail let's see if we can gain a sense of the differences between a primary insurer and reinsurer with respect to the parties involved in the claims process and the forces motivating them. Customarily there are three parties involved in a primary coverage, the insured, his agent or broker and the insurer. The insured and broker are both inclined to seek speedy reporting and claim adjustment. The standard file policy actually requires that the insured report promptly. Regulations may exist and require the insurer to work within prescribed timeframes. This is the situation for Worker's Compensation.

The reinsurer's environment may differ markedly from that of the insurer. First of all there may be many more parties involved. Perhaps there is a chain of retrocession with various intermediaries or MGA's in the network. Or perhaps the reinsurer might belong to a pool. In either case the reporting trail will be inherently longer for the reinsurer. Secondly, the degree of urgency in reporting a claim may be lower. A treaty may provide for monthly or even less frequent reporting.

Since there may be no immediate cash involved in the cession reporting delays can be more easily accommodated. Sometimes claim notices and cash call are received by the reinsurer simultaenously.

In your hand-out there is a hyphothetical example illustrating the reporting trail and the potential for lags in processing a claim. I chose a property example because it demonstrates how the financial impact on a reinsurer of a well publicized event like Hurricane Alicia can be felt as long as one to two years after the event.

On the left hand side of the property scenario is a blowchart of the insurance/reinsurance arrangement. The insured owns a larger factory in Texas. To write a risk of this size the primary insurer purchases through an MGA facultative excess of loss reinsurance. The MGA underwrites for Reinsurer #1. There is a surplus treaty on Reinsurer #1's property book written by Reinsurer #2. Reinsurer #3 provides a cat cover for Reinsurer #2. We're interested in how long it takes Reinsurer #3 to experience a cat loss on the Texas property.

The hurricane occurs and causes an insured loss. The insurer is promptly notified. Unfortunately the insurer is not able to adjust this claim on its own and retains an outside adjuster. This is lag number one.

The claim is adjusted but the insured judges the settlement to be too small and the insurer and insured negotiate. This is lag number two. Finally the insurer decides that it would be wise to post a full limits loss. The broker is notified who in turn notifies the MGA. As it happens the MGA must also retain an outside adjuster producing further delay. And so

it continues. Now if any party in the chain does not fulfill its obligation promptly we have another lag. Since Reinsurer #3 is providing a cat cover it will take additional time for Reinsurer #2 to aggregate all claims caused by the hurricane before knowing whether or not the cat cover will respond. Thus a one to two year cumulative reporting lag on a property loss can be quite easily rationalized.

Now that we have, through the property example, gotten an overview of what the reporting trail can encompass I will mention some of the causes for slow reporting by ceding insurers. It is simply a fact of life that some insurers will report their ceded losses promptly and others will not or cannot. There may be structural reasons for this or perhaps it's due to a communication problem. Maybe the reinsurer hasn't made his desire for prompt reporting known. Perhaps, the contractual obligations are not understood by the individuals responsible for actually preparing the notices. It is one thing for a home office to understand the reporting requirements and quite another matter for a branch office or some other unit to follow through. From an organizational standpoint a primary company may have established an internal reinsurance management group responsible managing their reinsurance. This group will have its own controls and verification procedures. While this is sound practice it does cause an additional reporting lag. The primary insurer might have a subsidiary reinsurer manage its reinsurance. The computer systems used by the parent and sub may not be compatible necessitating manual intervention

at the interface between the companies. Such mutual effort will delay the cession of losses.

Under the category of unusual processing lags I have mentioned three items. The first, misplaced claims files, requires no explanation which also holds for the nonavailability of a facultative certificate. However, you may wonder why a company might be unaware that reinsurance exists. I will cite two examples. First, consider the IBNR claim, medical malpractice for instance, that is reported to the insurer ten to twenty years after policy expiration. Records will then be in storage - dead storage. Consequently, it may take quite some time if ever to accurately recapture the reinsurers in place two decades ago. In a similar vein the penetration of an aggregate net retention may take many years to occur. The reinsured must have a system in place to monitor the accumulation of loss. Without a system knowledge that the retention has been exceeded will be late to emerge and the reinsurer will receive the accumulated development in excess of the retention in one lump sum.

Everything I have mentioned so far applies fairly equally to both proportional and nonproportional reinsurance. Excess of loss reinsurance is subject to addtional factors further extending loss development. The next page of your handout lists some of these factors. I will run them down quickly.

First in the list is the case in which a reinsured is not aware of the potential of a claim. Typically one might have an accident victim whose injury was moderate but who ultimately turns out to be more seriously

injured than the initial symptoms had indicated or, perhaps the treatment ends up contributing to the disabilities thereby increasing the size of the loss and also complicating the determination of liability. Another point not shown on your handout is the following. The primary insurer may be preoccupied with establishing fault and not putting enough effort behind valuing the loss. This is understandable but it does create a bias toward upward claim development.

The next item, not knowing the full value of a claim, creates disproportionate development for the excess of loss reinsurer. The effect on the reinsurer is similar to the unknown full potential situation. Assume a per occurrence retention by the insurer of $250,000 and a claim originally valued at half a million dollars. If the claim is settled for one million dollars the reinsurer will absorb all of the upward development of five hundred thousand dollars producing a development factor of three for the reinsurer while the primary insurer experiences a factor of one.

It is important to remember that, even in a working layer, claim frequency will be low. Thus the reinsurer is working with a much smaller dollar base which will tend to produce larger development factors if other things tend to be equal.

The next items listed are the leveraged effect of upward development and aggregate retentions.

Let's look in more detail at the leveraging effect of upward development. I have assembled a somewhat unrealistic file of 20 claims. A annual claim inflation of 10 percent is built in. Losses are reserved at their

settlement value on the statement date except for a few unusual claims. Thus if a claim hasn't been settled its reserve increases 10 percent in the following year.

Claims 18, 19 and 20 are unusual and difficult to reserve and are included to illustrate the effect of errors in reserving.

Let's look at the development triangle for this set of claims. Immediately you will notice that this example is unrealistic because the excess reinsurer is experiencing more loss than the insurer's net loss. Of course an incorrect retention or bad luck might cause this.

Viewing the age-to-age development factors reveals that some unusual things can happen. For instance, in the 24 to 36 month development period we can see that the excess reinsurer has a lower development factor than the primary insurer.

The cause is claim 19, which was initially overreserved and then settled in this period for an amount that was over the retention but $550,000 less than the reserve. Thus the reinsurer can experience the full impact of favorable development as well as unfavorable development.

Viewing the 48 to 60 month development period we find that claims 18 and 20 are entirely responsible for the development. Once again we see that the insurer's $100,000 retention has capped his loss development and all development is experienced by the reinsurer.

If we keep claims 18, 19 and 20 in the example but reserve for them exactly we can look at the impact of pure inflation on loss development.

This is not a tremendously dramatic example of the effect of inflation, largely because the claims in the example settle quickly and claims 18 through 20 experience no inflation. Overall inflation increases gross to ultimate loss development by about 6%. This is determined by comparing the ultimate development factors with and without inflation or 8.227 divided by 7.756. And as expected it is less than ten percent.

Looking at the effect of inflation on the insurer's development we see about a two point impact. The excess reinsurer in contrast experiences an eight point effect which is larger than the gross effect of six.

Let's focus on the leveraged effect of inflation on the excess reinsurer just illustrated by looking at a more dramatic example. This is shown on the last page of your handout. You will see that a 10% inflation on gross claims becomes 40% for the reinsurer. The retention is $50,000 and claims simply settle for 10% more than the initial reserve. We can see that the reinsurer is impacted in two ways: first claims that are below the $50,000 retention inflate past the retention creating an IBNR like claim and secondly claims initially above the retention move further into the excess layer after inflation causing the excess reinsurer to absorb all of the inflation. Thus initial reserves of $60,000 are settled for $83,800 about a 40% increase.

At this time are there any questions? Yes.

Question and Answer Period

Question.

On that last exhibit not the one that is up there but the one I think you were just discussing. Is that one figure wrong for the $48,000 claim should the closing amount excess over the 50,000 be $2,800.

Roger.

Yes that's correct. It should be $2,800.

Question.

You don't seem to mention in the paper that there could be an effect from pure reporting lags for larger claims versus smaller claims. But yet you talk about claims 18, 19 and 20 in your sample and it seems like that is exactly what is happening with these. Was that something you intentionally decided not to call a difference or?

Roger.

No, it was more a case of what would fit on these slides (laughter).

Question Comment.

O.K.

Roger.

But your point is well taken. The excess reinsurer will experience relatively more development from late reported claims which tend to be larger.

Question Comment.

I want to follow that up with someone. Everyone says, that is true. Everyone seems to agree that, you know, this is highly likely that larger claims from a pure reporting lag standpoint have longer lags. But I have never seen it proven statistically. It is kind of like folklore, it is kind of like legend, you know, --- with all the voodoo actuarial --- (laughter).

Roger.

Well perhaps we do get carried away with this thought by reacting to highly publicized large claims which many times in many cases are late to emerge.

Question Comment.

I just mentioned that because I am in the process of doing a call paper on the new claims made. And I am actually looking at actual samples of reporting lags for very large claims and maybe the sample is not credible. But I can see things that just amaze the hell out of me. Pardon.

Question.

They are reported sooner than you thought?

Question Comment.

Yes, much with a capital M. That's surprising me. My intuition is insulted. But I have never seen it proved and it's the first time I really took a hand look at it. I am almost shocked. It was always something I believed.

LAG FACTORS

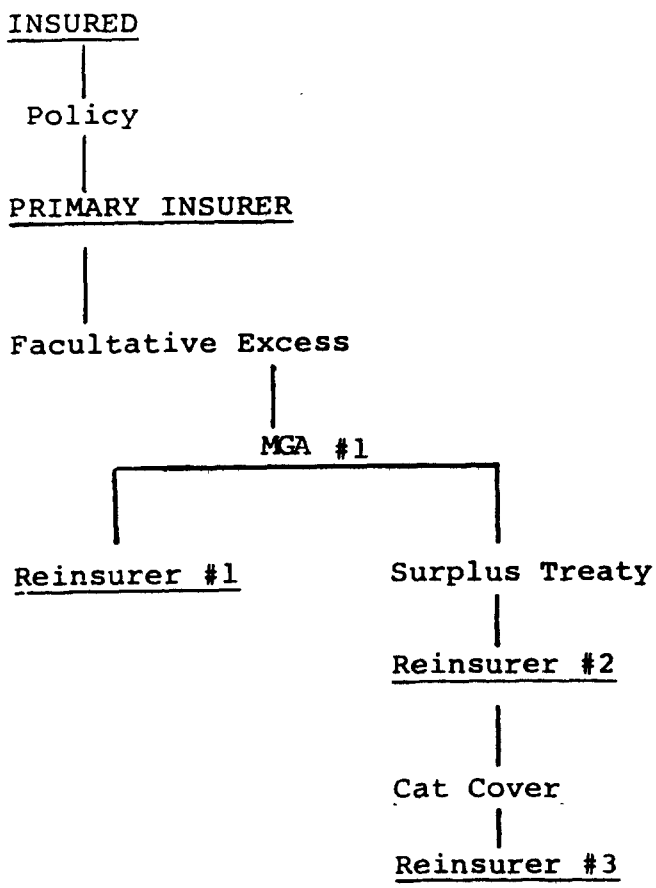
- PURE IBNR
- LENGTH OF REPORTING TRAIL
- UNUSUAL PROCESSING LAGS

PROCESSING LAGS

- MISPLACED CLIAM FILES
- FACULTATIVE CERTIFICATES NOT AVAILABLE
- UNAWARE THAT REINSURANCE EXISTS

P R O P E R T Y S C E N A R I O

LENGTH OF REPORTING TRAIL



EVENT	LAG
1. Insured Loss.	
2. Notification to Insurer.	
3. Insurer retains adjuster.	Lag 1
4. Claim is valued too low.	
5. Insured & Insurer negotiate.	Lag 2
6. Insurer posts limits loss.	
7. Broker notified.	Lag 3
8. MGA retains Adjuster.	Lag 4
9. MGA Processes loss but does not notify Reinsurer #2.	Lag 5
10. Reinsurer #2 notified.	
11. Reinsurer #2 processes claim but does not notify Reinsurers.	Lag 6
12. Reinsurer #3 notified.	

EXCESS OF LOSS REINSURANCE

REASONS FOR DIFFERING DEVELOPMENT

- Reinsured not aware of the potential of a claim.
- Reinsured not aware of the full value of a claim.
- Inexperience by the reinsured in handling serious claims.
- Low frequency excess losses create a small base producing larger relative development.
- Leveraged effect of upward development.
- Aggregate Retentions.

C L A I M D E V E L O P M E N T

Claim No.	0 - 12 Months		12 - 24 Months		24 - 36 Months		36 - 48 Months		48 - 60 Months		Ultimate Incurred
	Paid	Ch. o/s	Paid	Ch. o/s	Paid	Ch. o/s	Paid	Ch. o/s	Paid	Ch. o/s	
1	5,000	0	0	0	0	0	0	0	0	0	5,000
2	5,000	0	0	0	0	0	0	0	0	0	5,000
3	0	0	5,000	0	0	0	0	0	0	0	5,000
4	0	0	0	10,000	11,000	(10,000)	0	0	0	0	11,000
5	10,000	0	0	0	0	0	0	0	0	0	10,000
6	0	10,000	11,000	(10,000)	0	0	0	0	0	0	11,000
7	10,000	0	0	0	0	0	0	0	0	0	10,000
8	0	0	10,000	0	0	0	0	0	0	0	10,000
9	0	0	10,000	0	0	0	0	0	0	0	10,000
10	0	0	0	0	0	50,000	55,000	(50,000)	0	0	55,000
11	50,000	0	0	0	0	0	0	0	0	0	50,000
12	0	0	0	50,000	0	5,000	60,500	(55,000)	0	0	60,500
13	0	0	0	100,000	0	10,000	121,000	(110,000)	0	0	121,000
14	100,000	0	0	0	0	0	0	0	0	0	100,000
15	0	0	0	200,000	220,000	(200,000)	0	0	0	0	220,000
16	0	200,000	220,000	(200,000)	0	0	0	0	0	0	220,000
17	0	0	0	500,000	0	50,000	605,000	(550,000)	0	0	605,000
*18	0	0	0	50,000	0	50,000	0	150,000	500,000	(250,000)	500,000
*19	0	0	0	750,000	200,000	(750,000)	0	0	0	0	200,000
*20	0	0	0	0	0	0	0	500,000	1,000,000	(500,000)	1,000,000

DEVELEPMENT OF ACCIDENT YEAR 1979

	Developed Through				
	12 Mos.	24 Mos.	36 Mos.	48 Mos.	60 Mos.
Net After Excess Reinsurance	290,000	826,000	932,000	1,042,500	1,042,500
Excess Reinsurance	100,000	1,270,000	1,350,000	1,416,000	2,166,000
GROSS	390,000	2,096,000	2,282,000	2,458,500	3,208,500

AGE-TO-AGE FACTORS

	12 to 24 mos.	24 to 36 mos.	36 to 48 mos.	48 to 60 mos.
Net After Excess Reinsurance	2.848	1.128	1.119	1.000
Excess Reinsurance	12.700	1.003	1.049	1.530
GROSS	5.374	1.089	1.077	1.305

A G E - T O - A G E F A C T O R S

NO INFLATION

	12 to 24 mos.	24 to 36 mos.	36 to 48 mos.	48 to 60 mos.	12 mos. to 60 mos.
Net After Excess Reinsurance	3.017	1.057	1.108	1.000	3.534
Excess Reinsurance	11.000	1.000	1.818	1.000	20.000
GROSS	5.064	1.025	1.494	1.000	7.756

WITH INFLATION

Net After Excess Reinsurance	3.020	1.063	1.119	1.000	3.595
Excess Reinsurance	11.200	1.071	1.805	1.000	21.660
GROSS	5.118	1.068	1.505	1.000	8.227

THE EFFECT OF LOSS DEVELOPMENT ON EXCESS CLAIMS

Reserve	Reserve Amount Excess of $50,000	Closing Amount (10% Higher)	Closing Amount Excess of $50,000
$20,000	$ 0	$22,000	$ 0
20,000	0	22,000	0
30,000	0	33,000	0
40,000	0	44,000	0
48,000	0	52,800	2,800
60,000	10,000	66,000	16,000
70,000	20,000	77,000	27,000
80,000	30,000	88,000	38,000
TOTAL	$ 60,000		$83,800

$$\frac{83,800}{60,000} = 1.397$$

Pat: Thanks Roger. Just one reminder: this session is being recorded so that a transcript can be produced. So, if you would please use the microphone when you ask questions, it would make it a lot easier to do the transcript.

The next speaker this morning is Mary Hennessy. Mary is going to be discussing reserving procedures that can be used by small or new reinsurance companies.

Mary is Principal and Consultant with Towers, Perrin Forster & Crosby in Philadelphia. She has been providing management and actuarial consulting to insurance and reinsurance clients of TPF&C since 1979. Prior to that Mary worked in the Actuarial Department of Crum and Forster, where her responsibilities included case loss reserved analysis.

In the last two and a half years Mary has completed five to ten reserve assignments for small to medium size reinsurance companies and that is where she developed the approach that she is going to be discussing with us this morning. And Mary is also a Fellow of the Casualty Actuarial Society and a Member of the American Academy. And now it is Mary's turn.

Mary: Thanks Pat. As Pat mentioned, I am going to be covering reserving procedures for new or small reinsurers. I think you are going to find it interesting that you have a set of practitioners up here, and I don't think you are going to hear too much this morning about esoteric distribution techniques. Any one who is expecting that is certainly not going to hear it from me; I am going to talk a little more practically.

Just from a housekeeping standpoint there are hard copies of my presentation available in the back. I think that what you see on the screen is in the handout, but you might want it for making notes. Otherwise you can go without it at this point.

I would like to first start with an overview of the presentation as it is going to flow this morning. I am going to propose two cardinal principals to you to keep in mind when planning and executing reinsurance reserve analyses. You are going to be surprised at how simple they sound, but how difficult they really are to execute. And if you

remember only two things from the presentation those are the two. After the next slide feel free to fall asleep. But please stay with me at least until then.

I am going to spend the bulk of my time talking about gathering qualitative information. This is very important because if you are with a new or a small reinsurer you don't have too much quantitative data. So, the qualitative becomes extremely important. And I am going to talk about what I mean by that; what you do with it when you have it; and the fact that it is essential. And finally, I will deal with numbers just a little bit in my final slide. I am going to talk about some do's and don'ts when you are doing a quantitative analysis. Assuming you have data, what do you do with it, and what do you do not want to do with it.

Here are the cardinal principals I want to talk about: One, know a few good techniques; and two, use common sense.

For the actuaries and experienced reserve specialists in the audience your level of knowing a few good techniques might be different from others who have never looked at it before. I am presuming by this point on Friday morning everybody here knows about loss development triangles and loss development factors. You are not going to see a triangle here this morning. We are not going to talk about an age-to-age factor and how you get it. I am presuming that you have got that knowledge.

But I am going to talk about some of the things that happen if you throw that type of data into your computer and spit it out and don't do a thing with it from a common sense standpoint. And ways that you can go wrong.

Second principal: use common sense. Things like reasoned, logical conclusions; intuition; be it masculine or feminine; integration of industry knowledge with company specific information that you have; all make sense. And have to be done here. And I am going to talk about those things as well.

In terms of knowing a few good techniques, yes, you can use loss development triangles. You can use loss ratio techniques. You want to look at things like loss

development factors if you have them. They work, if they are used properly. But be cognizant of things like data limitations. For example, the data is not homogenous -- property is mixed in with casualty, to use an extreme example. Or pool business (Business that you're writing is coming in from underwriting pool or what have you) is mixed in with your own casualty excess book. Or you have got a couple of claims made treaties and they are thrown in with the occurrence treaties. You are not going to know this unless you ask your underwriters.

If you've got a mix like that and the distribution has stayed the same over time and never changes it is fine. But it you are accelerating claims made versus occurrence and you don't try to separate out the data or make an adjustment you are going to get an illogical answer. So, know what is in the data. Know whether or not it is truly homogenous. Sometimes you can't make an adjustment. Sometimes you can't pull it out. But it is better to know it and try to address it somehow as you are working.

Another data limitation: your data is simply not credible. An extreme case -- you don't have enough of it to see any loss development patterns at all. That is an obvious not credible situation. Or perhaps what you have looks credible. It looks like you have enough data but actually not. Because there have been major changes in treaty terms and conditions. For example, this year (1985) in the excess workers' compensation area. There have been some major changes going on there in the way that business in underwritten. That means that when you are looking at past losses they are not exactly indicative of future losses.

Finally, the most killing data limitation: non-existent. That is easy to see. And the only plus is you won't misuse it if you don't have it. (Laughter)

Be aware of limitations in the methods. For example, a paid development for casualty excess business -- you saw the tail on that. As Pat showed us in the first slide this morning over 20 years development can occur on that live, making a paid development. Try it if that is all you have got. But please be aware of the fact that

once you start dealing with cumulative loss development factors of 20, 50 and 100 you have got a problem.

The use of loss development data at all for some categories of business simply won't work. For example, surety -- unless you have got a large book of it and a lot of history it is meaningless. Some years are blow out years. Some years are no loss years. So, although I mentioned before that the traditional techniques will work its a qualified "will work" and you have got to know where they will and where they won't.

Also, never forget when you are doing reinsurance reserve work about the long tail in certain lines or classes and the volatility potential of reinsurance in general. Things like reporting lags, the leveraged effect of excess loss development that Roger talked about, the impact of the underwriting cycles. It used to be three years up and three years down accurately described the cycle. Now, we are at least into six years down and I don't think it is going to be six years up. These are facts of life in the reinsurance business.

You have to adjust your techniques to reflect the long tail. If you have only got five years of history because that is all you have been in business, then despite all of the caveats Pat talked about with the RAA data, you'd better take a look at it. Or you'd better use a rule of thumb technique. But you certainly don't stop your development at 60 months. If you do you are crazy.

You also have to tailor your results to think about the volatility potential. If you are doing a reserve analysis and give senior management a single number you are a fool. You must give them a range. You simply can't get down to one number here. Or if you have to give them a single number because they need one for financial statement purposes include sufficient caveats. What nobody is going to be here is right on the dollar. And if you think you are you don't really know the business too much.

And again, just going back to the slides Pat showed you. Look at what has happened to development patterns between 1978 and 1984 or '76. We have been guessing

wrong according to the development patterns shown in those slides, and these are major professional reinsurance companies, whose reserves are being done by actuaries by and large (adjusted by senior management, perhaps). And each year the development pattern is deteriorating.

The second principal I have identified is to use common sense. It is essential to integrate this in your work.

As I said before don't take the triangle and bang out the numbers. And don't work in your own little micro environment without thinking about what's going on in the outside world. If you are a reinsurer, particularly if you are a small or a new one, what's going on in the industry is very important to you. Unless you have got some specialty thing going for you, you simply are not going to have a 100 percent combined ratios when everyone else is reporting 150.

But "macro" and "micro" assessments need to be integrated in your work. What are some macro considerations in doing a qualitative review? I have outlined two here that I think are very important; the position of your company in the market, and the experience that you have had.

What do I mean by position? I will use extremes to indicate that. Think about a large well-capitalized known professional reinsurer whose underwriting staff is recognized in the industry as being quite good, quite superior. They certainly will see, at least, a good cross-section of the business, both profitable and unprofitable.

Now, think about your small, under 10 million dollar capitalized new company. Let's even have it be domiciled in Bermuda just to make this a real extreme example. Now, what kind of business is coming to you? It's been shopped somewhere else first by and large. Unless there is a specific reason, for example you have got a specialty or you have got some favors coming to you, you are seeing stuff that has been turned down elsewhere. Now, if you think that you can have a better loss ratio than the large professional reinsurers in the U.S. you are fooling yourself. And as an actuary as you are

pumping out numbers keep it in mind. Start with this kind of backdrop and you will find that you will temper your results much better.

The second macro factor -- consider your experience in the market. Does your company have the technical capabilities to underwrite what it is underwriting? (Financial guarantees are a great example. If you are underwriting that and you have pulled an underwriter from your SMP, Primary business, good luck.) Does your company have longevity in the business or with what types of accounts? If you have got superior technical capabilities in some area; chances are the brokers might be bringing you some business. And it might be a good profitable cross-section. If not and you are a pure following market, then you are getting something that has been seen somewhere else first. It has implications on the kind of business that you are seeing.

What do I mean by micro? Well, think about particular things specific to you. Your company's own experience to date if any. You might not have any. And that is where the macro than becomes more important.

The prior experience of the business that you are writing. Surprisingly enough if you go to underwriting files there is often information there that you can use. The brokers are getting better. They used to just throw out calendar year information and hope people would be stupid enough to just use that. Now, they will often give underwriting year information, although maybe no development history. But at least losses by underwriting year as of the latest evaluation point. And you can try using industry data to develop that. Come up with what you think might be the loss potential on that, based upon past history before you ever got on the account.

Also, if it is a large treaty you can go back to your broker and request that information. If they have been on the account a long time then they have it. They are not going to give it to you unless you ask for it, though. So, you can teach your underwriters a lot here. And depending upon how many treaties that you are on (I am addressing really treaty this morning) there is a lot of information that you can get. If

you are smart enough to ask for it.

Let me go back one here. I am drawing a distinction between qualitative and quantitative information this morning. You will see that I am saying that the qualitative really does support the quantitative. And I want you to start with the qualitative first.

When I speak about qualitative, I am going to talk about things like type of business, sources of business, inherent profitability potential. I have already hit on some of those things and you are going to hear them from me again and again. You do those first before you do any of the quantitative -- expected premiums, anticipated losses, anticipated loss ratio.

In gathering qualitative information you want to do things and I am going to subtitle this Get into the Underwriting Files. That is what you have got to do. You want to analyze the type of business, sources of business and evaluate the inherent profitability. By the way, I'll mention that once you do get into the underwriting files you may be shocked at how much you find there or how little. If there is very little it says something about your underwriting staff. If there is a lot, they may not be using it. But you can show them how to use it. And if it is a good technical shop you will find a lot in the files. You will be very surprised.

Analyze type of business. What kinds of things do I mean? Look at things like layer. Working layer casualty business has different development characteristics than high layer clash covers. If you're totally a working layer shop that says something to you. If your underwriters are specializing in higher level clash covers your chances of being able to use development data are slim.

Overview ceding company characteristics -- do they have a specialty in the product that they are writing and that you are reinsuring? Do they write only in certain areas or in certain key classes? Do they have good underwriting control and so forth?

Think about the expected loss characteristics of the products, of the lines, of the

classes, for example -- geographic variations. Excess workers compensation business in states with indexed benefits is totally different than in states without. Or excess workers comp in California with cumulative trauma has different loss characteristics than in other states. Or having a book of property and DIC business in California with earthquake exposure included is a little different than not.

Think about product variations in the non-standard product versus specialty product, versus what I am calling "pure vanilla." For example, mortgage guarantee until a few years ago had loss ratios of about 25 percent. That is totally different from SMP. In 1984, if companies had stated their loss reserves accurately, we might have seen ratios like 150 percent for the accident year. In summary, keep in mind that I am looking at this class that has these underlying loss characteristics that have this implication for me. Consider the impact of loss limiting items, like were underwriting, aggregate deductibles, and so forth.

Now, you will notice that I have put "reunderwriting" in quotes. And this is a great hint for people who are dealing with your underwriters maybe for the first time.

A few simple rules. One, everybody is always doing it. Two, the new business I am putting on as the underwriter. It is much much better than the old business that I am cancelling. So, hence actuary or reserve specialists, I don't believe the loss ratios you are coming up with for those old years, but for sure you are wrong for the recent years. Because I have re-underwritten my entire book of business. And I have now got all of the good stuff.

Well, my advice is to listen and nod your head wisely and then go on. Nobody ever mentions to you that it takes a few years to re-underwrite. And by the time you have made the decision to re-underwrite you have got renewals already in on some of the old stuff. Plus, nobody is perfect no matter how good they are in trying to separate the good out from the bad. Chances are they haven't used the technique or an analysis approach that we would use. And they might have missed a few.

Things like aggregate deductibles are an example of a definite "reunderwriting" technique, and like other changes in treaty terms and conditions can become important. In looking at past losses and trying to project into the future. And again, listen to your underwriters this year in terms of what is being done in some of the excess business. And you will see that there are things happening that, even if we can't adjust the data for them we have to be aware that old years' losses may not be indicative of what's now going to be happening.

The second step in a qualitative analysis, as indicated on the slide you are looking at, is to assess the sources of the business. I am not going to say too much here for competitive reasons, but look at the ceding company track record. If you are on a quota share program maybe you want to do a quick and dirty Schedule P analysis. In this process you may find out that even under very favorable assumptions you are looking at a 150 percent loss ratio. That says something about what you are going to get and you need to think about that.

MGA's -- a bad word for a good reason, particularily if your company is doing a lot of business with this kind of source. You have given out your pen and you have probably lost control. If the MGA is compensated on volume and not profit (and most of them are). Guess what, you are going to get a lot of business. And you are not going to "make it up on volume."

Also, the MGA system can add expenses. And you have got to keep that in mind. For example, we looked at one program where along with everything else by the time the MGA got in there 45 cents of the dollar had been taken out of the premium in terms of the expenses before it ever got to the primary or the reinsurance company. Now, if the underlying anticipated loss ratio for the gross premiums is 65 cents and you are only getting 55 you have got to make an adjustment. Don't come out with a loss ratio under 100 percent. Think about that. It is very important how much in expense dollars is leaving the system before the premium gets to me.

Finally, some MGA sources have frankly burned every single market that they have written for in the last 20 years. Now, if you are new to the business, ask around. There are some common names and all you have to do is say them and you will find five people in this room who will groan. Do that informally, but make sure that you do that.

Lastly, if you are a broker company market take a look at the kind of businesses that are being shown to your company in general. You can get a good idea there of your position in the marketplace: are you seeing principally bad business, or are you seeing a good cross section. Ask the broker for prior experience of the accounts you have been on, even if you are new to them. Think about the fact that if you have written ten treaties for this broker and nine of them are already dogs, then it says something about number ten that you might want to think about.

Or lastly, think about whether or not the broker has expertise in the market, in the particular business class that he is bringing to you. Again, I will go back to financial guarantee, because it is an easy example. There are not that many brokers that have specific experience there. If this is the first commercial paper treaty that is being brought to you, and you know the broker has never done any of this business before, then this is a treaty you must look at very carefully yoursef.

The third step in a qualitative analysis is to evaluate the inherent profitability of the business. Some of what I have been talking about all along gets to this point. This is not a spread sheet assignment by the way, none of this is. It is much more qualitative than quantitative. Use your logical reasoning powers and think about things like external rate adequacy. If the primary rates are known to be 50 percent inadequate and you are reinsuring them using a fixed rate of subject premium,then you are going to be that much inadequate, unless there is something else going on there.

Think about special treaty or risk characteristics. For example, maybe you have got the absolute best. I tend to be somewhat negative, because of my experience in the

marketplace the last few years. Pat mentioned I had done five to ten reserve analyses. And most of them where the first time the company had had an actuarial review. And half of the companies are out of business now. So, I have been a little tainted.
Maybe the treaties had horrible experience before, but because of some smart re-underwriting all of the potential losses are now out of there, principally because of changes in treaty terms and conditions. You have to look at that. Think about expense considerations, go back to my MGA example. But, again look at the expenses that are coming out of the dollar before it gets to you.

Other things, to think about would include: is the retro-rated business. Or is this an association account where the broker has very good control, and where prior history says they generally do pretty well. Finally, don't forget security risk relative to your own retrocessional program. If you are doing a net reserve analysis for your company, you can no long a just look at net. Look at your retrocessional program. Look at the people on it. And think about the security risk. You may need a bad debt reserve; in fact, you probably do.

I have talked about macro things and micro things and qualitative supporting the quantitative. And I am sure you all have been dying to get to the numbers here. But, please don't forget those cardinal rules, about knowing a few good techniques and using common sense. Now let's touch upon quantitative analysis, and let me close by just talking about a few do's and don'ts. Do question underwriters' and management's assumptions. People can be very glib. My own personal rule of thumb is that except for some of the top professional reinsurers, most of the underwriters and small to medium size reinsurers have never been in one place long enough to experience the tail of the business that they've underwritten. They do not understand the tail potential of the business that they are underwriting and we actuaries do. It is precisely for this reason that you should not feel strange going into the underwriting files. As practitioners, and as people who understand the characteristics of the business, you have got a leg up on a

lot of underwriters.

Do integrate qualitative assessments. I have been talking about those things this morning. It's very difficult -- it is not like you can take a .90 factor times the data. But just being able to talk about it and think about it means that you are not going to put out results like I am going to show you at the end that are absolutely stupid.

Don't treat the data lightly. And don't use projection techniques blindly. Let me talk about those things. What do I mean by don't treat the data lightly?

First of all, look for large treaties, since they can distort your data and secondly, you often can get good loss history for these large treaties, from the underwriting files or from the broker. And project them out separately, if you have got enough volume and the treaty has characteristics that make it work. Often, you want to pull the large ones out of their reserve category because they can distort it. This is particularly true if you have been growing or your mix has changed.

Separate out the unusual treaties, claims-made from occurrence, retro-rated from non. But also separate out known problem treaties. Pool and association business in the mid-1970's is a great example. You may want to have your own little category for that. (It is quite adverse, don't be surprised at 300 percent loss ratios). And pull that out from your other casualty excess business.

Another known problem might be OD exposure. As you saw again with the RAA data. You get a different pattern including OD (asbestosis) than you do without it.

Test the category definitions, meaning how you are classifying your data into casualty excess, casualty pro rata, or whatever. Be sure, first of all, that casualty excess and casualty pro rata mean just that. Our understanding of it may be different from the people who are doing the treaty assignment process.

More importantly, make sure that you have tried to build categories that have some homogeneity in them. I have seen small reinsurers have 30 different loss reserve

categories on a $15 million book of business. It is often ridiculous. Maybe they could make do with six or four. But you are always trying to balance, as I am sure you have heard in some of the other seminars. We need to get enough data so that the law of large numbers can work without combining everything together and ending up with a meaningless triangle of heterogeneous data.

Test the treaty assignment process. That is how we are assigning treaties into categories. Are treaties being classified correctly? Oftentimes on the underwriting side they are tending to use certain things as dump codes. And you would want to know this, so that you will know what you are looking at. As a hint, one area that is often a problem is that a lot of companies have a category that they will call combined property/casualty or mix or something like that. And oftentimes you have got some very strange things going into there: you can have an 80 percent casualty exposure and 20 percent property with a treaty which is the exact reverse. And depending upon growth patterns and so forth, that is a hard category to look at.

Last but not least, don't use projections techniques blindly. Three simple rules are shown on the screen. First, large loss development are dangerous. Factors of 10 and 100 and more are ridiculous. An early or late reporting of $1,000 times a loss development factor of 100 is a big number. If you have got a cummulative LDF of 100 or 50 or in most cases even 10, you have got to look at something else. A projection technique is not going to work. Think about where this situation occurs -- it occurs for the most recent underwriting years, where we have to put the most judgement.

Second, perform loss ratio reasonableness tests. Don't just project ultimate losses and ultimate premiums and stop. Divide one by the other and see what you get. I have got a great example for you in a minute. Much has been said about how difficult it is to use loss ratio reserve tests because premium adequacy levels over time can cause a distortion. While this is true, you must look at the implied loss ratio from your results because you may be projecting loss ratios of 1,000 percent. They may not be realistic

even for your book of business. Or you may be projecting loss ratios of 25 percent. And certainly, that is not realistic, unless it a specialty class or category. So, don't stop with just losses versus premiums.

And finally, reasonableness test with industry results. Look at RAA results, even though they are calendar year or calendar quarter reported results. They are a barometer of what is going on in the industry. And again, if the large professional reinsurers are reporting a 130 to a 150 combined, and your reserve analysis indicates that your company is coming up at 110 or 115, some judgemental adjustments to your results may be required.

Let me close with this example, which is absolutely true. It happened. Most of the work here was done at the end of 1982 by a professional actuarial firm. And the category of business was casualty excess.

You see on the slide that I have shown underwriting years 1979 through 1982. And in the second column the loss development factor used to project losses, running from the 3.32 in 1979 to 19.86 in 1982. Pretty big factors there, even for 1980 and 1981 frankly, which should give you some cause for concern. These were applied to reported losses. The LDF times reported losses gives us ultimate losses. Premiums were also developed because this is a reinsurer and you get premium development. At that point, the actuary stopped. Take a look at my column three, which is the implied loss ratio using these figures: a 107 percent for 1979, 324 for 1980. It might be a little large, or it might have been a blow out year. But those of you in the industry also know that premiums were really sliding down during that period. So, that jump from 1979 to 1980 could be true. Two twenty-six for 1981 looks a little out of synk with 1980, but then we have our glorious 16 percent in 1982.

Now, volume unfortunately was growing like wildfire in this category of business. Perhaps that 16 percent should have been 225. Maybe it should have been 300. Maybe it

should have been 400. Multiply that error times 10 or 20 million worth of premium, and you have got a large problem. This is what I mean loss ratio reasonableness test, and just simply using your common sense.

Now, column four shows you the current, what I call hindsight, loss ratio estimates of another actuarial firm. Neither of these are mine by the way. So, I felt free to use them.

Nineteen seventy-nine is now coming in at a 115, 1980 at 300. So, the first two looked pretty good. Look at 1981 -- 310; 1982 at 400 percent plus. Thus our original error was over three times premiums. Frankly, its shocking and its horrible. And it is what will happen to you if you throw numbers blindly onto a projection program, and have them come right out the back end again without thinking about anything that I have told you.

In summary I would say use your head. Sure you have to put on an actuarial hat. You have to know what to do with the numbers. But you have to use qualitative information to get a good supportable result. Or you are going to be in trouble. Thanks.

Does anybody want to ask any questions right now?

Question: Nolan Ashe, SCOR Insurance. I would like to commend you. I thought it was an excellent presentation. And talk about maybe some enhancements or a couple of additional things on your list.

As you said reunderwriting is always with us. And everyone is always doing a reunderwriting job. I would throw out for your comments the possibility of following up an investigation of comments like "we have just reunderwritten our book and we are doing great." You might want to ask questions like, how many treaties do you have? A hundred. How many did you cancel or non-renew? Zero.

Underwriters often say, "We have reunderwritten the book. It is a very good book. In the past it has been very bad. But now its going to be very good so you have to change

all your assumptions." How can you hand this? It is a rhetorical question. But I think it bears stating here. Because there is reunderwriting and there is reunderwriting and there is underwriting. Or if they haven't cancelled there are unrenewed at good percentage. Have they really changed terms and conditions?

Another I thing I'd throw out for your comments is that in discussing the sources of business, it might be interesting to add another item: retentions. It is very interesting to get a whole bunch of business where the primary company is keeping $25,000 or $50,000 and taking all the excess out. That has an impact.

Mary: Both comments are very valid, and additions that I think you should make, particularly, the comment on reunderwriting. I tended to spend so much time on qualitative, that I forgot some of these types of tests. But certainly, if you start asking questions like, how many? and show me the list? You often get some interesting type of replies.

As I said, before be very skeptical. Particularly, if you are new in the marketplace and you are not with one of the major long-standing professional companies. There will be some new companies around and small companies that are very good. But there is certainly a large cross-section that lacks talent in underwriting and expertise in the business that need our insight as well.

Moderator: Thanks Mary. We are running somewhat short on time. So for those of you have additional questions, if you would just please hold them until the end we can try to address them at that point in time.

Our last speaker this morning is going to be Russell Fisher. Russ is going to be talking about reserving procedures for individual. Workers' comp cases for excess of loss reinsurers. The technqiue is somewhat different then would be used for other liability claims.

Russ is also a Fellow of the Casualty Acturial Society and a Member of the American Academy. He is Second Vice President of the General Reinsurance

Corporation. He has worked in their Corporate Actuarial Department for the last eight years. And his principal responsibilities include IBNR, loss reserving for casualty excess of loss, treaty and facultative reinsurance.

Prior to working at General Re, Russ was with the Insurance Services Office, reporting as a matter of fact to Roger Walker, in both the homeowners and Private Passenager Automobile Liability sections. So, I will turn the program over to Russ now.

Russ: I think I can do this in about ten minutes so that we will have time for questions. My discussion is much more limited than the ones that came before. I am talking about just the case basis reserving of one part of one line of insurance, workers comp pension cases.

What I am talking about here are claims where there will be life-time payments. It could be a fatality in which payments would continue for the life of the widow or widower, or a serious injury where permanent total benefits are payable for life.

Now typically, a ceding company would report reserves. They would report gross incurred to reinsurer. The reinsurer would set up an amount in excess of his retention. That works fairly well for most lines.

It doesn't work well for this type of claim. Because you can have the situation, unless the payments are up to or above the retention, where the correct excess reserve is not equal to the gross incurred minus the retention. We will see that.

Also, there could be many situations where the gross incurred could actually be less than the retention, and yet you should have an excess reserve up. This is because of the influence of the mortality considerations. The concepts here are suspension period and deferred annuity which I will get into.

Now, what will follow is a case study. I have some real claim facts from one particular case.

Here we have a claim where you need to know the date of loss, the type of injury, the age of the claimant, the state where it took place in order to determine what the

benefits are.

The guy was a hotel/motel clerk. And he was attacked by a customer with an axe. And he suffered multiple skull fractures and partial paraylsis.

The nature of the injuries are very significant here because this is a case that involves future medical costs. Now, it has been three years ago that it happened. So that the medical costs have stabilized. We will see that the medical paid to date is over $200,000. But it is critical, since there are future medical cost expected. That we have a handle on what we think those costs will be. So, you need an experienced claim guy in there assessing the injury and the rehabilitation prospects and the future costs.

Also, since medical is subject to inflation, one has to have a notion of that. Regarding indeminity payments, you need to know how much he was making. This person was making $134.00 a week. Medical paid and indemnity paid to date, total about $225,000.

The future indemnity one can get from the law in the State of California. Payments of future indemnity benefits are allowed up to two-thirds of the weekly wage. And that is within the min and max at the time of injury. So, we know his payments will continue for life at $4,654 a year. But we don't know and have to make assumptions about how long he will live to collect payments and what his future medical costs will be.

Now, after evaluating the facts of the injury, we felt that although he was seriously injured he probably will live a normal life. We reference the life table that is in use now based on 1980 Census Bureau data, at the time we did this he was 43. He has a life expectancy of another almost 31 years.

Now, our evaluation of the future costs. The case has stabilized and we think the ongoing medical costs will be $2,500 per year. And maybe they will increase eight

percent a year.

Again, this is where the techniques of the calculation of the excess reserve is perhaps somewhat different than what many companies are doing. But, the error or the difference in the various calculations are not significant. What is significant and where you can really get in trouble, and have a case blow out of sight, is on this part right here the future medical cost. Even if you have brought as much experience, calculations and thought to this as you can, the case can blow up. You can think it's stabilized. But in ten years he could suffer all sorts of internal, kidney and liver damage that resulted from the paralysis. That you couldn't have anticipated. But you do the best you can.

You also need to know the reinsurance coverage. Here your client the ceding company's retention was 400,000. Its 2 layers of reinsurance, 600 excess 400, and then there is $4,000,000 on top of the first million. So, I am going to look at what the carried reserve should be for both layers of reinsurance.

Now, before I do that lets see what this claim could possibly cost. If you recall there was $225,000 all ready paid. Now, if the claimant only lives one more year, the total loss is $232. In that case, reinsurance isn't involved. If he lives ten years you still haven't gotten to $400,000 yet. So, the reinsurer pays nothing. But he might live another 50 years in which case the gross loss payments, assuming our assumptions about medical and inflation are right, would be almost $1.9 million, Your first layer was gone through. You have suffered a $600,000 loss on the layer.

The expected value of gross incurred was $852,000. That is based on 30.8 years and the assumptions about medical cost and inflation. It's a weighted average of the above numbers based on the probability that the claimant lives any of those years.

For the excess layer, above 400 not just for 600 excess 400, the expected value is 325,000.

Now, here we have a case where the expected loss, if the primary company has evaluated the case based on this methodology, reported to the reinsurers is $852,000. So,

the reinsurer who is excess one million would probably not put up a reserve. But the calculation shows that the expected value of his loss is really non-zero. It is $34,000. And that is because the claimant might live longer than 30.8 years.

Now here is where get to suspension period. The reinsurance retention was 400,000, there has been almost 225,000 already paid. So, the first excess reinsurer will start paying after another 175,000. And he can calculate that that will take 18 years. That is at inflated medical costs and level indemnity payments. The second layer reinsurance is excess of a million. He is not going to make a payment for another 39 years.

So, the reinsurance company is looking at this as a deferred annuity. If the claimant dies any time in the next 18 years he pays nothing. But surely there is a probability that he will survive that long and he will have to make payments.

Here are excerpts from the life table. The bottom row has the symbols I want to use for the calculation. A life table starts with 100,000 people alive at age zero. This is the second column and it declines as the people expire. So at age 99 there are only 594 of those 100,000 people left. That column is called D number of people alive. So that D43, the number of people alive at age 43, is 92,000.

The next column is the end column. The bottom symbol is NX. That is the number of lives lived by those people. So at the very top, 100,000 people lived a total of 6.9 million years. So, then average life expectancy was nearly 70 as determined from this table. Now, this is the table the 30.87 life expectancy of our 43 year-old claimant comes from.

The important thing is that you need to determine if this life table it represents the mortality of a population of people that have similar characteristics as the mortality of our claimant. If it is a fatality and its a widow you would probably want to use a female life table.

You wouldn't want to use a table of a annuitants -- that is probably a more select

group with longer mortality. We felt in this case that this table was a representative table for using against this claimant.

For the reinsurer is not going to make any payments until this 43 year-old hits age 61. You can see that the people who that are still alive at age 61 live 1.29 million more years. So, we have got 92,000 people in the sample that are going to live 1.29 million years after a waiting period of 18. And that's the operative number for us.

Here is the calculation of the expected loss excess of 400,000. For indemnity benefits we know it is 4654 per year. But we don't know how many years we will be making payments. That's where the N61 divided D43 comes in. From the table, that ratio is the number of years lived by 43 year olds from age 61 onwards, and that is 13.99. So, on average, 43 year-olds live 14 more years beyond age 61. So, we think we will pay $65,000 in indemnity payments.

For Medical it is the same calculation. The annual payment is thought to be 2,500. But the N61 divided by D43 is not equal to 13.99, it is 157. That is because I went into the mortality table and made a second adjustment. I not only want to reduce the lives for mortality. I want to increase every remaining life to allow for inflation. So, I think the future expected reinsurance loss for the excess of 400,000 is 458,000. The same calculation is made for excess of one million but here the waiting period is 39 years. So, I need the number of lives that 43 year-olds live beyond age 82 and that is less than two years on average. The excess loss above one million is 134,000.

Alright now, just let me take two seconds to talk about how to manipulate this mortality table to allow for inflation. Because I really go in and do the same thing if I want to also discount the reserves. Then I would divide rather than multiply.

Here are the future payments that I think might be made for medical. For each year I think I will pay 2,500 increased eight percent times those number of years, times the probablity that claimants have lived that long to collect the payment. So, I want to

add all of those up. Each of those probability statements there can be put in terms of the D's.

At age 43, the claimant will receive 2,500 times the D44 over D43. Each of the those ratios of D's is the probablity that the claimant has lived to that point in time.

So, dropping down to with inflation in that statement there I factored out 2,500. And it is just the sum of D44 times 1.08 plus D45 times (1.08 squared). That is the expression I want to use to represent the expected value of the inflated loss.

I multiplied both sides by a factor of 1.08 to the 43rd power. I multiplied every factor by the same thing, both numerator and denominator. So, I didn't change the value. But what I have got now is an expression where the power that I raised my inflation factor to is the same as the D subscript. So, knowing that, all I have to do is go back to my normal life table and take all of my D's and multiply them by 1.08 to that power.

So, here is my life table. If you remember D43 was 92,035. Why can't I just multiply that by 1.08 to the 43rd power. So I did and I multiplied 77,000 by 1.08 to the 61 power. Taking that whole column, the DX column (number of people alive). I multiply it by 1.08 to the Xth power. I will end up with an adjusted life table.

There are two things going on in this table. I am starting with 100,000. And I am calling this not people, but I am calling it dollars alive. The 100,000 is declining as the people die off. But at the same time it is also increasing. For those that are left they are not a dollar any more, they are a person increased eight percent. (laughter) So at age 43, if you paid all 43 year olds a dollar for life for every year they are alive you will have to pay the total of 193. If you remember they live on average 30.87 years. So without inflation you would have paid them $31. With eight percent inflation you will pay them $193.

And we can then go to this table and pick up my N61 and my D43 and I have got a deferred annuity factor which allows for the inflation. If I wanted to also discount for 3

1/2 percent interest, I could go to this table and I could take 2.5 million and I could divide it by 1.035 to the 43rd. I could divide that whole thing by 1.035 to the X. And then I have got an 8% inflated and a 3 1/2 percent discounted table.

Here is the calculation of the proper way of looking at this on the net basis. It is really just the difference. For the primary company he just cares about the payments that are going to be made during the next 18 years. So, he has got a temporary annuity. He will make these payments for each of next 18 years. But then he won't make another payment. So, you are subtracting off the N61 over D43 factor.

At that point I will turn it back to Pat or if anyone has any questions.

Pat: Thanks Russ we just have a few minutes before break time. We can entertain a few questions now if you would like. Or you might prefer to see us afterwards. Isaac.

Question: Isaac Mashitz, Insurance Services Office. On the primary insurer you subtract out the N61 from the numerator on the first excess. Should you subtracting out the impact of the second layer of reinsurance? And if so is there an error on page two of the handout?

Russ: Yes and no. Yes you should. But what I did on page 2 was just excess of 400 all the way up. And then I subtracted out the excess of one million was which leaves the first layer loss, 600 excess 400. You could have worked up the first layer directly, as a temporary annuity, as you suggest.

Yes, you are right.

Pat: We have time for another question if anybody has one. No O.K., well I would like to thank you for your attendance. I would like to remind you to fill out your questionnaires and return them before you leave today.

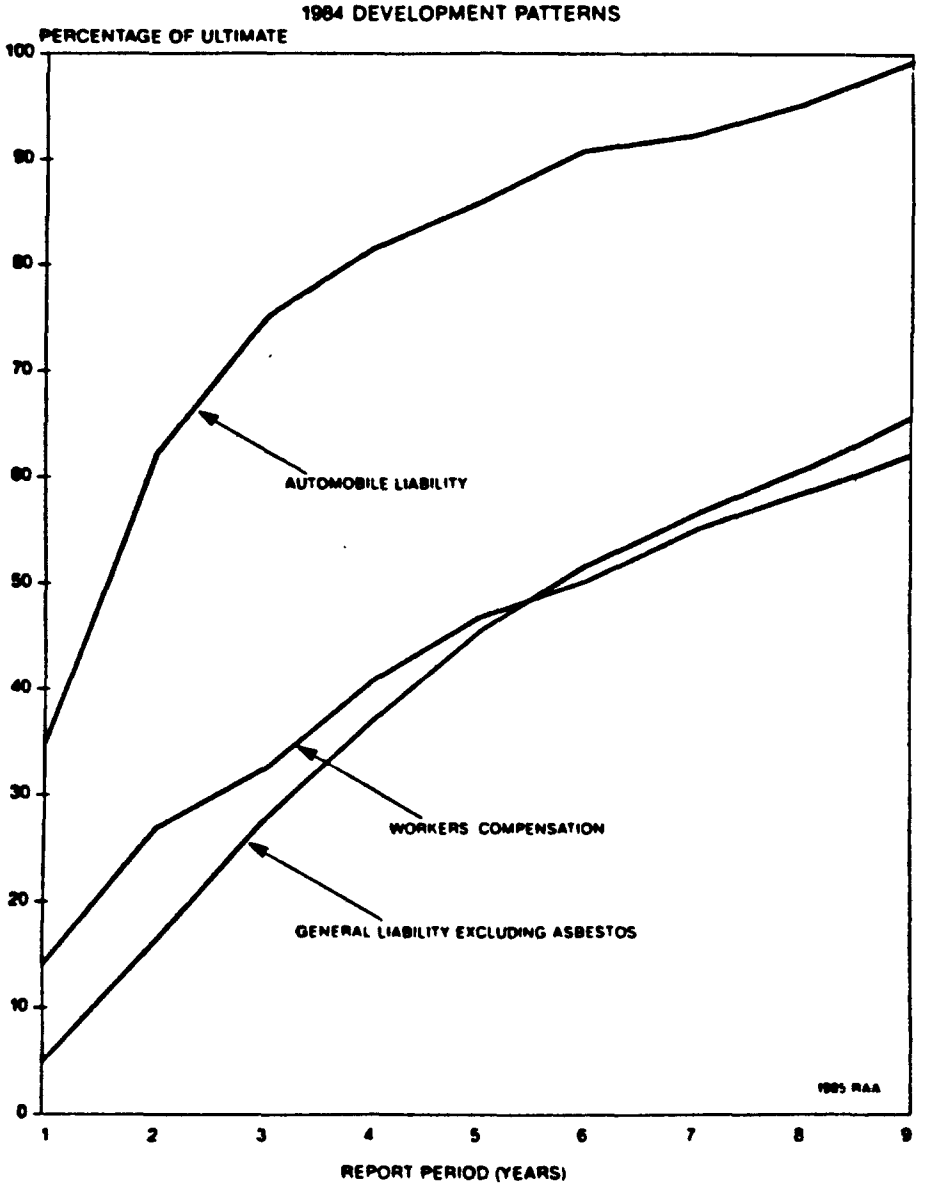
Just a commerical for one of the following sessions. It is going to be on the interaction of the claims and underwriting functions. And I understand its going to focus very heavily on the reinsurance area. So, for those of you who are interested in that, you

may be interested in attending the particular session.

And one last thing please join my in thanking the panel for the program that they put on this morning. (Applause)

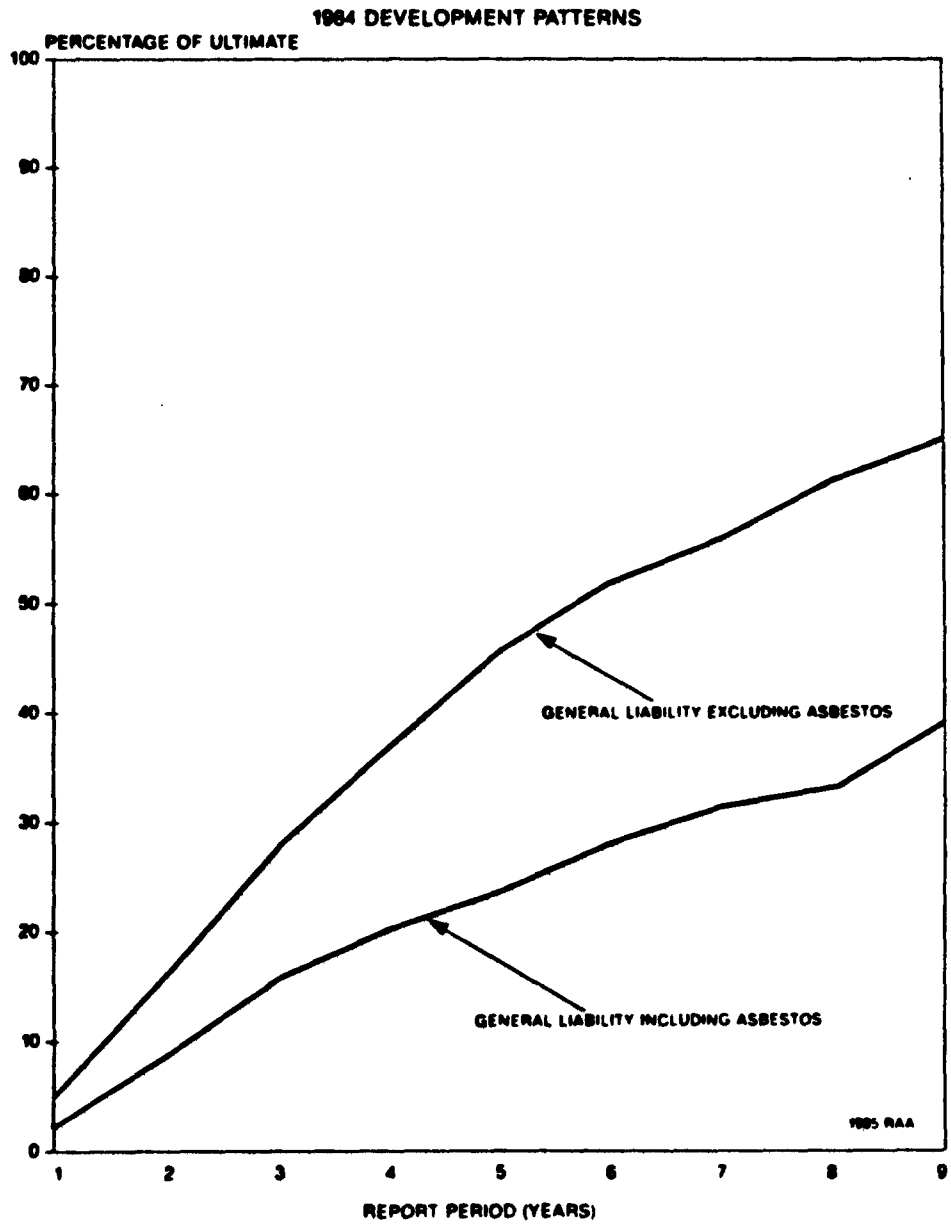
Slide 1

Exhibit A-1



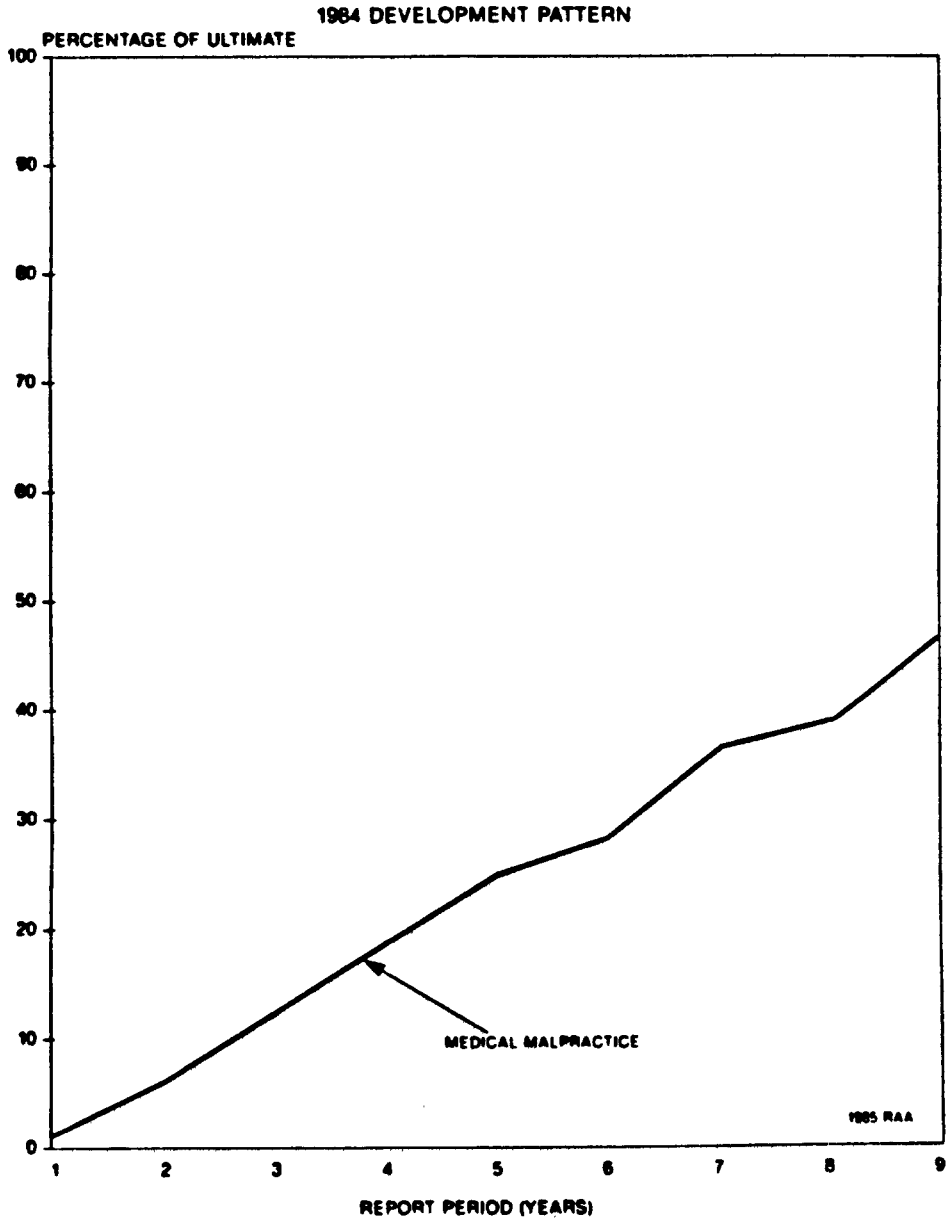
Slide 2

Exhibit A-2



Slide 3

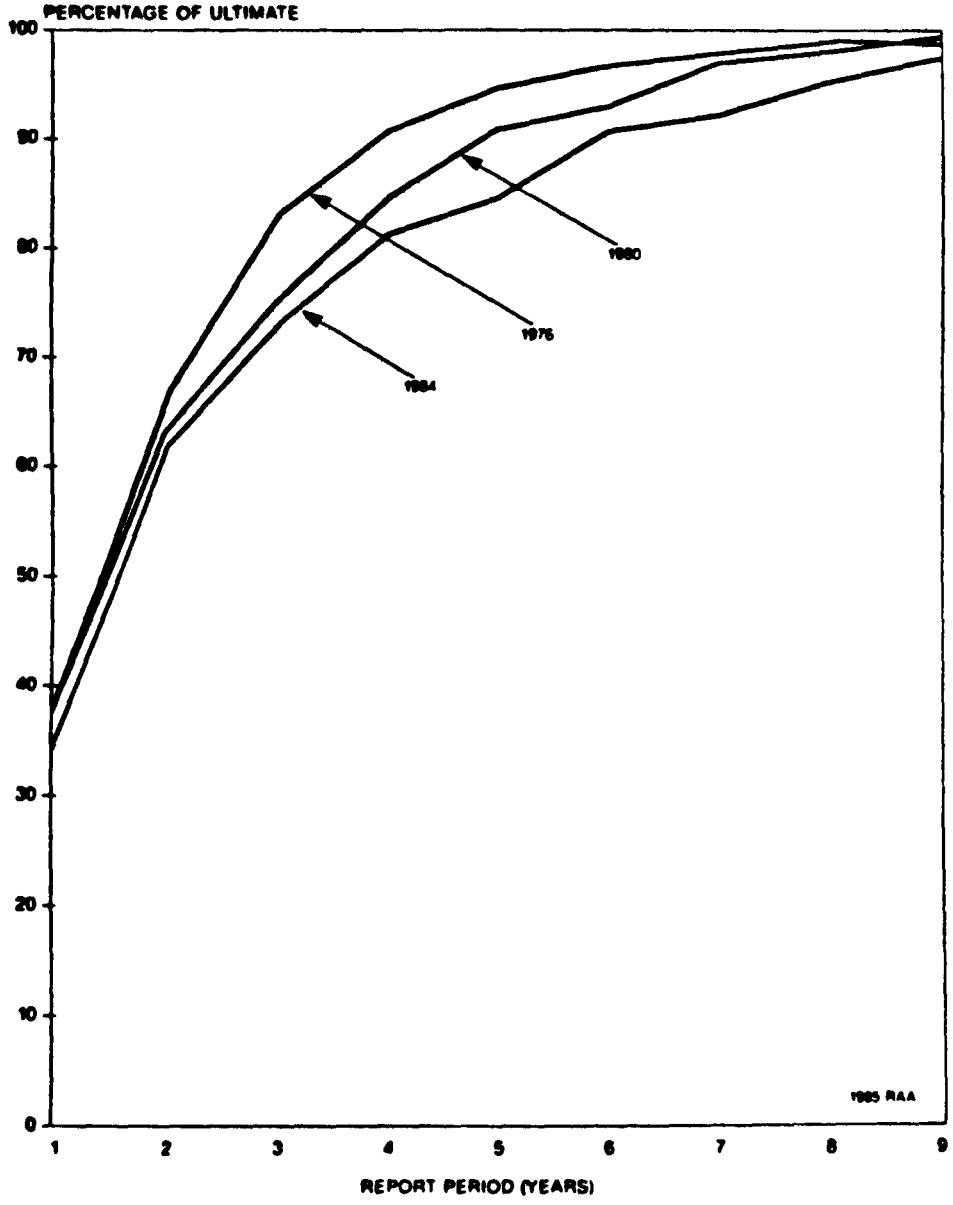
Exhibit A-3



Slide 4

Exhibit B-1

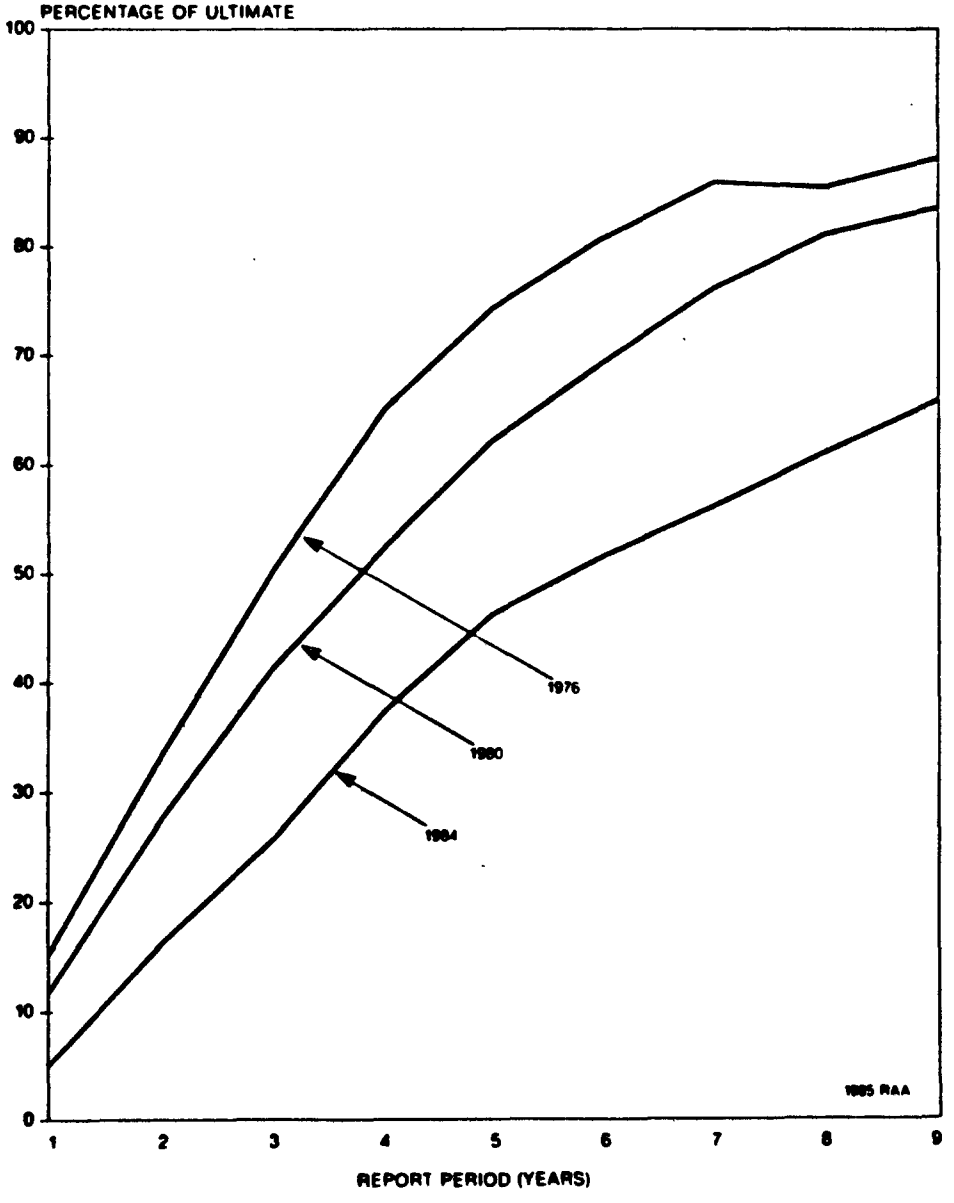
1976, 1980 AND 1984 DEVELOPMENT PATTERNS
AUTOMOBILE LIABILITY



Slide 5

Exhibit B-2

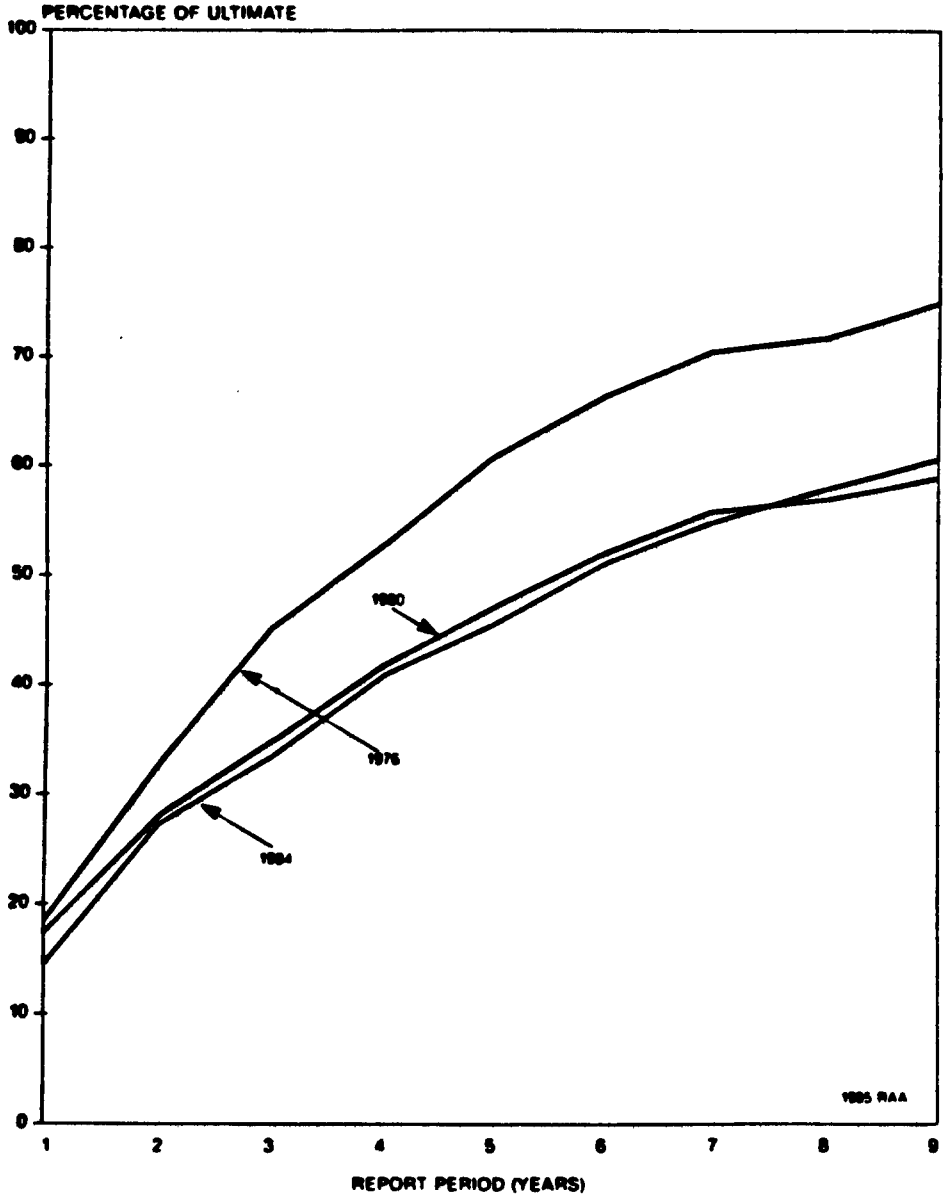
1976, 1980 AND 1984 DEVELOPMENT PATTERNS
GENERAL LIABILITY EXCLUDING ASBESTOS



Slide 6

Exhibit B-3

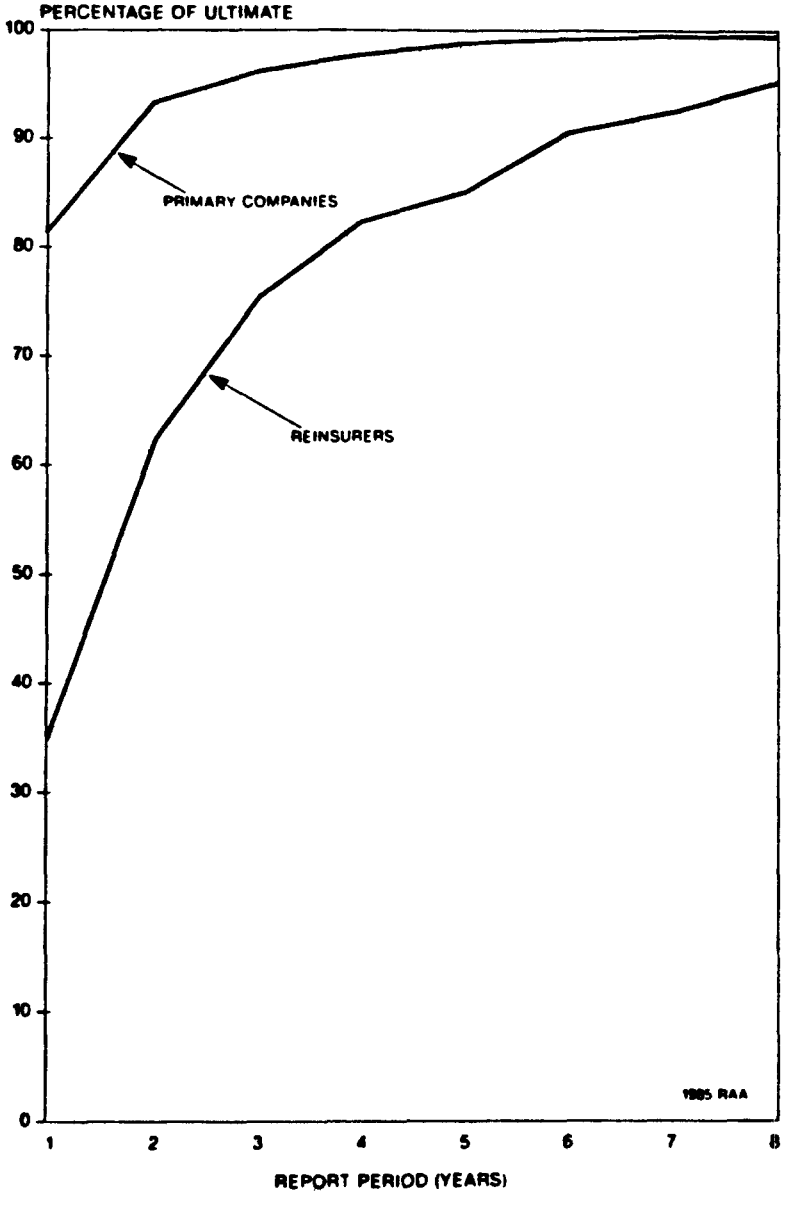
1976, 1980 AND 1984 DEVELOPMENT PATTERNS
WORKERS' COMPENSATION



Slide 7

Exhibit C-1

REINSURER VS. PRIMARY DEVELOPMENT PATTERNS
AUTOMOBILE LIABILITY

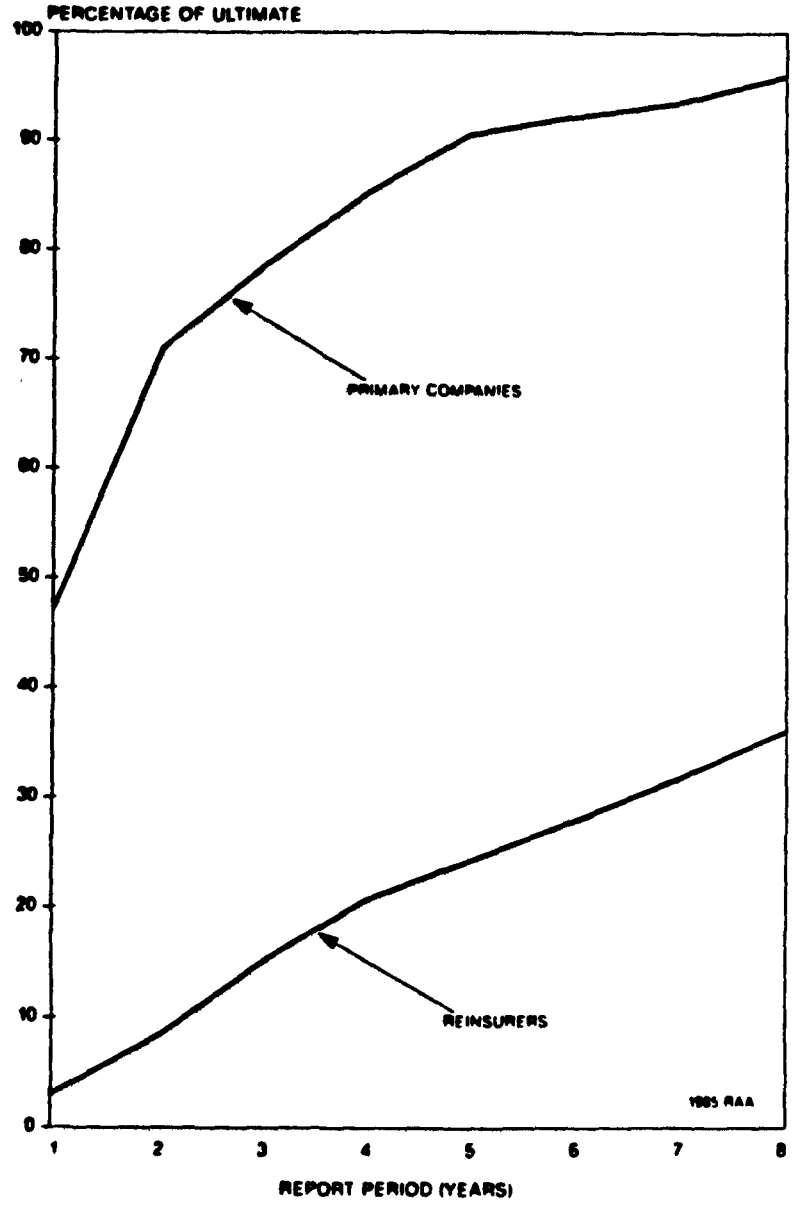


Primary Companies Data Source A M Best Company

Slide 8

Exhibit C-2

REINSURER VS. PRIMARY DEVELOPMENT PATTERNS
GENERAL LIABILITY INCLUDING ASBESTOS

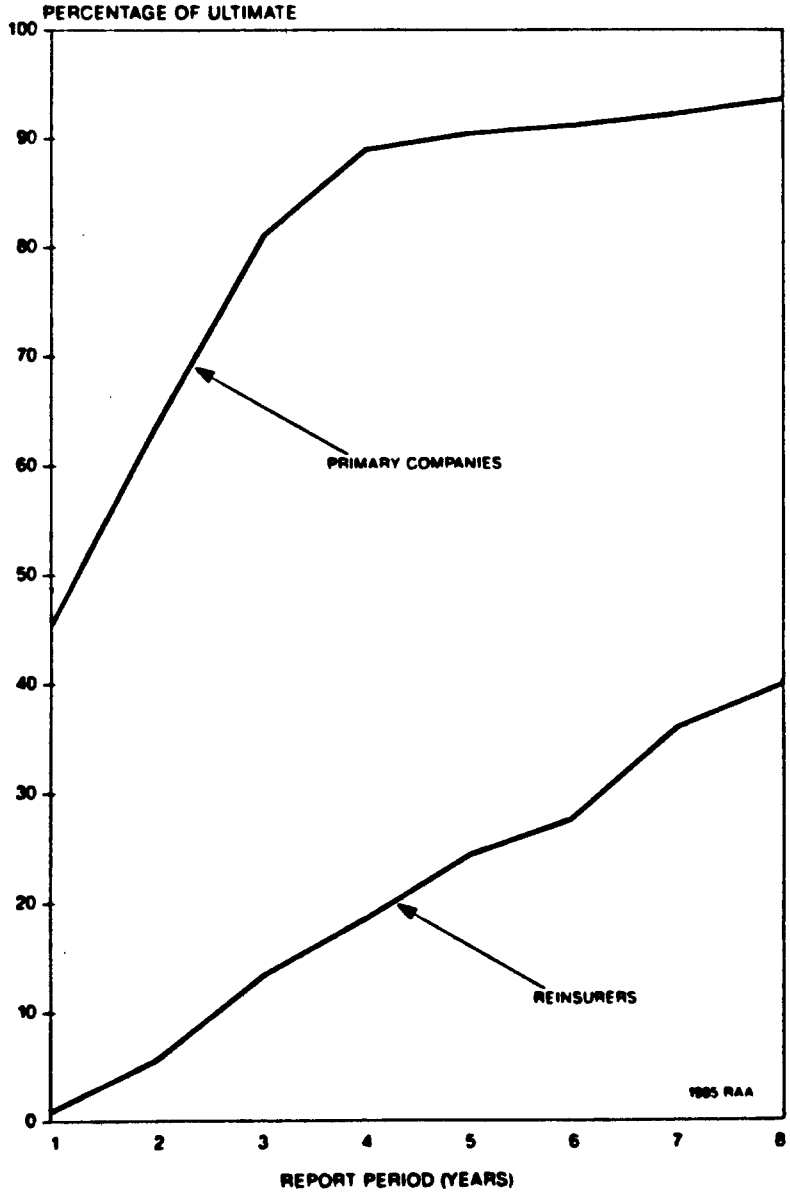


Primary Companies Data Source A M Best Company

Slide 9

Exhibit C-3

REINSURER VS PRIMARY DEVELOPMENT PATTERNS
MEDICAL MALPRACTICE

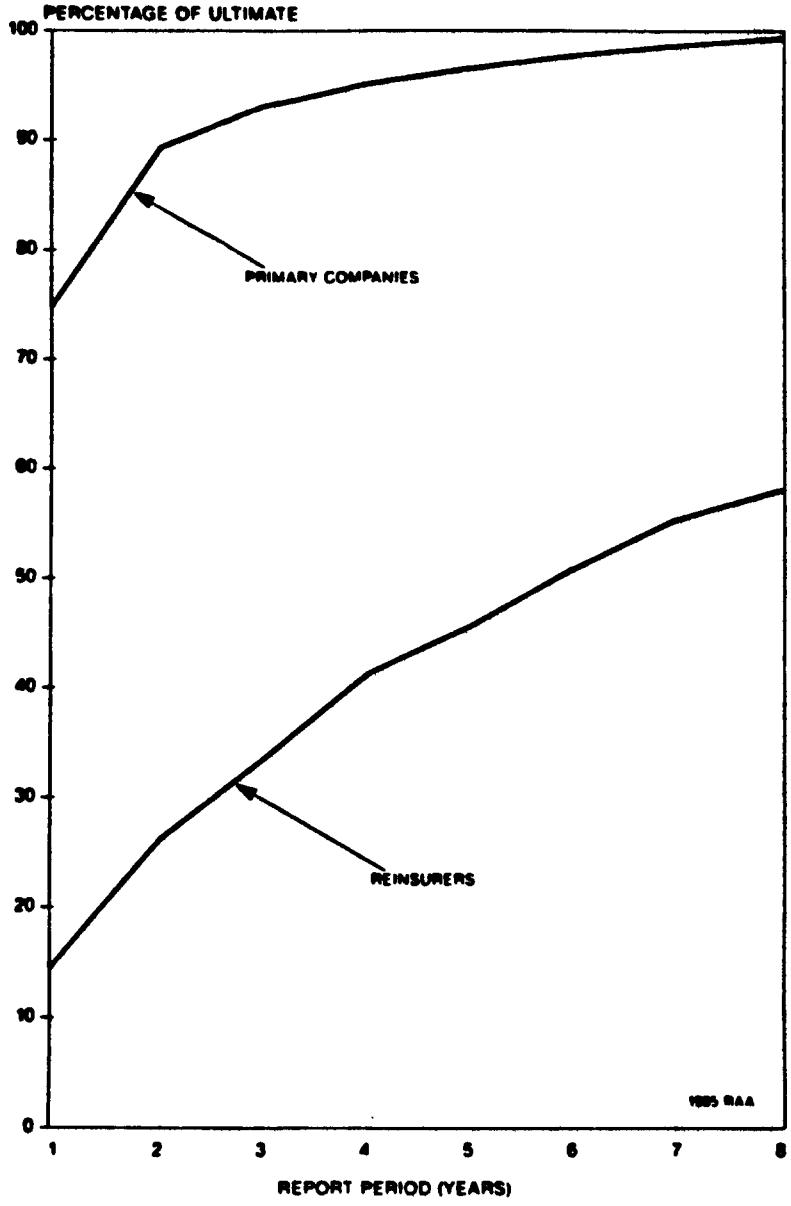


Primary Companies Data Source A M Best Company

Slide 10

Exhibit C-4

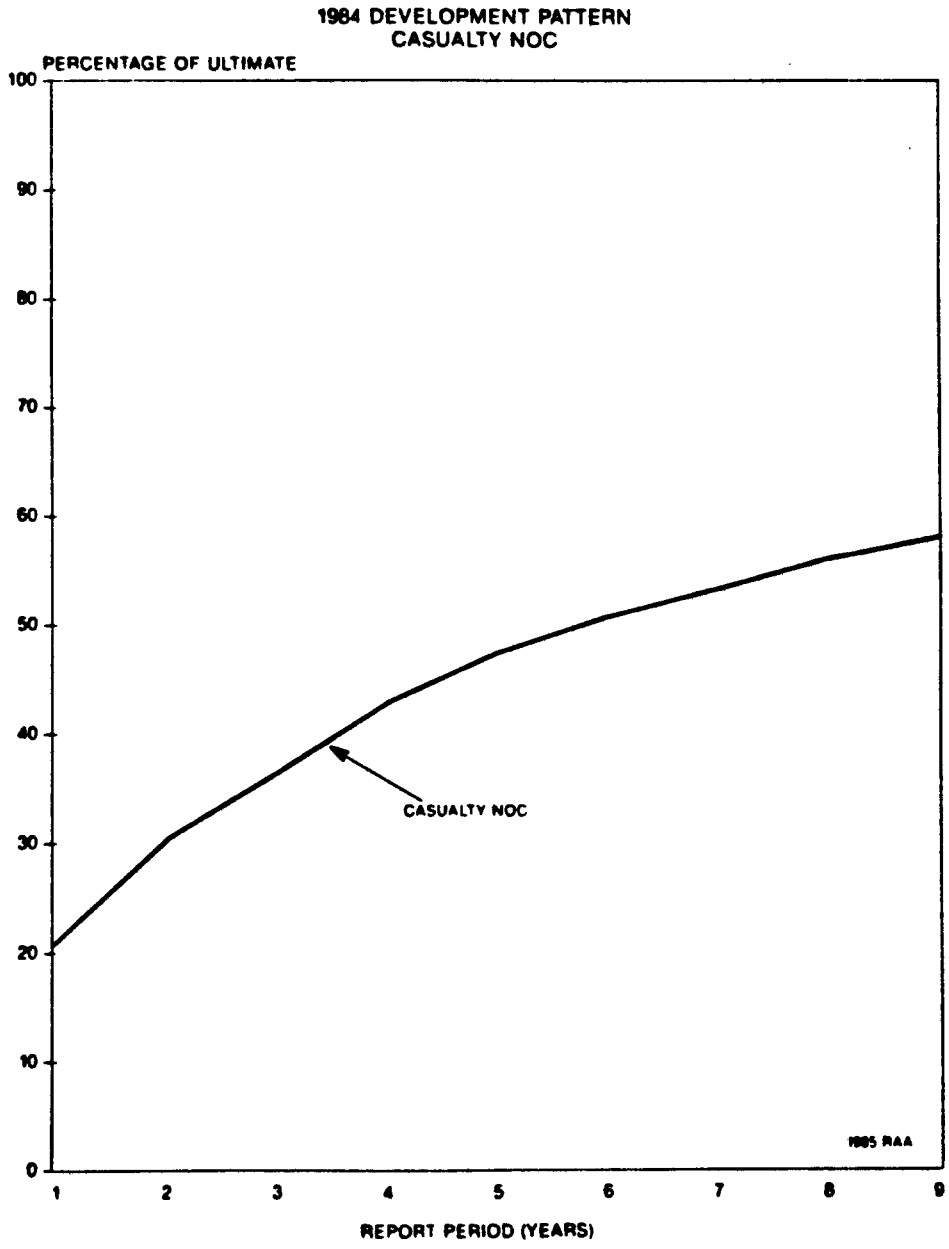
REINSURER VS. PRIMARY DEVELOPMENT PATTERNS
WORKERS' COMPENSATION



Primary Companies Data Source A M Best Company

Slide 11

Exhibit D

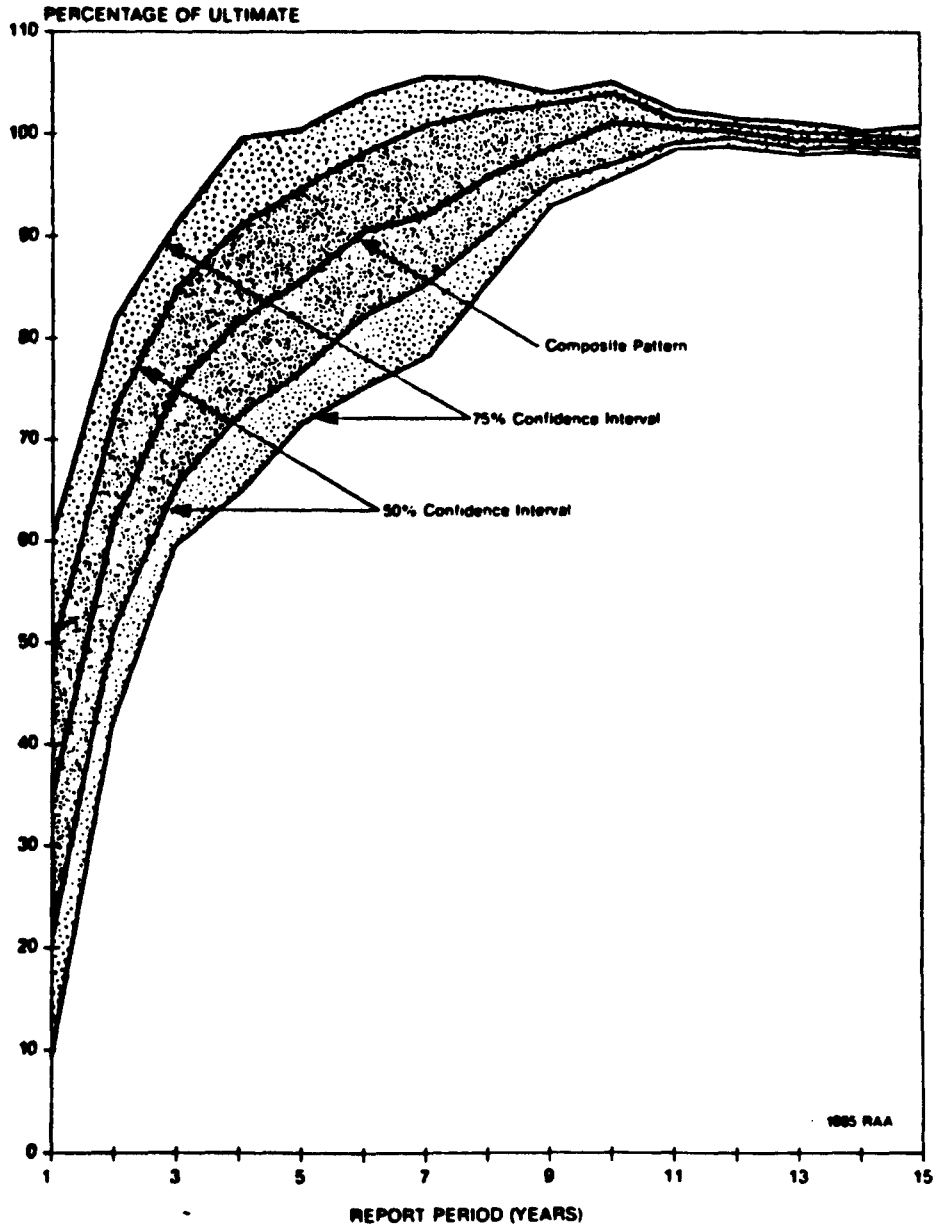


Slide 12

Exhibit E-1

COMPANY VARIATION
IN DEVELOPMENT PATTERNS

AUTOMOBILE LIABILITY

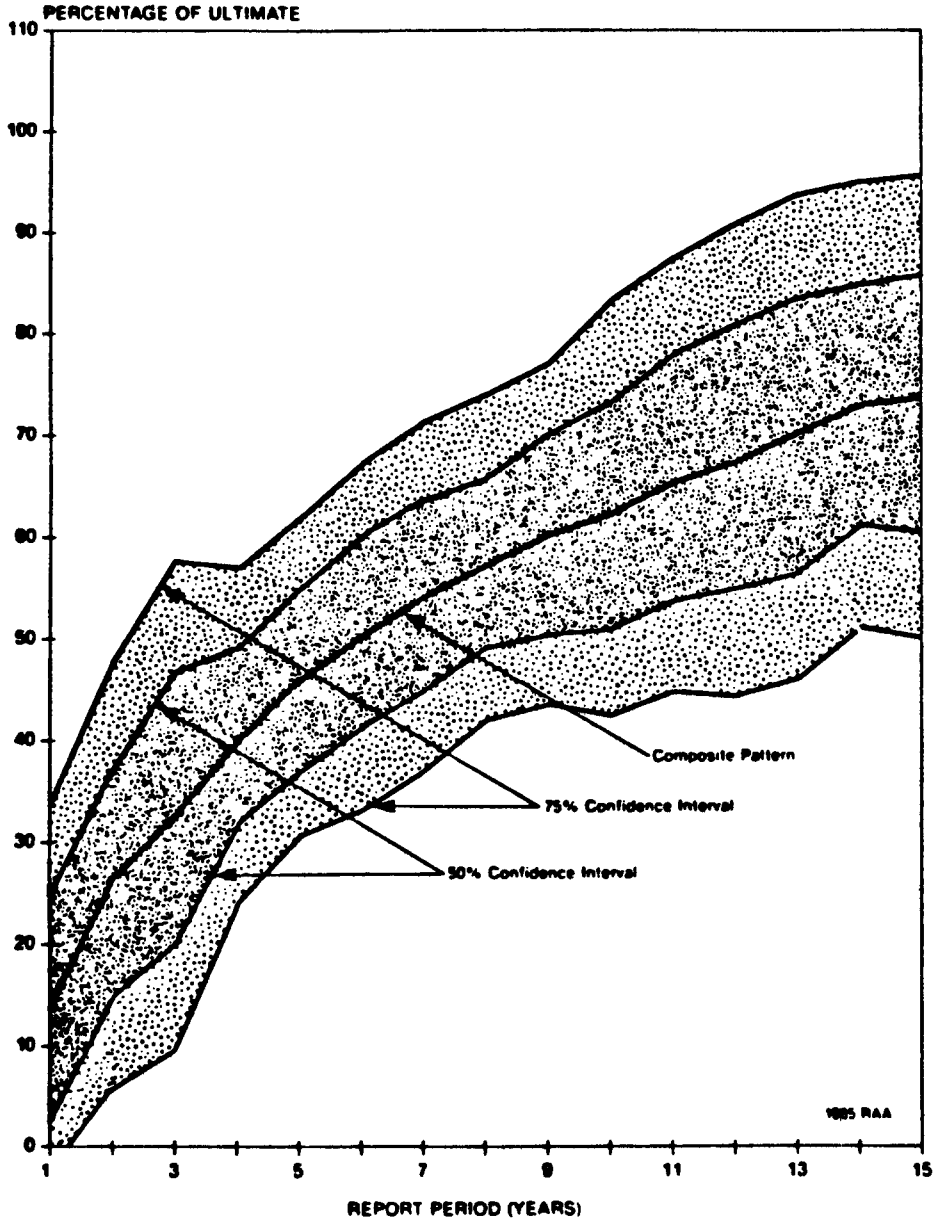


Slide 13

Exhibit E-2

COMPANY VARIATION
IN DEVELOPMENT PATTERNS

WORKERS' COMPENSATION

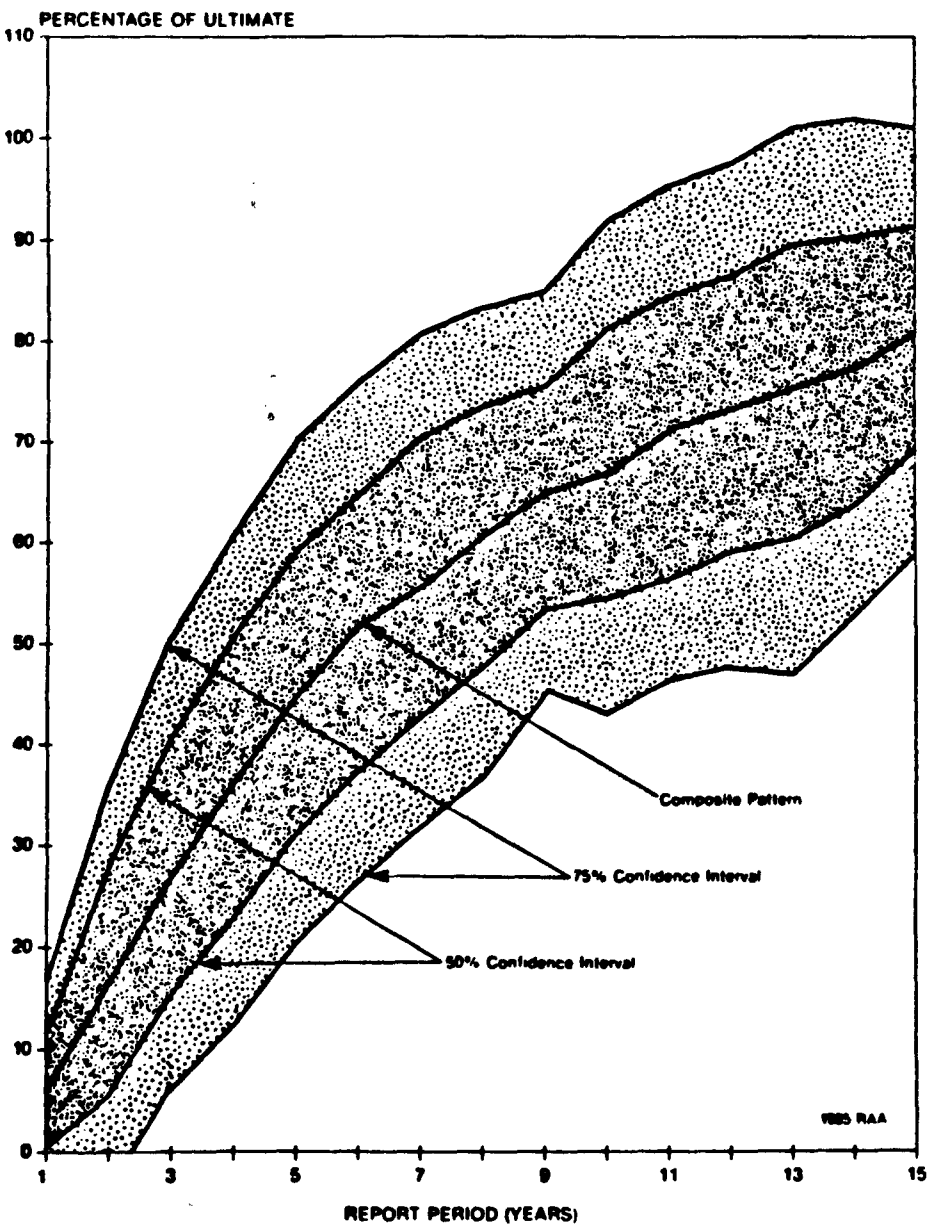


Slide 14

Exhibit E-3

COMPANY VARIATION
IN DEVELOPMENT PATTERNS

GENERAL LIABILITY—EXCLUDING ASBESTOS



CASUALTY LOSS RESERVE SEMINAR
SESSION 5F: REINSURANCE

Reserving Procedures for New or Small Reinsurers

Mary R. Hennessy, FCAS, MAAA

RESERVING PROCEDURES FOR NEW OR SMALL REINSURERS

Overview of Presentation

- Two cardinal principles
- Gathering qualitative information
- Quantitative analysis: DOs and DON'Ts

TWO CARDINAL PRINCIPLES

1. Know a few good techniques
2. Use common sense

FIRST PRINCIPLE:
KNOW A FEW GOOD TECHNIQUES

Be Cognizant of:

- Data limitations, e.g.
  - Non-homogeneous
  - Non-credible
  - Non-existent
- Limitations in methods
- "Long tail" and volatility
- External data available

SECOND PRINCIPLE: USE COMMON SENSE

Must Integrate:

- Macro and micro assessments
- "Qualitative" information with quantitative data

MACRO	vs.	MICRO
• Position in market		• Our own experience to date
• Experience in market		• Prior experience of business we are writing

Qualitative Information	Supports	Quantitative Analysis
• Type of business		• Expected premiums
• Sources of business		• Anticipated expenses
• Inherent profitability potential		• Projected loss ratio

GATHERING QUALITATIVE INFORMATION

1. Analyze type of business
2. Assess sources of business
3. Evaluate inherent profitability of business

1. ANALYZE TYPE OF BUSINESS

- Layer
- Ceding company characteristics
- Expected loss characteristics of products/lines
  - Geographic variations
  - Product variations (E&S vs. specialty vs. "pure vanilla")
- Impact of loss limiting items like
  - "Reunderwriting"
  - Aggregate deductibles

2. ASSESS SOURCES OF BUSINESS

- Ceding company track record
- MGA's
- Brokers

3. EVALUATE INHERENT PROFITABILITY OF BUSINESS

- External rate adequacy
- Special treaty/risk characteristics
- Expense considerations
- Other

QUANTITATIVE ANALYSIS: DOs AND DON'Ts

- Do question underwriters' and management's assumptions
- Do integrate qualitative assessments
- Don't treat the data lightly
- Don't use projection techniques blindly

"DON'T TREAT THE DATA LIGHTLY"

- Look for large treaties
- Separate unusual treaties
- Test the category definitions
- Test the treaty assignment process
- Test the triangle generation program

DON'T USE PROJECTION TECHNIQUES BLINDLY

- Large LDF's are dangerous
- Perform loss ratio tests
- Reasonableness test with industry results

EXAMPLE: "BLIND" USE OF PROJECTION TECHNIQUES

Underwriting Year	LDF Used to Project Losses	Implied Loss Ratio	Current "Hindsight" Loss Ratio Estimates
1979	3.32	107%	115%
1980	4.32	324%	300%
1981	5.84	226%	310%
1982	19.86	16%	400%+

Panel Session 6E

INTERACTION WITH THE CLAIM AND UNDERWRITING FUNCTIONS IN REINSURANCE RESERVING

Moderator: Alan Kaufman
Milliman & Robertson, Inc.

Panel: J. Robert Batterson, Vice President-Claims
Employers Reinsurance Company
Jerry A. Miccolis, Consulting Actuary
Tillinghast, Nelson & Warren, Inc.
James N. Stanard, Senior Vice President
F & G Re, Inc.

1985 Casualty Loss Reserve Seminar

Kansas City, Missouri

The beginning portions of this transcript were inaudible. The dialogue begins with the written transcripts of the last two speakers: J. Robert Batterson and Jerry Miccolis.

INTERACTION WITH THE CLAIMS AND UNDERWRITING FUNCTION IN REINSURANCE RESERVING

It is always dangerous to tell a story about the group you are talking with. However, here is a true story involving the relationship of underwriters, claims people and actuaries.

Once upon a time, there were two claim guys who decided to take a ride in a hot air balloon. The balloon was to be tied to the ground so it wouldn't travel too far. Unfortunately, the knot was tied by an underwriter and it came loose. The winds were high and the claims people took off on an adventurous journey. They eventually went into the clouds and had no idea where they were. Suddenly if by magic they came into a break in the clouds and were high overhead above a meadow with one person standing in the middle of the field. The first claim guy yells to the individual standing below, "Where are we?" The person on the ground looks up and yells back, "You're in a hot air balloon." The first claim guy turns to the second and says, "Damn. Wouldn't you know it. All the people in the world to ask a question of, we have to find an actuary." The second claim guy responds, "How do you know it's an actuary?" The first claim guy says, "It's obvious. What he told us is absolutely correct and absolutely worthless."

ment at Employers had only attorneys at the time it was created. Therefore, it is nature they would follow what they knew best, and that is a law firm configuration.

I think it is also important to contrast reinsurance companies such as Employers, General Re, American Re, which are professional reinsurers. The designation "professional reinsurer" means that we deal directly with the client companies and do not use brokers. The other group of reinsurers do use the brokers and usually will have only part of the business of any particular primary company. Normally, professional reinsurers will have the entire account. We feel this gives us an advantage, since we get personally acquainted with our account and have account responsibility with one claims attorney assigned to each account. When an account has a problem, there is only one reinsurer they need to get approval from or to visit with about the claim situation.

I have also been asked to discuss some of the service provided by reinsurers. Our company, along with most of the other professional reinsurers, provides the following:

- rehabilitation
- structured settlement
- attorney listing
- major case assistance

I have been asked to speak about a claims operation in a reinsurance company. I'm going to visit with you about what our claim department does and how and why we do it. I will contrast our operation with some other reinsurers and also contrast it with a primary claims operation. In addition, I will tell you something about the problems I see in handling reinsurance claims and the changes that have taken place over the years.

First, I would like to tell you something about the claims operation at Employers Reinsurance Corporation. We are located in Kansas City, Missouri. We have no claims attorneys outside of the Kansas City area. I would contrast that to some of the other reinsurers, such as American Re and General Re, which use a branch claims operation. At Employers Reinsurance, there is also a difference in the way we have designed our claims department. Our claims department has a design similar to that of a large metropolitan law firm. What I mean by that is in a large law firm they will have various divisions. They will have a division that specializes in income tax, one on estate planning, a municipal bond division, a litigation division, etc. Our divisions are designed to support the various underwriting departments. We have a division for workers' compensation, libel, facultative, etc. I would contrast this to some of the other reinsurers which I believe primarily use a geographical distribution to assign their claims. One of the reasons we have the design we do have is the fact that the claims depart-

Without spending a great deal of time on any one of these items, I will identify the rehabilitation and the major case assistance as two of the most important. In the area bodily injury and workers' compensation, the reinsurers have developed some very sophisticated approaches to assisting the disabled individual. We have lists of rehab hospitals, their speciality, names of physicians who specialize in rehabilitation, etc. We have a person assigned to rehabilitation who will go to the home or hospital of a disabled individual and working through the primary company, assists that individual to gain their highest degree of mobility.

Major case handling involves our claims attorneys, helping to assure we have the best trial counsel and have considered all aspects of settlement. Our claims attorneys will attend negotiations where requested and be in attendance at trials of the more serious cases.

Changes are taking place with the reinsurance industry. At one time, the claims departments of the all the reinsurers were little more than an accounting and social arm of the corporation. Visits to primary carriers were more social than technical. That has changed and all of the major reinsurers are now very much involved in the review and assistance in the handling of serious claims. Our claims attorneys now individually review the claim file and discuss in depth with the executives of the primary company. We are

involved from the time the claim is first reported to us until its eventual conclusion. There is one thing a reinsurer does not like and that is surprises. Every reinsured account we have is visited every six months to determine the status of existing files and to be sure potential files are reported to us.

We do work closely with our actuaries and on a periodic basis, we review with our actuaries the current status of the law. We feel this is important since the decisions of the court may affect the tail on some of our business. The reinterpretation of insurance policies by the court can have a profound effect on the IBNR. We also keep our actuaries involved as to our claims philosophy regarding reserving. If there is anything that I have been impressed with from our senior actuary, it is the fact that we should not change our reserving method without advising him. We attempt an immediate and early identification of all serious claims and attempt to avoid stairstep reserves.

In conclusion, the claims department of our company attempts to avoid surprises. For this reason, we make frequent calls on our accounts, keep in touch with them, and do the same with the personnel, including the actuaries, at our own company.

JRB/kl/0201

Moderator: Jim described a world that is different from some of the reinsurance worlds I've seen. Our last speaker will be Jerry Miccolas. Jerry is a Consulting Actuary at Tillinghast, Nelson and Warren, in their St. Louis Office. He is involved in a number of projects including reinsurers and specialty insurers captives and self insurers. Prior to joining Tillinghast, Jerry worked for a number of years at the Chubb Group, he has a bachelor of Science degree in Mathematics from Drexel University. He is a fellow of the Casualty Actuarial Society and a member of the American Academy of Actuaries. He serves on a number of actuarial committees including the one that organized this seminar. I think Jerry is soliciting work in Colorado and Hawaii because he indicates that his hobbies are body surfing and skiing.

1985 CASUALTY LOSS RESERVE SEMINAR

Interaction of the Claims, Underwriting & Actuarial Functions in Reinsurance Reserving

Edited Transcript: Jerry A. Miccolis

Thank you, Allan. When I learned that I would be the last speaker on this panel this morning, I thought, well maybe that's fitting. In my line of work I often find myself called upon to do my thing well after the underwriter and claims man have done theirs, have had to sift the truth out of what they have told me, have had to somehow reach some grand conclusion, and usually have been left very little time in which to do it. At least this morning I do find myself with some time.

These are difficult times for the insurance industry, and for reinsurance companies, times are particularly bad. Many reasons can be cited for the current financial condition of the reinsurance industry but on just about anyone's list you'll find "inadequate reserving". So I thought I would structure my talk today by trying to identify what the principal causes might be for inadequate reserving in a reinsurance company [Slide 1]. This is a partial list, arranged in no particular order. I am sure everyone in this room can add at least one item to this list. There is some overlap among several of the items on this list as we will see as we go through them in some detail. As we go through them, it should become obvious where better communication among the underwriter, claims man and loss reserve analyst (LRA) would have helped to avoid some of these problems.

Let's examine the first item on the list [Slide 2], the failure to understand the nature of the business being written. When I speak of failure to understand, I am speaking first of the LRA's failure. This is easy to avoid by simply sitting down with the underwriter, asking the right questions, and listening. The more difficult case is when the company management itself does not fully understand the nature of the business written. This is most often true when companies try to grow too quickly, in some cases giving their underwriting pen away completely to general agents and not having a firm grasp on the underlying business being underwritten. This is particularly true of the so-called "naive capacity" that entered the industry during the soft market over the last few years.

This failure to understand the true nature of the business can take many forms. An underwriter too intent on growth can find himself, thanks to some broker with a keen eye for these underwriting types, with all sorts of hidden exposure in his book: things like asbestosis (and there is no such thing as "a little asbestosis"), Dalkon Shield, and other long-latency diseases, etc. In some cases, the company can find itself with an entire book of business it never intended to write at all, i.e., "We thought we were fronting this business". (Meanwhile, the parties who structured the deal are now nowhere to be found.) In these cases you will probably find that the person with the best understanding of the in-force business may not be the underwriter but the claims man. Although his knowledge may come a little too late from management's point of view, it is often very timely from the perspective of the LRA. The simple point here is that the LRA cannot do an effective job of reserve evaluation without a good understanding of the true nature of the

business he is looking at and that both the underwriting and claims functions can provide essential input at this stage of his analysis.

A related issue to this is the case where the LRA is ignorant of the shift in the company's mix of business over the years [Slide 3]. Now the shifts in mix that are of concern to the LRA are those where there is a net movement of business out of a category with a certain development pattern and into a category with a distinctly different pattern. From this perspective we think of categories defined as property vs. casualty, short-tail vs. long-tail, treaty vs. facultative, direct vs. brokered, etc.

In general, there has been over the years a movement from short-tail to long-tail business and the long-tail business is getting longer. In fact the 1985 RAA loss development study (i.e., the study put out every other year by the Reinsurance Association of America), just released, shows this lengthening very dramatically. For example, in the GL line the study shows that based on data available through 1976, the percentage of ultimate loss dollars expected to be reported at five years after the beginning of a given accident year was estimated to be 75%. Based on data through 1980, the comparable percentage is 62%, and based on most recent data through 1984, the percentage drops to 46%.

This tail lengthening can be seen from a different perspective: the point at which 50% of ultimate loss dollars are expected to be reported. Based on data through 1976, this point is at roughly three years from the beginning of the accident year. Based on data through 1980, this "50% point" comes at 3-3/4 years. Based on data through 1984, this point is now at 5-1/2 years.

This GL data excludes identifiable asbestosis and malpractice losses. (Had they been included, the lengthening would have been even more severe.) Slowdowns appear for other lines as well, though not quite so dramatic as in GL.

The RAA study suggests several reasons for this slowdown in GL including the shift from contributory to comparative negligence, "social inflation", medical expense inflation, changing attachment points, and perhaps a shift within the GL line toward products and professional liability (other than malpractice) sublines.

All this leads to a crucial point. One of the first steps the LRA should take in his analysis is to segregate the business into categories with common expected development profiles. The place to start is with the underwriter. Together the LRA and the underwriter should take the business and slice it into appropriate segments. Care must be taken not to make too many slices or you will be left with nothing but crumbs. Clearly the overall size of the company will determine how many slices can be made so that each segment will have sufficient volume to provide credible indications. The very largest contracts should be extracted and analyzed individually; as much historical data as the underwriter can get you should be collected on these contracts. If complete loss development experience cannot be segmented in this way, then at least get premium data by year segmented. This should enable the LRA to identify any shifts in the mix by category and reflect this in his judgmental selections of anticipated development patterns.

Another cause [Slide 4] of inadequate reserving is overoptimism regarding

the anticipated profitability of the business. This is a particular problem when reserve evaluation techniques are used that are relatively insensitive to actual emerging loss experience and rely more heavily on independent estimates of ultimate loss ratios (we will talk about these in a moment). This overoptimism is often just plain wishful thinking on the part of the LRA or the underwriter on whose opinion he relies. This overoptimism is usually more pronounced the more recent the underwriting year. (It is the rare underwriter who will suggest that the business he wrote last week was written at a 200% loss ratio.)

Sometimes the overoptimism is due to a tendency to ignore large losses. Jim MacGinnitie, one of our managing principals, likes to refer to "But for" accounts. "But for that one large loss, this would have been a profitable treaty"; "but for that one problem treaty, this would have been a profitable category" - - - - - . ("But for that one bad year, this would be a solvent company.") Sometimes, the overoptimism is due to just being unfamiliar with the book of business. In some specific instances, if the LRA is independent of the company and is particularly well-traveled, he may be the better judge than the company underwriter of a particular treaty by virtue of having seen other portions of that same treaty elsewhere in his travels, being careful in these instances to avoid conflicts of interest and violations of client confidentiality.

The message here is that when the LRA sits down with the underwriter to discuss the book of business and its anticipated profitability, it would serve him well to bring with him a healthy dose of skepticism and to not be afraid

to call the underwriter's bluff on occasion to see whether his convictions run deep or whether perhaps he has fallen victim to wishful thinking or "but for" accounting.

[Slide 5] I mentioned earlier the use of reserve evaluation techniques that are insensitive to emerging loss experience. Chief among these techniques is the so-called loss ratio approach or as it is sometimes called, "dialing a loss ratio". In this technique, an ultimate loss ratio is selected for a given contract or category of business and the IBNR reserve is determined such that when it is added to the losses reported to date, you obtain that ultimate loss ratio. If reported losses to date already exceed the ultimate loss ratio, the IBNR reserve is often set at zero. In this method, ultimate losses are estimated without regard to any information contained in the actual losses as they have emerged to date. If the loss ratio was selected too low initially, this method contains no mechanism by which to refine it upwards as losses emerge.

This is not to say that ultimate losses should be estimated exclusively from reported losses without regard to other information either. A popular technique, the Bornhuetter-Ferguson technique, is often used in reinsurance reserve evaluation and provides a way to gradually modify your loss ratio selection as losses are reported. This method was described in an earlier session and we will not go into detail here. However, even this method can be insensitive to actual experience if, for example, industry development patterns are used without regard to the development patterns evidenced in the company's own data.

Speaking of industry data [Slide 6], there are several ways that this data can be misused leading to inadequate loss reserves. Probably the single most important source of loss development data for the reinsurance industry is the RAA study I mentioned earlier. This study shows accident year loss development history for a large cross-section of the reinsurance industry on a consolidated basis. Indications are shown separately for auto liability, general liability including and excluding identifiable asbestosis, medical malpractice, workers' compensation and casualty not otherwise classified. The study is used quite often in reinsurance reserve analysis.

The LRA should be careful to remember that the RAA study measures accident year development. If the company's data is organized in some other manner, e.g., by underwriting year, then adjustments need to be made to RAA patterns. Depending on the definition of underwriting year in a specific case and the distribution of writings throughout the year, the loss development on a given underwriting year may lag that of the accident year by 6 to 18 months on average. If these adjustments are not made, IBNR can be seriously understated. Also, the LRA should be careful not to use the RAA patterns blindly without considering the significant potential for variation in loss development within the RAA categories of business. For example, the GL category includes a mixture of products and premises/operations, a mixture of high and low attachment points, a mixture of states with varying legal climates, etc. If your book contains primarily high layer excess architects and engineers E & O for example, the RAA GL patterns will probably lead you to understate your IBNR if used without adjustment. Again, I cannot stress enough the importance of getting from your underwriter or elsewhere a good

grasp of the nature of the company's business.

Another cause of inadequate reserving is faulty company data [Slide 7]. One example of this is when the LRA receives loss development data that looks for all the world like a typical accident year loss development triangle, but unbeknownst to him, some loss transactions have been organized by account year, completely distorting the historical development picture. In at least one case I am aware of, the company's programmers thought they were doing their LRA a favor by producing historical loss development triangles using as a report date, not the date the loss was recorded by the company, but the date the loss was first reported to their broker. The first time these triangles were produced, everything looked fine and dandy; however, when they were updated six months later, the LRA was surprised to find that past history had been restated, since the programmers went and back-filled earlier report dates with late information they received from the brokers since the last run of the triangles. Had the original triangles been relied upon without adjustment, the IBNR estimates could have been seriously understated. The message here is that the LRA should discuss not only with the claims people, but also with the data processing people, the method by which the company codes loss data and displays loss development information.

[Slide 8] Let's talk about the effect of external influences on loss reserves and their potential to cause inadequate reserving. There was no way for a LRA to anticipate the current liabilities for such exposures as asbestosis and environmental impairment back when those exposures were written. Similarly, you cannot expect today's LRA to be able to anticipate

the next asbestosis. In the meantime, the courts are continuing to expand coverage definitions on all sorts of insurance contracts well beyond what was anticipated in the original contract provisions. The company has very little control over these types of influences. Often the claims staff will establish supplemental reserves for these types of exposures and these reserves should be temporarily removed from the data base for purposes of the reserve analysis.

Another sort of external influence is the financial condition of the carriers the company does business with. Companies with adequate loss reserves on a net basis and an apparently healthy statutory balance sheet are really only as healthy as their retrocessionaires. Uncertain reinsurance recoverables are a real problem in today's market. Letters of credit against these recoverables are not the safety net they once were. Insolvencies on the ceding company side are a problem also, as your company may see its coverage drop down to cover the ceding company's obligation. Reinsurance claims departments often perform audits of ceding companies and can sometimes identify those problems before they become surprises.

At the other end of the spectrum from these external influences are those instances in which the [Slide 9] company engages in what we might call intentional underreserving. Examples include cases where senior management might encourage conservative reserving in periods of sunshine and, when the rain starts to fall, ask the LRA to resolve any of his doubts on the optimistic side. After all, all reserve estimates are subject to a range of error, and if all values within that range are equally likely, what is wrong

with posting the lower end of that range in a year when the company's got enough problems. This does have the effect of smoothing earnings and may have its place in certain situations. Sometimes the intentional underreserving, from a statutory point of view, is due to loss reserve discounting, whether implicit or explicit. Sometimes it is due to pressure from the outside, i.e., the pressure to show healthy financials is always present; the pressure on prices during a soft market translates into a similar pressure on reserves if surplus is not to be impaired.

This points up the need for the LRA to spend some time with the company's financial people to identify the extent to which these pressures have had an influence on the company's reserves. Of course, outright fraud on the part of company management can be a cause of under-reserving and this is usually difficult to uncover until it's well too late.

[Slide 10] We have talked all this time about loss reserves. One of the things that distinguishes a reinsurance operation from that of a primary company is the fact that premiums are also subject to material reporting delays. At any given point in time, the company will have earned but unreported premium or EBNB (earned but not booked). Just how this amount is treated (e.g., whether or not it is treated as an asset) is determined by the overall accounting treatment of the company, which we will discuss in a moment.

No matter what the accounting treatment, it is usually necessary, for purposes of assisting in loss reserve estimation, to project premium to an

ultimate reported basis. The methods available to do this are similar to those used to project ultimate losses, and the considerations we talked about earlier in relation to losses, e.g., segregating the business into homogeneous categories, identifying shifts in the mix of business, etc. apply to premiums as well. In addition, the underwriters often have their own estimates of ultimate premium per contract and these can be aggregated and compared to the LRA's ultimate projections.

In a typical situation, losses by underwriting year are projected to ultimate as are premiums and the resulting ultimate loss ratios are examined for reasonableness or adjusted by the Bornhuetter-Ferguson or some other technique. How much of these ultimate amounts are booked on a given accounting date depends on the accounting treatment. Under one method, the ultimate loss ratio is applied to the booked earned premium only and this amount is used as the estimate of ultimate losses from which loss reserves are determined. At the other extreme, another accounting method uses the entire ultimate loss estimate to determine loss reserves which are then offset by the premiums yet to be reported without regard to whether these late-reported premiums are already earned or unearned. An intermediate accounting treatment is similar to the first, except that EBNB premiums are added to booked earned premium before the ultimate loss ratio is applied.

If the business is priced to a 100% combined ratio, the choice of accounting treatment will have no impact on surplus. In times of rate inadequacy, however, the choice can have substantial impact. With business priced at a 150% combined ratio for example, the accounting treatments that

call for current booking of unreported premium will adversely affect surplus, since for every extra dollar of premium booked, surplus is impaired 50¢. This is another situation in which a discussion between the LRA and the company's financial people, and perhaps their outside auditors as well, will help the LRA to interpret the adequacy of carried reserves, since clearly this cannot be done without knowledge of the prevailing accounting treatment.

One last point on premium development. Swing-rated or retro-rated contracts ought to be separately identified since future loss development on these contracts influences future premium development.

[Slide 11] I would like to try to summarize. Before and during his analysis, the LRA should try to obtain from the underwriters information regarding the nature of the business, categorization of the business, possible shifts in the mix of business, any special contract provisions, pricing strategy and anticipated profitability of the business, ultimate premium estimates, and details on the company's retrocessional program. From the claims department, he should try to obtain information on the nature of the business, any changes in reserving philosophy (reinsurance claims staffs are generally so small that the gain and/or loss of one person can have a material effect on actual claims practice), any minimum reserves or supplemental case reserves established, audits of ceding companies and the details of claim coding. Other people the LRA will want to talk with are the data processing people for information on premium and loss processing and the means by which development history is presented, and the financial people for information on any of those internal pressures on reserves, the company's accounting

treatment, any portfolio transfers or other financial reinsurance transactions and to gain some insight into the investment portfolio in the event that reserve discounting is an issue.

As I mentioned before, the LRA should bring a healthy dose of good scientific skepticism to these discussions (particularly with underwriting and claims) but also some humility as well, as these people can provide invaluable assistance in his evaluation of loss reserves.

Thank you.

Moderator: Thank you Jerry, we have time for question if you would like to ask a question come up to the microphone and identify yourself. The session is being recorded.

Heidi Hutter: I think all three panelist alluded to the time lag in the reporting of claims and identifed that there is a problem in reserving, but Mr. Batterson you singled it out as being the most important problem so my question to you is what, if anything, can a reinsurer do to try to speed up the reporting of claims and develop better information for the whole reserving process, case reserving and IBNR.

Bob Batterson: Well we say a big change and in a couple of our lines we put in penalties. What we were finding is that when we went into the primary company and we talked to the claims department they would always assure us that we would get proper reporting, we got to the next level in management saying well in that case you wouldn't mind if we had a penalty if you didn't report properly and we even had a couple of accounts, the Senior Managment said you know that is a pretty good idea, because we'd like to make sure they would report properly.

That made as big a change as any thing I had ever saw. We had in one particular area our business of, we put that in all the time and we now get calls when they are inpairing or coming close to the retention.

We also send out a letter every year--all of the reinsurers do, and this has been true since I started 18 years ago.

The letter basically says, "do not pay any attention to liability, forget the liability, pay attention to these factors alone; injury and limits, if you got the injury and if you have the limit you report the case.

Question: Bob, I've heard that it is very important to have the claims department involved early on and with people that are used to dealing with large claims. Your company and number of the others do get people that they are familar with large claims and they get very involved with active claims management.

Is there any data that you could point to such as say average Cook County settlements on all cases verses the ones where yu have this type of act of claims managment? Is there any actual data as to the savings that accrue from this type of ....,

Bob Batterson: As far as I know there is not. At the RAA meeting which all the major reinsurers are members of I'm sure we'd like to have it to justify our existence, but its the kind of thing I don't know that any of us have a handle on. I mentioned rehabilitation, some of us keep data on rehabilitation. I've always been very suspicious of it because what you do it seems to me put a large reserve on file put a rehabilitation on it and eventually if it goes away or comes down lower you show the bottom line difference which I'm suspicious of.

It takes me in treaty side, in particular, probably a year to hire a claims attorney. I could look at the technical aspects and tell whether they have the technical ability. You're also looking for the person who could deal at a management level with primary claims executives.

Are there any other questions, Yes.

Paul: Jerry, in your comments on premium development you mentioned that companies use varing accounting treatments for handling reporting lags in premium. Is there any movement underway to produce a uniform accounting treatment?

Jerry Miccolis Not that I'm aware of. The treatment that seems to be most prevalent in the U.S. is the first one that I mentioned where actually the least amount of premium development is reflected. In the UK the opposite situation seems to prevail, where all the premium and all the losses are developed to ultimate. Allan has spent some time in a public accounting firm and may have some other observations on this.

Allan Kaufman: I think that Jerry's discription is accurate and I don't know of any standard that's in the course of being promolgated. It's an area where the diversity matters a lot and it mattered a lot particularly in the adverse part of the cycle that we've just been through. It may be easier for companies to do it in the other fashions, we recognize more premium as the relationship between premium and losses turn into a normal relationship.

Jerry Miccolis: I think whatever treatment is used the key is to provide full disclosure.

Heidi Hutter: I have a question for Jim. I was very intrigued by the market adjustment factors that you cited in that one procedure and I was just wondering, it struck me as a funny thing to go to an underwriter and say well adequate were your rates that you were charging and it really...., Jerry's point, which underwriter is going to admit that he's writing at a 200% loss ratio. So I was wondering if you would comment on the effectiveness of that, whether it was ever looked at to see whether those market adjustment factors themselves were doing what you had hope they would do.

Jim Stanard: Thats a good point. The factors were very subjective and they were..., they weren't surpose to represent whether you were underwriting at 100% or 200%, it was relative to last year. So you weren't taking a loss ratio based on them. It was just relative to last year and was the primary premium which is the subject base that you were using for your reserve setting, was that more or less accurate. There was no testing done on them and it was a very subjective and a reserve answer was quite sensitive to them.

In the beginning, they began to be used about 1980, and as the market got softer and softer it produced the factor was given honestly, produced much higher reserve levels, which was what they were surpose to do and after a couple of years of this, The underwriters figured out the effective factors, I think that they were still honest about them but atleast they thought about it more carefully before they supplied them.

CASUALTY LOSS RESERVE SEMINAR

SEPTEMBER 19-20, 1985

SESSION 6E: INTERACTION OF CLAIMS, UNDERWRITING AND ACTUARIAL FUNCTIONS IN REINSURANCE RESERVING

JERRY A. MICCOLIS, FCAS, MAAA

TILLINGHAST, NELSON & WARREN

INTERACTION OF CLAIMS, UNDERWRITING AND ACTUARIAL FUNCTIONS IN REINSURANCE RESERVING

PRINCIPAL CAUSES OF INADEQUATE RESERVING IN A REINSURANCE COMPANY (A PARTIAL LIST)

- FAILURE TO UNDERSTAND THE NATURE OF THE BUSINESS
- FAILURE TO RECOGNIZE SHIFTS IN MIX OF BUSINESS
- OVEROPTIMISM REGARDING PROFITABILITY OF THE BUSINESS
- USE OF RESERVING TECHNIQUES THAT ARE INSENSITIVE TO EMERGING EXPERIENCE
- MISUSE OF INDUSTRY DATA
- FAULTY DATA
- EXTERNAL INFLUENCES
- "INTENTIONAL" UNDERRESERVING

INTERACTION OF CLAIMS, UNDERWRITING AND ACTUARIAL FUNCTIONS IN REINSURANCE RESERVING

FAILURE TO UNDERSTAND NATURE OF BUSINESS

- OVERAMBITIOUS GROWTH
- NAIVE CAPACITY
- HIDDEN EXPOSURES
- "WE THOUGHT WE WERE FRONTING"

INTERACTION OF CLAIMS, UNDERWRITING AND ACTUARIAL FUNCTIONS IN REINSURANCE RESERVING

FAILURE TO RECOGNIZE SHIFTS IN MIX OF BUSINESS

- SHORT-TAIL ---------- LONG-TAIL
- TREATY ---------- FACULTATIVE
- DIRECT ---------- BROKERED
- WORKING COVER ---------- HIGH-LAYER
- PRO-RATA ---------- EXCESS

INTERACTION OF CLAIMS, UNDERWRITING AND ACTUARIAL FUNCTIONS IN REINSURANCE RESERVING

OVEROPTIMISM REGARDING PROFITABILITY

- WISHFUL THINKING
- "BUT FOR" ACCOUNTS
- UNFAMILIARITY WITH BOOK

INTERACTION OF CLAIMS, UNDERWRITING AND ACTUARIAL FUNCTIONS IN REINSURANCE RESERVING

INSENSITIVE RESERVING TECHNIQUES

- "DIALING A LOSS RATIO"
- INDUSTRY DEVELOPMENT PATTERNS
- INDUSTRY LOSS RATIOS

INTERACTION OF CLAIMS, UNDERWRITING AND ACTUARIAL FUNCTIONS IN REINSURANCE RESERVING

MISUSE OF INDUSTRY DATA

- RAA
- ACCIDENT YEAR VS. UNDERWRITING YEAR, ETC.
- DIFFERENCES WITHIN CATEGORIES OF BUSINESS

INTERACTION OF CLAIMS, UNDERWRITING AND ACTUARIAL FUNCTIONS IN REINSURANCE RESERVING

FAULTY DATA

- ACCOUNT YEAR MASQUERADING AS ACCIDENT YEAR, ETC.

- CLAIM CODING PROBLEMS

- RESTATED HISTORY

INTERACTION OF CLAIMS, UNDERWRITING AND ACTUARIAL FUNCTIONS IN REINSURANCE RESERVING

EXTERNAL INFLUENCES

- ASBESTOSIS, EIL, ETC.
- SOCIAL INFLATION
- SOLIDITY OF CEDING COMPANIES
- SOLIDITY OF RETROCESSIONAIRES

INTERACTION OF CLAIMS, UNDERWRITING AND ACTUARIAL FUNCTIONS IN REINSURANCE RESERVING

"INTENTIONAL" UNDERRESERVING

- SMOOTHING OF EARNINGS
- IMPLICIT OR EXPLICIT DISCOUNTING
- EXTERNAL PRESSURE
- FRAUD

INTERACTION OF CLAIMS, UNDERWRITING AND ACTUARIAL FUNCTIONS IN REINSURANCE RESERVING

PREMIUM DEVELOPMENT

- EARNED BUT UNREPORTED
- REPORTED BUT UNEARNED
- IMPACT OF ACCOUNTING TREATMENT
- SIMILAR CONSIDERATIONS AS FOR LOSS DEVELOPMENT
- SWING RATED CONTRACTS

INTERACTION OF CLAIMS, UNDERWRITING AND ACTUARIAL FUNCTIONS IN REINSURANCE RESERVING

SUMMARY

UNDERWRITING

- NATURE OF BUSINESS
- SHIFTS IN MIX
- SPECIAL CONTRACT PROVISIONS
- PRICING/PROFITABILITY
- ULTIMATE PREMIUMS
- RETROCESSIONAL PROGRAM

CLAIMS

- NATURE OF BUSINESS
- CHANGES IN RESERVING PHILOSOPHY
- MINIMUM RESERVES
- SUPPLEMENTAL CASE RESERVES
- CEDING COMPANY AUDITS
- CLAIM CODING

OTHER

- DATA PROCESSING
- FINANCIAL

The following is a presentation given by Mr. Theodore J. Zubulake at the 1984 Casualty Loss Reserve Seminar.

Significant segments of Mr. Zubulake's paper were inadvertently omitted from the 1984 transcript.

UNALLOCATED LOSS ADJUSTMENT EXPENSE RESERVES

By

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Introduction

The purpose of this presentation is to provide an understanding of the basic techniques and considerations in establishing reserves for those claim related expenses that are classified as Unallocated Loss Adjustment Expenses (ULE). Standard ULE reserving methods are discussed, and examples illustrating the workings of the various approaches are presented.

BACKGROUND

Unallocated Loss Adjustment Expenses (ULE) are those claim settlement costs that either can not or for practical reasons are not directly allocated by individual claim. For example, claim department salaries, travel, postage, rent, and equipment would be classified as ULE because under typical insurance company record keeping systems, these costs would not be associated with individual claims. On the other hand attorney fees, independent adjuster fees, doctor fees, court costs, and police report costs are classified as Allocated Loss Expense (ALE) because these costs are typically assigned to specific claims.

Our goal in establishing ULE reserves, for the purposes of this seminar, is to estimate the amount of ULE that is yet to be paid on claims that are either pending or claims that have been incurred but not yet reported (IBNR). To do this, ULE must somehow be associated to individual claims or at least category of claim (i.e. open or closed). Of course, by definition, accurate allocation is not possible - and this is the major obstacle in establishing accurate reserves for ULE, and the major difference between reserving for ULE and reserving for ALE.

To overcome this problem, and to establish reasonable ULE reserves, an attempt must be made to allocate ULE. The more accurate this "allocation", the more accurate will be the ULE reserves.

"Brian Method"

Theoretically, through very sophisticated record keeping systems, it is possible to allocate to individual claims or category of claim (i.e. open/closed, by coverage, by age, by size, etc.) what today is typically considered to be ULE. For example the salaries of company field examiners could be allocated to individual claim by having the examiners keep track of their time spent on each claim. Telephone expenses could be similarly allocated. Corporate office salaries, rent, and equipment would be more difficult to allocate, but sophisticated methods could be devised to, as accurately as possible, allocate ULE to claim. From these allocations accurate ULE reserves can be established.

While this approach may lead to the most accurate means of reserving for ULE, extensive work and expense would be required. For this reason very few companies, if any, go this far to reserve for ULE.

One method that is along these lines but does not go quite as far was set forth by R. E. Brian.

Under the "Brian Method", calendar year ULE payments are broken down by type of loss transaction: single payments, new claims, re-openings, closings, and pending claims. An average ULE payment per loss transaction is determined. This figure, adjusted for inflation, is then applied to an estimate of the loss transactions still to take place on all pending or IBNR claims to arrive at a ULE reserve estimate.

For example, if the average ULE paid per calendar month is $10,000, and there are 1,000 loss transactions per month, then the average ULE per loss transaction is $10. If 120 single payment loss transactions are projected to occur in 1984 and beyond relating to 1983 and prior accidents, then the single payment transaction portion of the ULE reserve is 120 x $10 = $1,200. This procedure would be followed for the other loss transactions to arrive at the total ULE reserve.

This method can be modified to vary the cost per transaction by type of transaction.

Unfortunately, this method also requires a great deal of work, and a sophisticated record keeping system; and, again, for this reason is probably not used by many companies.

Allocation of ULE Payments to Line of Business

Given that the most accurate methods of estimating ULE reserves are practically not feasible for most companies, how then are reasonable ULE reserves established? Well, the starting point for many of the methods commonly used by companies is an allocation of ULE payments by line of business - which, of course, is required for Annual Statement reporting purposes.

The allocation techniques used by companies vary from company to company and depend upon management's views on how ULE is incurred by claim, and the level of accuracy required given expense considerations.

Possible bases for allocating paid ULE by line of business include:

- # claims incurred during the year - assumes that ULE payments are made only on newly opened claims (or that any open claim that was closed during the year is replaced by a newly opened claim); and that the amount of ULE payments made on a newly opened claim is the same irrespective of type and size of claim.

- # claims opened during the year plus # claims closed during the year - assumes that ULE payments are made only when a claim is first opened, and when a claim is closed; and that the amount of ULE paid when a claim is opened is the same as the amount of ULE paid when a claim is closed; and that the amount of ULE paid on a newly opened or recently closed claim is the same irrespective of type of claim.

- # of days claims remained open during the year - assumes that ULE payments are made ratably over the life of a claim; and that the amount of ULE paid on a claim is the same irrespective of type of claim.

- amount of loss payments made during the year - assumes that ULE payments are made only in proportion to the loss payments that are made on a claim.

In all likelihood, because of the limitations of each of these approaches, companies probably use combinations of these or other methods. For example, adjustments could be made to recognize that everything else being equal it is more difficult to settle a liability claim than a property claim. It is also quite possible to vary the method used by category of ULE expense. Once again, the more accurate the allocation, the more accurate will be the ULE reserves.

Once a company has decided on the allocation of ULE payments by line of business, then other methods of estimating ULE reserves can be applied.

Fixed ULE Distribution By Accident Year

One of the less sophisticated of such methods of ULE reserve estimation is to make some assumption about the distribution of ULE calendar year payments by accident year, assume this distribution to remain stable, and then project unpaid ULE based on this accident year distribution.

For example, Schedule P currently instructs us to allocate calendar year ULE payments by accident year as follows:

- 45% to the most recent year
- 5% to the next most recent year
- the balance to all years based on the proportion

of each accident year's loss payments made during the most recent calendar year

Let's suppose that following this allocation procedure results in the following distribution of calendar year 1983 ULE payments by accident year:

Accident Year	% ULE Paid
1983	60%
1982	20
1981	10
1980	5
1979	3
1978	2

If we assume this pattern is stable, we can then say that the % unpaid ULE by accident year is as follows:

Accident Year	% ULE Unpaid
1983	40%
1982	20
1981	10
1980	5
1979	2
1978	0

So, the ULE reserve for accident year 1983 is 40% of an average year's ULE payments; for 1982 it is 20%; for 1981 it is 10%, etc. If we select an average calendar year's ULE payments to be $35 million, then the ULE reserves would be as follows:

Accident Year	ULE Reserves
1983	40% x $35 million = $14.00 million
1982	20% x " " = 7.00 "
1981	10% x " " = 3.50 "
1980	5% x " " = 1.75 "
1979	2% x " " = 0.70 "
1978	0% x " " = 0.00
Total ULE Reserve	$26.95 million

Some limitations of this method are that it does not recognize the changing volume of writings (e.g. a sharp increase in the size of the book will cause the distribution of loss payments, and hence ULE payments, to change), changing patterns of loss payments (e.g. a speed up of claim settlement will cause the distribution of loss payments, and hence ULE payments to change), and inflation of loss expense costs (to the extent it is different than the inflation on loss costs). The method could be modified to overcome, at least to some extent, these problems by making year by year projections of both the amount of ULE to be paid, and the distribution of loss and ULE payments by accident year. But these projections are difficult to make unless other

assumptions are made. Generally this method would only be used for any line or coverage for which a degree of stability is expected.

Paid-to-Paid Method

Two assumptions about how ULE is incurred that are commonly made by companies and which also underly the Schedule P instructions for allocating ULE payments by accident year are that

- 50% of the ULE on a claim is paid when the claim is reported, and the remaining 50% is paid in direct proportion to loss payments as loss payments on the claim are made. If there are no partial payments, then the remaining 50% is paid when the claim is closed.

- the ratio of calendar year ULE payments to calendar year loss payments is stable.

These assumptions lead to the most common method of estimating ULE reserve:

- Distribute calendar year ULE payments by accident year according to the Schedule P instructions (previously stated). Note, this allocation of ULE payments assumes that 5% of the calendar year ULE payments are attributed to late reported claims from the prior accident year - the 5% allocation to the next most recent accident year. This

leaves us with 50% (45% + 5%) of ULE allocated to the year when the losses were first reported, and the remaining 50% allocated to when the loss payments are made.

- apply 50% of the assumed ratio of calendar year ULE payments to calendar year loss payments to the loss reserve for reported claims, and add to this 100% of the assumed ratio of calendar year ULE payments to calendar year loss payments applied to the loss reserve for IBNR claims.

The following exhibits illustrate this method.

ABC INSURANCE COMPANY

Auto Liability

Loss Payments

($000's)

Accident Year	Calendar Year 1978	1979	1980	1981	1982	1983
1971						
1972						
1973	300	50	0			
1974	1,000	400	100	20		
1975	5,000	1,700	700	300	100	
1976	13,000	6,200	3,800	1,700	900	300
1977	39,000	17,700	9,700	5,400	2,900	1,100
1978	45,200	45,800	18,800	10,200	5,100	3,100
1979		54,900	53,100	25,900	12,600	6,700
1980			61,900	64,000	24,500	14,900
1981				74,800	71,000	33,100
1982					72,400	70,000
1983						65,800
	$103,500	$126,750	$148,100	$182,320	$189,500	$195,000

ABC INSURANCE COMPANY

Auto Liability

ULE Payments

($000's)

Accident Year	Calendar Year 1978	1979	1980	1981	1982	1983
1971						
1972						
1973	30	5				
1974	75	80	1	1		
1975	300	100	60	20	10	
1976	950	500	300	100	70	30
1977	3,000	1,300	800	400	200	100
1978	10,000	4,400	1,500	700	400	270
1979		12,800	5,700	2,000	1,000	570
1980			16,300	6,000	2,000	1,300
1981				17,200	7,300	2,800
1982					20,000	7,300
1983						20,600
	$14,355	$19,185	$24,661	$26,421	$30,980	$32,970

ABC INSURANCE COMPANY

Auto Liability

Ratio of Paid ULE to Paid Loss

($000's)

Calendar Year	Paid ULE	Paid Loss	Paid ULE ÷ Paid Loss
1978	$14,355	$103,500	.139
1979	19,185	126,750	.151
1980	24,661	148,100	.167
1981	26,421	182,320	.145
1982	30,980	189,500	.163
1983	32,970	195,000	.169
Average			.156

ABC INSURANCE COMPANY

Auto Liability

Indicated ULE Reserve

($000's)

Accident Year	Loss Reserves: Reported Claims	Loss Reserves: IBNR Claims	Selected Ratio of ULE to Loss	Projected ULE Reserve: Reported[1]	Projected ULE Reserve: IBNR[2]	Projected ULE Reserve: Total[3]
1976	$ 1,220	$ 0	.156	$ 95	0	95
1977	3,908	0	.156	305	0	305
1978	5,510	3	.156	430	0	430
1979	14,964	322	.156	1,167	50	1,217
1980	25,187	663	.156	1,965	103	2,068
1981	54,447	1,813	.156	4,247	283	4,530
1982	93,087	4,741	.156	7,261	740	8,001
1983	139,168	29,545	.156	10,855	4,609	15,464
						$32,110

1. .156 x Loss Reserves x 50%
2. .156 x Loss Reserves

Assuming the 50%-50% assumption is accurate, this traditional paid to paid approach in setting ULE reserves should yield a reasonably accurate reserve under the condition of a stable book of business. If the book of business is not stable, this method may yield excessive or inadequate reserves. For example, in times of rapid growth and low inflation, this approach has been shown to overstate reserves - and use of a ratio of paid ULE to ½ (paid + incurred loss) would yield a more accurate reserve. Adjustments to better reflect inflation and size of book changes are discussed in papers by John Kittel and Richard Bill.

The 50%-50% assumption is itself questionable. Although papers that have explored this assumption indicate that the 50%-50% assumption is not unreasonable, one would think that this assumption does not hold for all types of claims, i.e. large vs. small, fast closing vs. long tail, liability vs. property, and single payment vs. multi payment. And depending upon how a company defines an IBNR claim, it may not be valid to assume that no ULE expense has been incurred on an IBNR claim. This would be the case if some of the IBNR claims have already been reported to the company and simply have not been recorded. Companies must therefore determine for themselves, perhaps through studies, the appropriateness of the 50%-50% assumption; and if deemed inappropriate, to come up with a more appropriate assumption. For example, the estimated ULE reserve determined after application of the selected ULE to loss ratio, to the loss reserves can be further adjusted by a factor that better reflects the portion of the ULE that is yet unpaid. And this factor can

vary by type of claim, and type of reserve.

Another weakness in the method is the selection of the paid to paid ratio. Historical paid to paid ratios are not necessarily stable, especially in companies experiencing significant growth or decline in volume of business, or a significant shift in distribution of business. In addition, cost control measures could have a significant effect on paid to paid ratios. So reasons for a company's paid to paid ratios behaving the way they have should be carefully studied in order to provide a basis for projecting future paid to paid ratios.

One simplification of this method that is often made is rather than apply 100% of the calendar year ULE payments to loss payments ratio, to the IBNR reserves, simply add 5% of the ULE payments expected in the next calendar year.

The 5% assumption is consistent with the Schedule P assumption that 5% of the ULE payments in a calendar year are attributed to late reported claims arising from the prior accident year. This approach would have yielded a much lower ULE reserve estimate in the example because the projected IBNR in the example represents more than 5% of the expected ULE payments for 1984.

ABC INSURANCE COMPANY

Auto Liability

Indicated ULE Reserve

($000's)

Accident Year	Loss Reserves on Requested Claims	Projected 1984 ULE Payments	Projected ULE Reserves		
			Reported[1]	IBNR[2]	Total[3]
1976	$1,220	-	$ 95	0	$ 95
1977	3,908	-	305	0	305
1978	5,510	-	430	0	430
1979	14,964	-	1,167	0	1,167
1980	25,187	-	1,965	0	1,965
1981	54,447	-	4,247	0	4,247
1982	93,087	-	7,261	0	7,261
1983	139,168	-	10,855	1,750	12,605
		$35,000			$28,075

1. .156 x Loss Reserves x 50%

2. .05 x $35,000

Paid-to-Paid Method - By Projected Runoff of Losses

A modification of the traditional paid to paid approach was presented by Phillip S. Moore at last year's Loss Reserve Seminar. Under this approach, ratios of ULE payments to loss payments are determined by development period for historical accident years. Ratios are selected by development period based upon historical patterns, and these ratios are applied to the projected future loss payments by development period by accident year.

The following exhibits will illustrate this approach.

ABC INSURANCE COMPANY
Auto Liability
Ratios of Paid ULE to Paid Loss

Accident Year	Development Period (Months)								
	0-12	12-24	24-36	36-48	48-60	60-72	72-84	84-96	96-Ult
1976			.073	.081	.079	.059	.078	.100	.100
1977		.077	.073	.082	.074	.069	.091		
1978	.221	.096	.080	.067	.078	.087			
1979	.233	.107	.077	.079	.085				
1980	.263	.094	.082	.087					
1981	.230	.103	.085						
1982	.276	.104							
1983	.313								
Average	.256	.097	.078	.079	.079	.072	.085	.100	.100

ABC INSURANCE COMPANY
Auto Liability
Expected Payout of Loss Reserves*
($000's)

Accident Year	Development Period (Months) 12-24	24-36	36-48	48-60	60-72	72-84	84-96	96-Ult
1976								1,220
1977							604	3,304
1978						2,273	802	2,438
1979					6,062	3,873	1,347	4,004
1980				10,129	6,307	4,013	1,338	4,063
1981			24,234	12,705	7,764	4,941	1,647	4,969
1982		44,164	23,522	12,001	7,441	4,560	1,440	4,700
1983	84,632	37,745	20,396	10,315	6,330	3,985	1,407	3,903

*determined through studies of historical loss runoff patterns

ABC INSURANCE COMPANY
Auto Liability
Expected Payout of ULE*
($000's)

Accident Year	Development Period (Months) 12-24	24-36	36-48	48-60	60-72	72-84	84-96	96-Ult
1976								122
1977							60	330
1978						193	80	244
1979					436	329	135	400
1980				800	454	341	134	406
1981			1,915	1,004	559	420	165	497
1982		3,445	1,858	948	536	388	144	470
1983	8,209	2,944	1,611	815	456	339	141	390

*calculated by applying paid to paid ratios by development period to projected loss payments by development period

Total ULE Reserves
($000's)

1976	$122
1977	390
1978	517
1979	1,300
1980	2,135
1981	4,560
1982	7,789
1983	14,905
	$31,718

In addition to the assumptions underlying these paid to paid methods which I have already commented on, there is one other common assumption shared by the methods: that the loss reserves are accurate. To the extent that the loss reserves are inadequate or excessive, assuming all of our other assumptions to be correct, the ULE reserves will be correspondingly inadequate or excessive.

ULE Development Factors

One approach to ULE reserving that does to rely on this assumption of accuracy of the loss reserves is the application of development factors to paid ULE by accident year to arrive at ultimate ULE by accident year. Payments to date are then subtracted from the ultimate incurred to arrive at the ULE reserve values by accident year. ULE payments by accident year are determined from the Annual Statement.

The following exhibits illustrate the working of this method.

ABC INSURANCE COMPANY
Auto Liability
ULE Payments
Cumulative
($000's)

Accident Year	Calendar Year 1978	1979	1980	1981	1982	1983
1976	8,800	9,300	9,600	9,700	9,770	9,800
1977	12,600	13,900	14,700	15,100	15,300	15,400
1978	10,000	14,400	15,900	16,600	17,000	17,270
1979		12,800	18,500	20,500	21,500	22,070
1980			16,300	22,300	24,300	25,600
1981				17,200	24,500	27,300
1982					20,000	27,300
1983						20,600

ABC INSURANCE COMPANY
Auto Liability
Paid ULE Development Factors

Accident Year	12-24	24-36	36-48	48-60	60-72	72-84	84-96	94-Ult
1976			1.057	1.032	1.010	1.008	1.003	1.010
1977		1.103	1.058	1.027	1.013	1.007		
1978	1.440	1.104	1.044	1.024	1.016			
1979	1.445	1.108	1.049	1.027				
1980	1.368	1.090	1.053					
1981	1.424	1.114						
1982	1.365							
1983	-							
Average	1.408	1.104	1.052	1.028	1.013	1.008	1.003	1.010
Cumulative	1.737	1.234	1.118	1.063	1.034	1.021	1.013	1.010

ABC INSURANCE COMPANY
Auto Liability
Indicated ULE Reserve

Accident Year	Paid ULE A/O 12/83 ($000's)	Selected Development Factors	Projected ULE Incurred $000's	Indicated Reserve $000's
1976	$ 9,800	1.010	$ 9,898	$ 98
1977	15,400	1.013	15,600	200
1978	17,270	1.021	17,633	363
1979	22,070	1.034	22,820	750
1980	25,600	1.063	27,213	1,613
1981	27,300	1.118	30,521	3,221
1982	27,300	1.234	33,688	6,388
1983	20,600	1.737	35,782	15,182
				$27,815

The advantage of this method is that it is based entirely on Schedules O & P data from the Annual Statement, and is not dependent upon the adequacy of the loss reserves, nor is an assumed relationship between ULE payments and loss payments required.

But while assumptions about the future relationship between paid ULE and paid loss need not be made, development factors must be selected. Not only is it likely that historical paid ULE development may not have exhibited any patterns or trends that could be assumed to extend into the future, but because of "environmental" changes such as changes in the Claim Department operating efficiency, or shifts in distributions of business, for example by state, future development patterns may be quite different from historical patterns. Therefore, the same degree of care must be exercised in projecting future ULE development as is necessary in projecting future paid to paid ratios.

Conclusion

Due to the nature of ULE, companies are faced with the problem of establishing reserves for ULE without knowing how ULE is incurred on a claim by claim basis. To overcome this problem, assumptions about how ULE is incurred by claim must be made. The more accurate the allocation, the more accurate will be the reserves.

But accuracy in allocation is costly. Typically companies will, therefore, allocate ULE to line of business through some means, and then follow the Schedules O & P instructions to allocate ULE to accident year. From this point one of several basic techniques are used to project ULE reserves. The most common of these methods assumes a direct relationship between loss payments and ULE payments.

These basic methods are felt to produce reasonable reserve levels if applied properly. However, even so, the assumptions underlying the methods are not valid in all situations; therefore, extreme care should be exercised in utilizing any of the basic methods to project ULE reserves. A bibliography of papers on ULE reserving is provided for those who wish to explore this subject further.

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