

Materiality and Statements of Actuarial Opinion

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ABSTRACT

How should practicing actuaries consider materiality in the context of formal Statements of Actuarial Opinion? The specific issue of materiality has come to the forefront for casualty actuaries recently with the requirements of Actuarial Standard of Practice (ASOP) 36.

The Actuarial Standards Board Casualty Committee's Subcommittee on Reserves was involved in drafting ASOP 36. After its third draft, the Subcommittee held a hearing on the proposed standard. There were many controversial issues expressed at the hearing, especially those involving materiality. While the Subcommittee admitted that a standard of practice on the topic of materiality itself was perhaps a good idea, the implementation of ASOP 36 went forward, despite pointed opposition by many actuaries.

This paper will address materiality from external points of view (i.e., U.S. Supreme Court, Securities and Exchange Commission, Financial Accounting Standards Board), then present findings from research on materiality standards commonly used by both the actuarial and regulatory communities. Next, we present a framework for determining materiality thresholds in the context of the Statement of Actuarial Opinion for practicing actuaries ranging from the very simple (rules of thumb) to the more complex (stochastic modeling).

This paper presumes the reader is well versed in the requirements of ASOP 36 and has a good working knowledge of the requirements for Statements of Actuarial Opinion promulgated by the National Association of Insurance Commissioners (NAIC).

Materiality and Statements of Actuarial Opinion

Introduction

Casualty actuaries have not had to deal with the issue of materiality explicitly until ASOP 36 became effective for Statements of Actuarial Opinion prepared subsequent to October 15, 2000. For many actuaries, the issue of materiality is nebulous, falling under the general banner of “actuarial judgment.” While this may be technically true, it’s fair to say that most practicing actuaries’ sense of materiality may be very different from that of the users of the actuarial work products.

This paper is an attempt to begin a serious dialogue within the actuarial community on materiality. It is not an issue easily dismissed as being “in the eyes of the beholder.” Critical issues face the actuary in making determinations of materiality and become readily apparent when discussing the results of a work product with outside third parties, such as regulators, auditors or rating agencies.

Of course, there are many ways to look at materiality. The focus of this paper will relate to materiality considerations associated with formal Statements of Actuarial Opinion, but the general discussion will have more far-ranging implications elsewhere.

According to a recent draft of a document by the American Academy of Actuaries regarding the “Actuaries’ Responsibilities to Users of Their Work Products”, regulators have suggested that some actuaries may be meeting the letter of regulatory requirements without satisfying their underlying intent, perhaps due to the actuary’s efforts to mitigate the costs of regulatory compliance. With some

of the perspectives provided in this paper, the author attempts to heighten the sensitivities of practicing actuaries as to the perspectives of the regulatory community and other users of the actuarial work products.

Where do we look for guidance in addressing materiality? There are several sources within the literature and in case law that provide perspectives important to any discussion of materiality. With such historical perspectives, we will then discuss issues unique to the property/casualty insurance market. We will supplement the general discussion with findings gleaned from a survey of regulators and feedback from practitioners subsequent to the 2000 reserve opinion season.

We then suggest a multiple-trigger threshold for determining materiality and try to put that in context, given the perspectives of several audiences to the actuarial work product. The process considers both quantitative and qualitative factors. We finish with commentary on the use of judgment by the actuary, not as a panacea, but as an affirmative obligation that should not be taken lightly. Reconciling differing views of materiality from our various audiences will perhaps be the biggest challenge for actuaries. Lastly, we provide four brief case studies with relevant commentary on the approach used for determining materiality.

This paper will focus on statutory Statements of Actuarial Opinion that relate to requirements promulgated by the NAIC. We recognize there are other Statements of Actuarial Opinion that must adhere to the professional guidelines of ASOP 36 (such as for self-insured entities or non-U.S. domiciled companies). Nevertheless, much of the discussion in this paper will be relevant for Statements of Opinion that are not specifically prepared under the auspices of the NAIC

requirements.

If the comments herein provoke controversy and discussion within the actuarial community, the author will deem the paper a success.

ASOP 36 and Materiality

ASOP 36 requires the actuary to consider materiality from a variety of perspectives. The issue itself is of such importance that the Valuation, Finance and Investment Committee (VFIC) of the Casualty Actuarial Society (CAS) prepared a special document discussing materiality considerations for the practicing actuary. In particular, ASOP 36 requires materiality to be considered in at least the following ways:

1. Determining whether to issue a qualified opinion;
2. Determining the need for disclosure of significant risks of material adverse deviation;
3. Consideration of factors likely to affect the actuary's reserve analysis; and,
4. Determining the need for a number of other disclosures.

The VFIC document is attached as an Appendix to the Property and Casualty Practice Note, prepared each year by the Committee on Property and Liability Financial Reporting (COPLFR) of the American Academy of Actuaries. We recommend all readers of this paper first be familiar with the VFIC document, as it presents many of the issues in general terms.

The requirements of ASOP 36 indicate that when evaluating materiality within the context of a reserve opinion, the actuary should consider the purposes and intended uses for which the actuary prepared the Statement of Actuarial Opinion. The actuary is instructed to evaluate materiality based on professional judgment, materiality guidelines or standards applicable to the Statement of Actuarial Opinion.

When the ASB Casualty Committee' Subcommittee on Reserves discussed questions regarding preliminary drafts of ASOP 36, there was a general feeling that a separate standard of practice on materiality would probably be a good idea, but that the lack of such a standard was not critical to the use of ASOP 36 by practicing actuaries. So, we had to look elsewhere for guidance on materiality.

Search For Guidance

Where should we look for guidance on materiality? Let us start with guidance from outside the insurance market generally, then move to guidance from sources specific to the property/casualty insurance market. We will begin with pronouncements of the Financial Accounting Standards Board (FASB), the Securities and Exchange Commission (SEC) and the U.S. Supreme Court. We then follow with a discussion from the guidance from VFIC, the NAIC Financial Condition Examiners Handbook and the Accounting Practices and Procedures Manual.

According to the FASB Statement of Accounting Standard Number 5, the omission or misstatement of an item in a financial report is material if, in the light of surrounding circumstances, the magnitude

of the item is such that it is probable that the judgment of a reasonable person relying upon the report would have been changed or influenced by the inclusion or correction of that item. From this author's reading of that standard, the operative phrases in determining materiality include "probable," "reasonable person" and "changed or influenced." The standard further states that management must consider both quantitative and qualitative factors in assessing an item's materiality.

According to the SEC Staff Accounting Bulletin Number 99, the exclusive reliance on certain quantitative benchmarks to assess materiality in preparing financial statements is inappropriate; misstatements are not immaterial simply because they fall beneath a numerical threshold. However, the SEC did state that it had no objection to using such rules of thumb as an initial step in assessing materiality.

The most authoritative pronouncement on the topic of materiality comes from the U.S. Supreme Court in its 1976 decision in the TSC Industries v Northway, Inc., 426 U.S. 438,449. The Court stated that an omitted fact is material if there is a substantial likelihood that its disclosure would have been viewed by the reasonable investor as having significantly altered the "total mix" of information made available. Determinations of materiality require "delicate assessments of inferences a reasonable shareholder would draw from a given set of facts and the significance of those inferences to him."

In sum, these three authoritative sources indicate that materiality must be judged:

1. Using a “reasonable person” test;
2. In both quantitative and qualitative terms;
3. Within the context of probability (the author is substituting this phrase for the Supreme Court’s “substantial likelihood” phraseology); and,
4. In context of changing or significantly altering someone’s judgment about a matter

At least three other sources exist providing guidance on materiality issues. Earlier, we mentioned the document prepared by the VFIC. We do not reproduce the elements of that document herein, but encourage the reader to be familiar with its content. A fifth source is the Accounting Practices and Procedures Manual (i.e., statutory accounting). In Section VI of the Manual, it states that materiality judgments are primarily quantitative in nature. The question of materiality is posed as follows: Is this item large enough for users of the information to be influenced by it? Generally, an item is deemed material if the magnitude of the item is such that it is probable that the judgment of a reasonable person relying upon the statutory financial statement would have been changed or influenced by the inclusion or correction of the item.

A sixth source of guidance on the issue of materiality is the Financial Examiners Handbook prepared by the National Association of Insurance Commissioners (NAIC). Section 4 of the Handbook is titled “Understanding Materiality and Risk.” More details of the regulatory perspective on materiality is provided later in this paper.

For practicing actuaries, we must consider the viewpoints of the users of our work product in assessing materiality, which can include a broad and diverse audience. Section 3.4 of ASOP 36 says

very clearly that the actuary should consider the purposes and intended uses for which the actuary prepared the Statement of Actuarial Opinion when evaluating materiality. Those “intended” users likely include regulators, company management (including the Board of Directors), the company auditors, and perhaps even rating agencies.

Unfortunately, the Statement of Actuarial Opinion is a publicly available document. Hence, it may be used by a number of other “unintended” parties, such as reinsurers, financial analysts and investors (both current and potential). It isn’t beyond the realm of comprehension that other third parties, such as policyholders and claimants, may also be interested in such public documents.

Since the Statement of Actuarial Opinion is a public document, the opining actuary may face a real dilemma. The materiality standard to which the actuary must abide relative to ASOP 36 relates to those “intended” users of the work product. However, another (perhaps very different) materiality standard may apply in those instances where an “unintended” user is reviewing that work product. In the former case, the actuary may take some comfort in Precept 8 of the American Academy of Actuaries Code of Professional Conduct, Annotation 8-1 which says “The Actuary should recognize the risks of misquotation, misinterpretation, or other misuse of the Actuarial Communication and should therefore take reasonable steps to ... include ... limitations on the distribution and utilization of the Actuarial Communication.” As a practical matter though, the actuary usually includes a phrase such as “the statement of opinion is solely for the use of, and only to be relied upon by, the Company and the various state departments with which it files its Annual Statement.” Despite such language, other audiences will be reviewing the document. It is virtually impossible for the actuary to limit the distribution and utilization of such a public document.

Another audience that must be considered by actuaries is the Actuarial Board for Counseling and Discipline (ABCD). While the ABCD does not routinely review an actuary's work product, issues of materiality may ultimately be judged by the Board if a matter involving allegations of unprofessional conduct were to arise. The ABCD will be the judge of whether the actuary's work product is in compliance with the standards of practice and a de facto judge of whether considerations about materiality meet the intent of ASOP 36.

A significant difficulty is determining which audience to consider when assessing materiality. The level of discussion and documentation required in the Statement of Actuarial Opinion may vary depending on the particular audience being considered. For example, if we presume the audience is another actuary, the level of documentation and disclosure may be less than if the user were a member of the Company's Board of Directors. This is because each potential user has a different level of knowledge about the significance of loss and loss adjustment expense reserves, and the nuances associated with evaluating the adequacy of such reserves.

Therefore, does this not imply that the actuary should consider the materiality standard for the potential audience with the least knowledge and experience with loss reserving? Or, should the actuary focus solely on the materiality standards for the primary users of the Statement of Actuarial Opinion (i.e., company management and regulators)? The author suggests that the "reasonable person" standard should apply in any case, regardless of whether the individual practitioner considers each potential user a "reasonable person."

The crux of the problem for the actuary may be stated succinctly:

How do I determine what a reasonable person will view as material?

Materiality in hindsight can be far different from what one views as material prospectively. It is hoped that the standard to which actuaries will be held will relate only to the facts and evidence available at the time of rendering the Statement of Actuarial Opinion.

Regulatory View of Materiality

One of the primary responsibilities of individual state regulators is to monitor the solvency of the companies licensed to do business in the state. As a result, regulators are a primary user of the Statement of Actuarial Opinion. Often, the Statement of Opinion is used as a tool to separate those companies that demonstrate potential financial problems from those that do not.

Financial examiners routinely conduct detailed assessments of an individual company's financial condition. In most instances, the financial examination process involves a review of the actuarial report supporting the findings in the Statement of Actuarial Opinion. Therefore, it is important for actuaries to have a good understanding of the materiality thresholds used by regulators in the process of reviewing the financial condition of companies.

According to the NAIC Financial Condition Examiners Handbook, materiality is defined as the dollar amount above which the examiner's perspective of the company's financial position will be influenced. The amount is determined at two levels during the examination's planning stage: (1) an

overall level as it relates to the Annual Statement taken as a whole; (2) an individual balance sheet (Annual Statement line item) level. Risk and materiality are addressed at an overall level to help develop a strategy that will provide sufficient evidence to enable the examiner to reasonably evaluate whether the Annual Statement is materially misstated, or whether the company has a high likelihood of becoming insolvent.

Planning Materiality (PM) is the examiner's preliminary judgment of materiality made during initial planning. It is used in developing the overall scope of the examination procedures. At the examination's conclusion, the examiner evaluates whether the total effect of differences identified is material to the Annual Statement. The estimate of PM requires judgment based on the examiner's understanding of the company's operations. The examiner is instructed to consider the (1) nature of the business, (2) operating results (e.g., stable earnings, consistently near break-even, volatile results), and (3) financial position. Consideration should also be given to how close the company's surplus is to levels that would trigger regulatory action.

According to the Handbook, an appropriate starting point for PM is 1% to 5% of surplus. The actual percentage used depends on the circumstances of the examination. This author found this to be somewhat startling, as practicing actuaries have typically used a much wider materiality threshold.

Subsequent to the passage of ASOP 36 and prior to the preparation of Statements of Actuarial Opinion for year-end 2000, the author conducted an informal survey of insurance regulators inquiring as to the materiality threshold commonly used in testing the adequacy of a company's held loss and loss adjustment expenses reserves. Responses were received from sixteen individual

jurisdictions, and the results were enlightening. The responses fall into four categories. Since some responses were “unofficial,” the results are reproduced below without identifying specific regulators’ responses:

TABLE 1	
Number of Jurisdictions	Materiality Threshold
7	“It all depends”
6	1% - 5% of surplus, per the guidelines in NAIC Financial Examiners Handbook
2	“It is up to you”
1	10% of surplus

Despite receiving responses from only 16 of the 51 state regulatory authorities, we expect that responses from other jurisdictions would be similar to those indicated in Table 1. Virtually every response mentioned that the actuary must use judgment in assessing materiality and that the actuary should be guided by ASOP 36. Most responses indicated that percentages of surplus would generally be used as the first measure of determining materiality, but depending on the circumstances of the individual company involved, Risk-Based Capital (RBC) may be used instead.

One regulator indicated that “tolerable” error, the materiality for a particular account balance, is generally set at 50% of the planning materiality. Perhaps the most instructive comment came from a couple of regulators that encouraged the practicing actuary to put himself in the position of the regulator. The viewpoint of some regulators is that the Statement of Actuarial Opinion is intended (among other things) to assure the regulator that the Company’s reserve position will be adequate for the next 12 months until a new Opinion is issued. So, those regulators feel the actuary should disclose any reason for concern that the reserves could be materially understated. In effect, those

regulators want to know whether they can “set aside” the Company or whether there is a need for close monitoring during the course of the upcoming year.

Viewpoint of Practicing Actuaries

For many practicing actuaries, these survey results may be the first perspective available on the materiality threshold for the users of the Statement of Actuarial Opinion. Furthermore, it should be illuminating for many practitioners whose sense of materiality is much different from that of regulators.

In fact, subsequent to the year-end 2000 reserve opinion season, this author was privy to a discussion regarding materiality thresholds among several leading practitioners representing their firms. Again, without naming names, the results of that informal survey revealed materiality thresholds significantly different from those of the regulatory community:

TABLE 2

# Firms	Materiality Threshold - 2000
3	10% of reserves/20% of surplus
2	15% of surplus
1	15% of reserves/25% of surplus
1	1% - 5% of surplus

While each firm represented that these were the typical guidelines used for assessing materiality in the context of ASOP 36, many other factors were also considered when making a determination as

to whether disclosures were required for the risk of material adverse deviation. Furthermore, the justification many advanced for the recommended thresholds related to the thresholds used for the Insurance Regulatory Information System (IRIS) Test ratios 10-12 (one-year development to surplus at 20%, two-year development to surplus at 20% and current reserve deficiency to surplus at 25%).

It is important to note that the results of the regulatory survey were not commonly known at the time the year-end 2000 Statements of Actuarial Opinions were issued. From anecdotal evidence, this author can state that the materiality thresholds used by many practitioners for year-end 2001 Statements of Actuarial Opinion were much more narrow than those used previously.

The author suggests that materiality be considered using a multiple-trigger approach. The first trigger would include quantifying the difference between the Company's held reserves and the high end of the actuary's reasonable range of reserves. This approach may cause practitioners who formerly relied strictly upon "best estimates" for rendering reserve opinions to consider supplementing such an analysis with a reasonable range of reserves. While development of such a range is generally not required, such a range provides a direct application for assessing materiality. For example, an actuary could measure the difference between a Company's held reserves with those indicated by the high end of the actuary's reasonable range. If that difference is deemed material, a disclosure of the risk of material adverse deviation may be considered.

A second trigger would involve a determination whether the actuary's range of indicated reserves may cause exceptional values for IRIS Tests 10-12.

A third consideration could be whether the actuary's indicated reserves may trigger an RBC value at or below Company Action Level RBC. For a Company in precarious financial condition, virtually every potential risk factor facing the Company may be deemed material in the context of potential adverse deviation. The actuary must consider the materiality threshold in terms of the unique characteristics of the particular company. If the company being examined wrote long tail liability lines of business, it may be highly leveraged in terms of reserves (i.e., a high reserves to surplus ratio), but have an acceptable premium-to-surplus ratio. In such a situation, perhaps the materiality standard used by the actuary shouldn't relate strictly to surplus, but to reserves or some combination of reserves and surplus.

We recognize that the computations involving RBC are not trivial. Many considerations are involved in any computation of a change in surplus. The impact of reserve adjustments may also involve other balance sheet items, such as contingent commissions, retrospective premiums due, taxes and others.

Often, discussion of materiality revolves around the adjectives "remote," "reasonably possible" and "probable." According to Statement of Statutory Accounting Principles (SSAP) 5, these terms are defined as follows:

TABLE 3

Threshold	SSAP #5 Definition
Remote	The chance of the future event occurring is slight
Reasonably Possible	The chance of the future event occurring is more than remote but less than probable
Probable	The future event is likely to occur

Items with only a remote chance of happening will generally be viewed as immaterial by the actuary. Matters that are reasonably possible fall into a gray area depending on circumstances. Matters that are probable should be considered material. The author suggests these thresholds for discussion purposes within the actuarial community.

An Approach to Evaluating Materiality

What follows is a suggested approach for evaluating materiality. In all cases, we begin with a simple rule of thumb as the starting point. Then, we examine the relevant financial facts for each Company, postulate the current reserve position relative to actuarially indicated reserves and discuss the various considerations an actuary should make in assessing materiality. Lastly, we focus on a more quantitative methodology for assessing materiality for one specific example.

The remainder of this paper will present four case studies providing relevant commentary on issues involving materiality for illustrative purposes. One can imagine many other scenarios; however, the purpose of this paper is to generate future discussion, not to provide an exhaustive discussion of any and all materiality issues.

In any loss reserving exercise, materiality should be judged based on the totality of the facts and circumstances facing the Company. We will assume several facts in each instance, including the supposition that the actuary has completed a thorough analysis of required reserves, has interviewed

Company management regarding all the operational characteristics of the Company that may impact reserves, is familiar with external factors that may be relevant to reserve adequacy and that the actuary's opinion on reserve adequacy is a reasonable representation of true required reserves.

Furthermore, we assume the actuary will have computed a reasonable range of reserves, and that this range is also an accurate representation of the true underlying variability in required reserves. This paper is not intended as a treatise on the need for computing a range of required reserves, nor is it designed to provide guidance for the actuary on how to compute such a range. On the contrary, it is up to the individual actuary's judgment to develop a reasonable range of reserves and/or a best estimate of required reserves, depending on the needs of Company management and the circumstances peculiar to each situation.

We also assume that there are no disputes between the Company and its reinsurers regarding collectibility. This issue can be a very important materiality consideration if the Company in question has significant amounts of reinsurance recoverables relative to surplus. And, we assume that unearned premium reserves are adequate to fund the future run-off of liabilities and expenses for in-force business.

The four case studies presented will involve (a) a mutual company licensed in all states writing personal lines coverages (b) a commercial multiple line carrier (c) a writer of lawyers professional liability in a single jurisdiction and (d) a reinsurance company.

Case Study #1

The first case study we present is for a mutual insurance company that writes private passenger automobile insurance coverages and minor amounts of other business. As outlined in Exhibit 1, some of the pertinent facts for this Company are as follows:

1. Increasing surplus each year and a declining premium-to-surplus ratio;
2. Strong financial strength indicated by A++ rating by A. M. Best & Company each of the past 5 years;
3. The ratio of reserves to surplus has remained fairly steady over 5-year period;
4. Favorable (i.e., negative) loss development in each of the past 4 years;
5. Held surplus far in excess of indicated RBC; and,
6. The Company is a member of a group of insurers

For the purpose of this first case study, we postulate that the Company's held reserves are above the midpoint of the actuarially indicated range of reasonable reserves, but within the high end of the range. Specifically, held reserves are 4% higher than the actuary's "best estimate" of required reserves. Furthermore, we assume that since it is a mutual insurance Company, it has no readily available access to the capital markets.

It should be apparent to the reader that this Company's financial picture is very strong. Downward loss development that has emerged consistently over the past several years is an indicator that future adverse loss development is unlikely. Furthermore, a 5% upward deviation in reserves would

amount to less than 2% of Company surplus. While a conservative actuary might consider that the Company faces a material risk of adverse deviation, the author submits that this Company's reserve position is very solid. The risk of material adverse deviation may come from one of many potential sources.

For example, since the Company writes mostly private passenger auto coverages, it should be worried about broader issues facing all carriers, such as the uninsured/underinsured motor vehicle coverage extension from commercial vehicles to private passenger types in the state of Ohio. Or, the ultimate impact of the so-called "Broadnax" matter in West Virginia, whereby all exclusions written into the auto insurance policy were deemed unenforceable if there was no justification for such exclusions in the rating plan. Private passenger auto insurers are also concerned about the ultimate impact of recent court cases involving diminution of value; other mass tort actions are also of concern. Such potential future loss development is foreseeable, but does the actuary consider it material for the purpose of making a disclosure in the Statement of Actuarial Opinion, consistent with the requirements of ASOP 36?

For the purpose of this example, we would suggest using a materiality threshold of 10% - 15% of reserves, which is approximately 3.2% - 4.8% of surplus. Is this materiality standard too narrow, or too broad? We must consider the Company has a history of reserve redundancies, and the current held reserves also indicate a redundancy. For such a conservatively run company, perhaps a wider threshold is warranted. Individual opinions will vary.

Clearly, if the Company in question were not as adequately protected from a surplus point of view,

or if its history of reserve development were different, the practicing actuary would likely consider many such conditions to be material. From a regulatory point of view, the practicing actuary should try to make a determination of disclosing relevant factors material to the Company's operations, and not to focus on such broad, all-encompassing statements regarding future loss development.

The actuary should consider potential downward loss development in the future as an offset to potential adverse development. The writers of ASOP 36 were very purposeful in focusing the disclosure requirements in the Statement of Actuarial Opinion only for material adverse deviation. But there are examples of circumstances that occur that have resulted in systematic downward loss development. The one most obvious example relates to the impact of managed care initiatives and benefits reforms to the workers compensation system in the early 1990's. The systematic reduction in prior years' loss reserves of more than 9% of premium in each of calendar years 1994 - 1998 was so significant (and unexpected by many) that it masked any adverse development. If the actuary believes held reserves are redundant, the materiality threshold for determining whether a disclosure is required by ASOP 36 becomes even broader.

In making a final decision as to the materiality threshold, the author suggests the minimum measurement point be from the current held reserves to the top end of the actuary's range of reasonable reserves. In this case, that amounts to only 1% of reserves. According to our two other thresholds, we find little chance that the IRIS Test results would change significantly due to our indicated reserves. And we find the company's current surplus levels are so high relative to RBC that the likelihood of a significant drop in surplus is remote. Hence, the overall likelihood of material adverse deviation is deemed remote and no disclosure is required per ASOP 36.

Case Study #2

The second case study presented is for a multiple line casualty stock Company that writes primarily commercial lines coverages (but no workers compensation). As outlined in Exhibit 2, some of the pertinent facts for this Company are as follows:

1. History of significant reserve deficiencies over past 4 years;
2. Volatile ratios of premiums to surplus and reserves to surplus;
3. Downgrade in A. M. Best Rating from A- to B++ in latest year;
4. Net income losses in 4 of past 5 years;
5. A significant decline in surplus of more than 31% in the latest year, resulting in a deterioration in the ratio of surplus to RBC of 3.5; and,
6. Significant reductions in total admitted assets in 1998 and 2000

For the sake of this case study, we postulate that held reserves are at the low end of the actuary's indicated range of reasonable reserves (4% below the "best estimate" of reserves). Furthermore, we assume there are no significant retrospective reserving issues associated with the indicated reserve deficiency.

We postulate that the Company's domiciliary regulator uses the 1% to 5% materiality threshold for determining materiality, consistent with the provisions in the Financial Condition Examiners Handbook. From a materiality point of view, the projected 4% deficiency in held reserves is more than 5% of held surplus. Hence, the issue of materiality may be easier to ascertain. Since we're

starting with a deficiency of more than 5% of surplus and we know the regulatory threshold is between 1% and 5% of surplus, there appears to be a de facto requirement to make disclosures of risks of adverse deviation.

The fact the Company has a history of reserve deficiencies would tend to support the need for disclosures, regardless. That is, if the Company's held reserves were virtually identical to the actuary's "best estimate," disclosures would likely still be necessary given the Company's history. If, on the other hand, there was a significant reserve correction made in the prior year so that management thinks it had caught up with all prior year's deficiencies, the actuary's job is perhaps a bit more difficult. The actuarial report's findings and diagnostics regarding reserve adequacy would need to be factored into any determination of possible future adverse deviation.

Since the Company appears to have significant prior loss development problems, we stipulate the IRIS test ratios are already outside the acceptable range. Hence we know the Company is likely being given regulatory scrutiny, given that it lost more than 30% of its surplus last year. In such a case, it would appear reasonable that the Appointed Actuary would tend to be more conservative in any assessment of materiality, given the declining financial condition of the Company.

Case Study #3

The third case study we present is for a mutual insurance Company licensed in only one state, writing lawyers professional liability on a claims-made basis. Again, some of the pertinent facts for this Company (refer also to Exhibit 3) are as follows:

1. Positive growth in premiums and surplus each of past 5 years;
2. Favorable reserve development each of past 2 years;
3. Stable B++ rating by A. M. Best Company over past 5 years;
4. Per occurrence retention of \$250,000 (no change over past 10 years);
5. Growth in reserves roughly in tandem with growth in surplus; and,
6. Positive net income in each of past 5 years

For the sake of this example, we assume the mutual Company books the Appointed Actuary's best estimate of required reserves, hence reserves are considered reasonable for the purpose of the Statement of Actuarial Opinion. Furthermore, we assume there are no significant reserves indicated for tail policies or for extended reporting endorsements. We also assume the types of law practices insured are small 1- to 2-person firms.

Given the nature of the business written (i.e., claims-made) and the Company's \$250,000 per occurrence retention, the ultimate resolution of a single claim may be considered material. That is, the \$250,000 represents 2.6% of the Company's held surplus. A potential 5% adverse deviation in reserves would amount to approximately 6% of surplus. Hence, even though the Company books the Appointed Actuary's best estimate of reserves, the potential for material adverse deviation is readily apparent. Or, is it?

During the past two years, however, the Company has realized significant reserve redundancies. Let us postulate the actuary's reasonable range of reserves is +/- 5% of the so-called "best estimate" of required reserves. Hence, the top end of the range is a 5% deviation from the best estimate, which

corresponds with the materiality threshold suggested above.

Materiality is somewhat more difficult to ascertain in this case, because the Company's premium volume is fairly small, but it has grown its surplus steadily over five years. Reserves have historically been conservatively stated, but the nature of the Company's business is such that there is a potential for a surplus impairment of more than 5% if two specific claims were to exceed the Company net retention.

The second trigger (IRIS test results) doesn't appear likely to be affected, since prior year reserves have been conservatively stated. The Company would need to lose more than half its surplus before an RBC event would be triggered. When we consider the company writes only one line of business in a single jurisdiction, it doesn't have the same diversification of risk that a multiple line company would realize. Hence, the author would suggest a materiality threshold in such an instance that is somewhat more conservative than for a similar size company operating in multiple jurisdictions writing numerous lines of business.

This would argue for a materiality threshold of 5% of surplus.

Case Study #4

The fourth case study presented is for a reinsurance company, writing no direct business, but assuming more than \$650 million in premium annually, mostly commercial. Pertinent facts from Exhibit 4 for this Company are as follows:

1. Reserve deficiencies in each of the past 4 years;
2. Increasing ratios of reserves to surplus;
3. A+ rating by A. M. Best in each of past 4 years;
4. Member of a larger group (multiple line casualty companies); and,
5. Premium is in "Reinsurance" category constituting 26% of the total

This reinsurance Company has reserves almost three times its surplus. The impact of this leverage is that a relatively small change in reserves may result in a material change in surplus levels. In this example, we postulate that the Company's held reserves are near the midpoint of the actuary's range of reasonable reserves. We also postulate that the Company's parent has demonstrated its commitment to add capital to the Company when necessary.

Specifics are not provided with regard to the Company's share of asbestos and environmental reserves, nor do we have disclosures as to exposure from other mass torts including terrorism. However, it's safe to say that with such a leveraged position, the actuary should disclose several risk factors facing reinsurers that could result in material adverse deviation. In this instance, the author suggests a materiality threshold of approximately 2% of reserves, which is roughly equivalent to 5% of surplus.

Quantitative Approaches to Materiality

The use of modeling to assess materiality is a natural outgrowth of loss reserving and financial risk management software. Such modeling provides a perspective on variability not otherwise reflected

in static loss reserve analyses. The interaction of internal company factors with those external to the company can have a significant impact on the adequacy of reserves. In particular, future inflationary trends that may be significantly different from those in the underlying database could render held reserves deficient. Likewise, a strategy implemented by the company to control its legal costs via in-house counsel could result in reserve redundancies. One can imagine a variety of other factors that may influence the level of required reserves, some of which may already be embedded in the actuary's analysis:

1. Formation of special investigative units (SIU) to combat fraud;
2. Implementation of managed care initiatives;
3. General changes in economy (inflation, interest rates, unemployment);
4. Regulatory/legislative/judicial changes;
5. Potential bad faith claims; and,
6. Reinsurance collectibility problems

The use of modeling enables the actuary to not only assess a reasonable range of reserves, but also to assess the pertinent risk factors that may lead to material adverse deviation. The real value of this process is to determine which "levers" are most significant to the situation at hand.

For example, suppose the company recently changed its claims handling practices to offer more generous settlements earlier in the life of claims than before. The stated purpose of this new strategy by management is to reduce the costs of defending claims as more will be settled early and fewer claims will end up in litigation. The actuary should somehow reflect such changes in the estimate

of required reserves, but must also consider potential adverse effects that may ensue. That is, if the company becomes viewed by claimants as an easy target for claims, there may be an increase in the number of claims filed and the ultimate result may be higher costs. This fact alone may be enough of a concern to the actuary to cause a disclosure of this material risk of adverse deviation.

Of course, the opposite may be true as well. A company that changes its strategy of claims handling to be tougher on settlements may be subjecting themselves to a material risk of potential bad faith claims in subsequent years.

Stochastic techniques can be used in the loss reserving process to model the potential for such circumstances (and others), providing the actuary useful information as to which risk factors may be the most material in terms of potential future adverse deviation. The results of any such modeling must be reviewed carefully, not only for what the numbers indicate, but also for what elements the model may not be taking into consideration. There is always a danger of specifying a model that produces “elegant” results, but may not stand up to scrutiny in light of empirical data. As with any tool, the modeling should be used to glean information that may not otherwise be readily apparent.

There are a number of statistical techniques developed in the actuarial literature in recent years to quantify the variability underlying traditional “chain ladder” loss reserving data and the resulting estimates of indicated loss and loss adjustment expense reserves. Three examples of these include:

1. “Murphy” method which uses a regression techniques

2. “Mack” method which uses a distribution free statistical approach

3. “Renshaw & Vernal” which uses generalized linear models

Each of these techniques has strengths and weaknesses, however, their goals are comparable. They seek to provide estimates of the variability underlying the estimates of future claims development. These variance estimates can be used for a number of applications, including estimating reserves at higher levels of statistical confidence.

We do not mean to suggest there is a direct linkage between variability and materiality. However, the tail value at risk (TVAR) applications of such models can be used to assess probability levels that a Company’s reserves may develop adversely, or the probability a company’s surplus may drop below RBC thresholds. Given such information, the actuary can make a more thoughtful determination about potential future loss development and whether it is deemed material.

Conclusion

Materiality may be in the eye of the beholder, but the practicing actuary preparing a Statement of Actuarial Opinion must consider the intended uses of that opinion when assessing materiality. Even though the intended users of the Statement of Opinion are specific audiences (regulators, company management, auditor and rating agencies), the document itself is in the public realm. This means that investment analysts, reinsurers, policyholders, claimants and possibly even the ABCD may be reviewing the document. Because of these many audiences, the actuary must consider the points of

view of a “reasonable person” when assessing materiality in the context of ASOP 36.

For the purpose of determining the materiality for regulators, we have provided some evidence as to their materiality thresholds. Likewise, we have provided some background on the materiality thresholds commonly in use up through year-end 2000 in the actuarial community. We expect the latter to approach the former rather than vice versa. Materiality must be considered from a reasonable person point of view. It must be considered given the totality of information available about a company’s financial and operational circumstances. And, it must be given thoughtful consideration by the actuary. Those are the standards by which we must abide, and those are the standards by which we will be judged.

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		Calendar Year				
		1996	1997	1998	1999	2000
(1)	Surplus	25,120	30,054	37,608	41,766	45,792
(2)	% Change	18.8%	19.6%	25.1%	11.1%	9.6%
(3)	DWP	22,634	23,483	23,675	23,391	22,692
(4)	% Change		3.8%	0.8%	-1.2%	-3.0%
(5)	NWP	24,283	25,060	25,223	24,733	23,994
(6)	% Change		3.2%	0.6%	-1.9%	-3.0%
(7)	Loss+LAE Reserves	8,810	10,433	12,501	14,525	14,555
(8)	Net Income	972	2,343	2,450	1,013	842
(9)	Admitted Assets	54,756	60,892	69,442	74,579	80,114
(10)	Combined Ratio	105.0	97.4	97.2	106.7	108.3
(11)	Pretax Op. Income	1,216	3,144	3,225	918	434
(12)	Total Inv. Gains	4,311	3,795	7,077	4,923	5,110
(13)	Pre-Tax ROR	22.0%	23.1%	27.4%	14.0%	12.1%
(14)	NWP to Surplus	0.97	0.83	0.67	0.59	0.52
(15)	Reserves to Surplus	0.35	0.35	0.33	0.35	0.32
	Loss Reserve Dev.					
(16)	% of Original	-12.6%	-9.5%	-5.2%	-3.9%	
(17)	% of Surplus	-10.3%	-6.3%	-2.6%	-1.7%	
(18)	RBC	2,502	2,688	3,211	3,643	3,900
(19)	Best's Rating	A++	A++	A++	A++	A++
	5% Reserve Deviation as % of					
(20)	Surplus	1.8%	1.7%	1.7%	1.7%	1.6%
(21)	Net Income	45.3%	22.3%	25.5%	71.7%	86.4%

Member of Group?

YES

Lines of Business

Dist. Of NWP

Private Passenger Auto Liability	53%
Private Passenger Auto Physical Damage	40%
A&H	2%
Other	4%

		Calendar Year				
		1996	1997	1998	1999	2000
(1)	Surplus	121,337	115,728	128,811	123,289	84,851
(2)	% Change	53.9%	-4.6%	11.3%	-4.3%	-31.2%
(3)	DWP	199,115	211,445	193,224	183,940	163,665
(4)	% Change		6.2%	-8.6%	-4.8%	-11.0%
(5)	NWP	122,945	158,182	93,341	99,390	75,892
(6)	% Change		28.7%	-41.0%	6.5%	-23.6%
(7)	Loss+LAE Reserves	97,070	97,212	113,354	113,867	111,829
(8)	Net Income	(6,401)	(2,893)	10,733	(5,231)	(3,857)
(9)	Admitted Assets	294,805	319,920	282,994	282,415	244,291
(10)	Combined Ratio	114.7	110.4	111.4	118.9	138.8
(11)	Pretax Op. Income	(10,437)	(7,928)	4,072	(9,905)	(23,268)
(12)	Total Inv. Gains	7,438	1,080	10,539	(225)	1,725
(13)	Pre-Tax ROR	-2.5%	-5.9%	11.3%	-8.2%	-25.4%
(14)	NWP to Surplus	1.01	1.37	0.72	0.81	0.89
(15)	Reserves to Surplus	0.80	0.84	0.88	0.92	1.32
	Loss Reserve Dev.					
(16)	% of Original	22.0%	21.9%	20.2%	17.0%	
(17)	% of Surplus	23.7%	25.4%	19.9%	18.2%	
(18)	RBC	17,334	19,288	25,762	30,822	24,243
(19)	Best's Rating	A-	A-	A-	A-	B++
	5% Reserve Deviation as % of					
(20)	Surplus	4.0%	4.2%	4.4%	4.6%	6.6%
(21)	Net Income	-75.8%	-168.0%	52.8%	-108.8%	-145.0%

Member of Group?

YES

Lines of Business

Private Passenger Auto Liability	5%
Private Passenger Auto Physical Damage	0%
Commercial Auto Liability	11%
Commercial Auto Physical Damage	6%
Homeowners Multiple Peril	6%
Commercial Multiple Peril	22%
Fire	5%
Allied Lines	2%
Inland Marine	9%
General Liability	30%
A&H	1%
Other	3%

		Calendar Year				
		1996	1997	1998	1999	2000
(1)	Surplus	6,305	7,329	7,334	8,154	9,641
(2)	% Change	19.3%	16.2%	0.1%	11.2%	18.2%
(3)	DWP	7,036	7,197	7,298	7,664	7,815
(4)	% Change		2.3%	1.4%	5.0%	2.0%
(5)	NWP	3,347	4,593	4,864	5,678	5,979
(6)	% Change		37.2%	5.9%	16.7%	5.3%
(7)	Loss+LAE Reserves	6,401	8,178	8,536	10,141	11,291
(8)	Net Income	742	703	278	721	1,079
(9)	Admitted Assets	19,605	22,256	23,261	26,531	29,599
(10)	Combined Ratio	119.4	128.2	130.3	107.3	101.7
(11)	Pretax Op. Income	926	1,134	(254)	859	1,278
(12)	Total Inv. Gains	47	204	358	91	364
(13)	Pre-Tax ROR	15.4%	18.3%	1.4%	11.7%	17.0%
(14)	NWP to Surplus	0.53	0.63	0.66	0.70	0.62
(15)	Reserves to Surplus	1.02	1.12	1.16	1.24	1.17
	Loss Reserve Dev.					
(16)	% of Original	4.2%	-0.5%	-18.4%	-13.4%	
(17)	% of Surplus	4.3%	-0.5%	-21.4%	-16.7%	
(18)	RBC	1,235	1,358	1,676	1,833	2,338
(19)	Best's Rating	B++	B++	B++	B++	B++
	5% Reserve Deviation as % of					
(20)	Surplus	5.1%	5.6%	5.8%	6.2%	5.9%
(21)	Net Income	43.1%	58.2%	153.5%	70.3%	52.3%
Member of Group?		NO				
Lines of Business						
Lawyers Professional Liability		100%				

		Calendar Year				
		1995	1996	1997	1998	1999
(1)	Surplus	272,374	396,677	423,616	402,652	401,392
(2)	% Change	11.9%	45.6%	6.8%	-4.9%	-0.3%
(3)	DWP	0	0	0	0	0
(4)	% Change					
(5)	NWP	205,065	429,870	645,832	698,440	653,984
(6)	% Change		109.6%	50.2%	8.1%	-6.4%
(7)	Loss+LAE Reserves	659,145	971,859	1,059,040	1,038,460	1,179,181
(8)	Net Income	22,980	(17,164)	35,794	1,264	8,375
(9)	Admitted Assets	733,225	1,491,776	1,608,026	1,745,156	1,877,779
(10)	Combined Ratio	101.0	99.8	104.5	112.4	113.8
(11)	Pretax Op. Income	25,022	(18,977)	58,304	10,226	(6,092)
(12)	Total Inv. Gains	7,729	20,066	4,710	10,883	24,968
(13)	Pre-Tax ROR	12.0%	0.3%	14.9%	5.2%	4.7%
(14)	NWP to Surplus	0.75	1.08	1.52	1.73	1.63
(15)	Reserves to Surplus	2.42	2.45	2.50	2.58	2.94
	Loss Reserve Dev.					
(16)	% of Original	1.8%	7.9%	7.5%	6.7%	
(17)	% of Surplus	2.7%	16.4%	15.8%	17.3%	
(18)	RBC					
(19)	Best's Rating	A	A	A+	A+	A+
	5% Reserve Deviation as % of					
(20)	Surplus	12.1%	12.3%	12.5%	12.9%	14.7%
(21)	Net Income	143.4%	-283.1%	147.9%	4107.8%	704.0%
Member of Group?		YES				
Lines of Business						
Commercial Auto Liability						
Commercial Auto Physical Damage						
Homeowners Multiple Peril						
Commercial Multiple Peril						
Allied Lines						
Workers Compensation						
General Liability						
Reinsurance						
Other						

