STRATEGIC ISSUES: MOVING BEYOND THE POINT ESTIMATE

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BY

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Biographies:

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Abstract:

There are usually many issues raised in the course of performing actuarial analysis for a property/casualty insurance company. There are numerous ways in which all-important subtleties and implications of the work performed can be lost. In the most extreme case, this might involve either the author or the audience of the work (or both) taking away a point-estimate without having an appreciation of either the alternative business arrangements that may be more suitable under the circumstances, or the possible strategic implications of the work which could lead to enhancing the intrinsic value of the insurance company. This paper explores some of these issues in detail. We illustrate our paper by examples drawn from a number of actuarial appraisal, loss reserving and ratemaking engagements which we have conducted in the past, outlining issues that the actuary may wish to consider as an adjunct to "traditional" actuarial analysis. Clues to addressing these issues are often evident in the actuarial database but require in-depth probing. We believe that such consideration is essential if actuaries are to broaden their role and become insurance company "business-managers".

Strategic Issues : Moving Beyond the Point-Estimate

Introduction

There are usually many issues raised in the course of performing actuarial analysis for a property/casualty insurance company. There are numerous ways in which all-important subtleties and implications of the work performed can be lost. In the most extreme case, this might involve either the author or the audience of the work (or both) taking away a point-estimate without having an appreciation of either the alternative business arrangements that may be more suitable under the circumstances, or the possible strategic implications of the work which could lead to enhancing the intrinsic value of the insurance company.

This paper explores some of these issues in detail. We illustrate our paper by examples drawn from a number of actuarial appraisal, loss reserving and ratemaking engagements which we have conducted in the past. In each case, the emphasis will be placed on the strategic and operational issues involved. We will assume that the reader is familiar with the actuarial methods employed.

We start with a discussion of appraisals. Of all the areas of actuarial analysis, this probably has the greatest involvement with senior management at the chief financial officer and chief executive officer level and with the investment banking community. For this reason, there are usually many interested parties questioning and prodding the actuary into considering the strategic implications of his analysis. For ratemaking and loss reserving endeavors, this is less so and there is significant scope for the actuary to broaden his traditional purview.

Actuarial Appraisals

The actuary normally goes through a process of developing statutory pro-forma financial statements with a view to estimating the free-cash flow that can be paid out as dividends from the appraised company, while maintaining an appropriate level of capitalization for the company to enable it to operate in a reasonable fashion. Discounting these free cash flows and the terminal value of the company at the end of the projection period at an appropriate risk-adjusted discount rate gives the actuary his estimate of appraised value.

This analysis involves making a large number of assumptions, including the adequacy of loss reserves, long-term prospective combined ratios, future premium volume, future investment yields and so on. Varying these assumptions to reflect the possibility of changing the business strategies currently employed by the management of the company provides a powerful tool to guide the maximization of the intrinsic value of the company, whether that company be a mutual or stock entity.

In the course of conducting such a review, the actuary has many opportunities to assist in developing whatever strategic course is under consideration by the interested parties in a fashion that goes above and beyond performing the mathematical calculations.

This assistance can be grouped into answering two broad questions; what business policies can be followed to enhance the intrinsic value of the insurance company under review, and is the transaction under consideration optimal?

What Steps can be Taken to Enhance Intrinsic Business Value?

- *Increase Writings of the Business That Appears to be More Profitable and Vice Versa*

  To properly evaluate this area, it is usually necessary to discuss the issues with marketing and senior managerial personnel. There are usually many factors which impinge upon the degree to which the mix and volume can be changed. Firstly, writings of various lines of business are frequently associated with each other through sharing a common customer or a common agent. Examination of a segmentation of the business written by type of customer, by geographical location of customer or by distribution channel may assist in capturing these constraints. Regulatory restrictions may impede the company in withdrawing from certain particular unprofitable markets, or in imposing a geographical linkage in requiring the company to surrender all of its licenses if withdrawal is to be permitted. The history and culture of a company are frequently important; it may take a major shock for a company to seriously consider withdrawing from a line of business in which it has its historical origins. The actuary can assist in this process by quantifying the advantages of such a shift and assisting an often beleaguered chief financial officer in making his case. A frequently contentious issue is the question of implementing trade-off's for business which is very profitable, where lowering the price or weakening underwriting terms and conditions may yield large increases in volume which enhance intrinsic value even though the margin on the premium dollar is lower. Many view articulating such a strategy to an underwriter as tantamount to waving a red flag in front of a bull, with some justification, and yet if done cautiously and with adequate controls, significant enhancements to value may be obtained.

- *Improve the Cost Structure of the Business*

  The work underlying the actuarial appraisal usually involves a review of historical cost data. Frequently this work suggests that there are particular components of the company's expenses that can be improved either through seeking economies of scale or by altering certain aspects of the operations of the company. It is usually difficult to come to any conclusions in this area without detailed discussions with the managers responsible for operations.

  Are non-commission underwriting expense ratios out of line with comparable companies, particularly those that might be similar to the company after restructuring? Could branch offices be consolidated? Are investment expenses in line with what could be achieved under an optimal set-up? Are there favorable or unfavorable trends which might be difficult to correct -- growing commissions for example? Are there other factors at work which would suggest corrective action -- low average premium per agent or per employee for example? Does there appear to be excess operating capacity in the business; could it handle much greater volumes of business with the same basic infrastructure of people and systems?

  Given the potentially considerable impact on the lives of the people involved, this is an area where the actuary should perhaps give extra care in choosing a way in which to frame questions. It is also an issue where the actuary, by virtue of his understanding of the sensitivity of the appraised value to the various input parameters, brings an important ability to assess the wisdom of various cost-reduction programs.

- *Optimize the Investment Policy of the Company From a Tax Perspective*

  The appraised value of the Company is usually very dependent on the degree to which the portfolio is optimized to maximize after-tax returns. Discussions with the chief investment officer usually lead to a rapid conclusion on this count. Interestingly, the actuary often is in the best position to give the investment department the earliest possible warning of a change in the optimal mix.

- *Optimize the Reinsurance Program*

  An analysis of the profitability and volume of business ceded to reinsurers frequently suggests that better terms could be negotiated. This point may be missed if the actuary focuses primarily on an analysis of loss and loss adjustment expense ratios net of reinsurance. Often, the basic structure of the Company's reinsurance program suggests elements that could be changed for the better -- excessively low attachment points for excess of loss protection or the presence of unneeded quota share or surplus treaties. Conversely, there may be areas in which the Company should buy more reinsurance -- catastrophe protection being an obvious example.

- *Evaluate the Sensitive Issues Confronting the Rating Agencies*

  Frequently, the future ratings from the various rating agencies have an important impact on the value of an insurance company, both financially in its cost of servicing debt and operationally in its ability to attract and retain accounts of a high quality. Frequently, the actuary is in a position to assist in identifying such concerns and evaluate the tradeoffs involved. For example, in the case of a company with a real question over the adequacy of loss reserves, the actuary can identify the need to evaluate the cost-benefit trade-off from purchasing a stop-loss coverage which leads to a higher retention of good business through the maintenance of a particular rating classification.

Does the Structure of the Proposed Transaction Make Sense?

- *Is the Potential Investor Getting What Interests Them?*

  By way of example, the potential investor could be indirectly part of the distribution channel of the company through granting an endorsement of the insurance policies sold. The company seeks both additional capital and to strengthen ties with an important source of new business. The investor is looking to earn at least a reasonable return on capital and to generate income from their endorsement. The initial transaction proposed might seek to create a downstream holding company into which a pro-rata share of its existing property/casualty business would be ceded together with a share of the assets and liabilities of the existing company, including certain non property/casualty assets. To the extent that it would be more logical for both parties to exclude "peripheral" assets from the proposed transaction to further their respective goals, this is something that should be considered. The actuary might be more aware of this issue than other parties through his involvement in executing the mechanics of appraising the existing property/casualty business, which would include the "peripheral" assets.

  Would it make more sense for the parties to enter into a contingent commission arrangement with the prospective investor, structured to provide substantial termination penalties for the investor should the business prove profitable and the investor decide to look elsewhere for a property/casualty insurance market? If the desire of the investor to profit from the endorsement is greater than their interest in making a substantial capital investment, this avenue may be worth pursuing.

- *Should the Company be a Willing Negotiator?*

  To continue the example above, the type of business produced under the proposed endorsement might appear to be more profitable than the existing business of the company taken as a whole. The value of the company is enhanced by the endorsement and we can quantify the benefit of the endorsement to the Company under assumptions as to the volume and profitability of the business and the extent to which we might wri such business anyway in the absence of an endorsement. This might make the compan significantly more valuable than on a stand-alone "as-is" basis.

- *Does the Buyer Have Concerns that Can be Dealt With Cost-Effectively?*
  Are there any concerns of the buyer that can be assuaged cost effectively? Would it b worth giving a guarantee as to loss reserve development where the utility to the buye exceeds our estimate of the cost of the guarantee? Are there similar issues relating tc uncollectible reinsurance, assets of low quality or contingent tax or Proposition 103 type exposures?

- *Is Regulatory Approval Likely to be Forthcoming?*
  Are the pro-forma projections developed by the actuary for possible inclusion in a Form A filing likely to gain regulatory approval for the proposed transaction; does the anticipated structure provide a reasonable degree of security for policyholders?

- *Have All Reasonably Interesting Financial Structures Been Evaluated?*
  What are the alternative business arrangements that appear to be possible given the particular circumstances of the Company? For a company requiring more capital, these could include raising debt or equity in the public capital markets, a private placement, a reinsurance transaction ceding both prospectively and retrospectively, or curtailing the less attractive parts of the Company's operations. To what extent do legal and other restrictions, including rating agency viewpoints, restrict the viability of a proposed transaction?

o *Have We Discarded Issues Which Tend to be Disclaimed in a Boilerplate Actuarial Appraisal?*

The most contentious items in an actuarial appraisal are frequently disclaimed by the actuary as beyond the scope of his review -- these might include reinsurance uncollectibility or environmental impairment. These issues are usually virtually impossible for anybody to come to a conclusion with any degree of certainty, and yet the actuary is often better positioned than most to offer at least an educated guess, which can be used to structure the transaction to minimize the uncertainty for the party which is most concerned about it.

Loss & Loss Adjustment Expense Reserving

An actuarial review of loss and loss expense reserves often centers on an analysis of the company's historical loss experience to the extent such experience is available. Generally, when patterns are recognized in the data, development factors are calculated and used to project future development. Often, however, the patterns may yield information that can help to improve the operating efficiency of the claims department, or help to identify claims that should be addressed in a different manner. Similarly, the actuary often needs to adjust the historical data for operational changes that may have occurred during the experience period. Examples include situations where case reserves have been significantly strengthened, or where the claims settlement pattern has been altered. The technical approaches to modify data for these changes have been well documented, and can be employed by the actuary to develop a reserve point estimate or a range of reserve estimates. However, these changes usually indicate that fundamental changes have been introduced in the company's operations and actuarial analysis of the drivers of these changes may yield ways to continue improving the efficiencies of these activities. The following examples highlight ways in which the actuary can broaden his analysis of loss and loss expense reserves to enhance the value of the service provided by various departments.

Loss & Loss Expense Reserve Developments

- *Unusual Loss Developments*

  When a company's loss development experience appears erratic or strange, attention should be paid to the possible causes. System or general data errors should first be ruled out. The actuary should also make sure that heterogeneous books of business (e.g. occurrence and claims made) are not being combined for analysis. In some cases, large unexpected upward developments in the incurred loss experience may indicate that reinsurance recoveries are not appropriately recorded. Indeed, we have seen an instance where unusual development was caused by reinsurers not being billed for recoveries on certain claims, leading to a substantial gain for the company once the error was detected.

- *Late Claim Reporting*

  For some casualty lines, the following accident year claims reporting pattern is observed. Most claims are reported in the first 24 months. After a period of flat development, new claims are reported many years after the date of accident. This phenomenon should generate a number of questions. What type of claims are reported so late? How are initial case reserves established for these claims? Are these claims contemplated in the coverage provided? Answers to these questions may help uncover ways to minimize the value of these claims, and to assure that policy pricing appropriately reflects the cost of these claims. If these claims are clearly not contemplated in the coverage provided, then the policy language may need to be improved to clarify the intent of coverage. Alternatively, if coverage is contemplated, then reinsurance treaties should be reviewed to may sure that these claims are not excluded under sunset clauses.

- *Company vs Industry Development Factors*

  It is quite common for an actuary to rely in part on industry development information (e.g. Best's, RAA) to augment a company's own development experience. Often one finds, for example, that the company's development pattern is considerably longer tailed than the corresponding industry pattern. An in-depth analysis of the differences between a company's own development experience and the patterns underlying the industry factors may yield significant insights. For example, is the company employing state of the art claims systems to capture and record claims information? Are case reserves established in a manner consistent with others in the industry? Does the company have a policy of resisting claims rather than settling them? Answers to these questions not only provide a basis for improving the selection of development factors, but more importantly may point up areas for improving the claims organization and/or data processing areas.

- *ALAE Paid-to-Paid Ratios*

  For most casualty lines, the ALAE/Loss paid-to-paid ratio for a given accident year will tend to increase as the year matures. The rate at which it increases, however, is an important indicator of the outcome of the strategies employed by the claims department in settling claims. Consider, for example, the case in which no partial payments are made and all ALAE is paid when the claim is closed. A sharply increasing ratio may indicate that serious claims (those that typically take longer to settle) are incurring too much ALAE. Corrective actions such as controlling the use of outside attorney time may be required. Similarly, if a company's paid-to-paid ratio is inconsistent with industry averages, then the difference should be pegged to particular operational attributes. Is the company controlling independent loss adjuster expenses? Is the propensity of the company to settle consistent with industry norms? Should alternative settlement postures be considered? Does the company write coverages such as municipal liability where defense costs are unusually large?

Changes in Claims Department Procedures

- *Case Reserve Strengthening*

  Beyond adjusting for observed changes in case reserve adequacy levels, additional analysis may allow the actuary to provide insights that will enhance the claims process itself. Issues to be addressed include a study of the influence of higher case reserves on the settlement value of claims. Have the higher case reserves yielded higher settlement targets?

- *Changes in Settlement Pattern*

  A change in a company's settlement pattern (as measured by the ratio of reported claims closed at a particular point in time) must often be viewed in conjunction with other changes occurring at the company. Most often, a slowdown in claims settlement will be related to one of two phenomena. Either the company has undergone sudden significant increases in premium volume and the claims department is not adequately staffed to handle the resulting increase in claims volume. This may ultimately lead to unnecessarily high settlement costs or a bad faith claim. Alternatively, the company may have recently incurred a large number of claims resulting from a natural catastrophe and have had to redirect the focus of the claims department towards settling these claims. In either case, the actuary should analyze whether the change in settlement pattern has affected all accident years or only the most recent. The latter would indicate that serious claims for the older years continue to get a high degree of attention.

  Alternatively, the company may be facing severe cash flow strains which hamper the company's ability to settle claims expeditiously. This cause should be addressed by carefully studying the company's cash flow position. A bottleneck of unsettled claims should also trigger a notice to the investment department that assets may need to be liquidated to pay for these claims.

Pricing

An actuarial approach to pricing a property/casualty insurance product usually involves reviewing historical loss experience and projecting the losses paid or reported to date for each year to ultimate values. These ultimate losses are used to develop pure premiums based on units of exposure. Appropriate trending yields a pure premium indication for the exposure period of interest. Loading the pure premium for underwriting expenses and profit leads to an indicated premium to be charged.

There are a number of areas that the actuary can usefully consider in the course of his ratemaking work. We group these broadly into consideration of changes in internal company operations, consideration of changes in the external environmental and insight into opportunities to improve the profitability of the company as a by-product of the ratemaking process. The diagnosis of ratemaking issues frequently gives the actuary insight into areas that members of other functional departments may miss.

What Changes Have Occurred in Internal Company Operations During the History of the Program? What Changes are Likely Prospectively?

By way of example, the actuary frequently uses a weighted average pure premium from the more recent exposure periods as a pure premium indication. The weights applied to each year's experience will often vary by line of insurance and require a good deal of actuarial judgement. Variations in pure premium from year to year frequently provide the actuary with clues that significant changes may have taken place at the Company during the experience period. Probing for the source of these changes -- determining whether they arise from variations in underwriting, claims handling or administrative practices -- will provide the actuary with useful information that can be used to improve the ratemaking process.

For many programs, the underlying insurance sold changes considerably over time. Policy exclusions, the precise nature of accounts underwritten and the nature of the agent writing policies can each have a significant impact on the loss ratios of many products.

The required revisions to the analysis when the actuary perceives a change in case adequacy or claim settlement rates are well documented in the actuarial literature. Perhaps more interesting, however, is the question of "claims leakage" -- to what extent is the claims department paying claims that it need not, and is the propensity to do so changing over time. In the more extreme case where claims payments appear to have been made inappropriately, there is an obvious implication for management to be drawn from the actuary's conclusions -- improve the functioning of the claims area.

Overhead expenses frequently vary over time and the actuary should explore the reasons behind such changes. Is changing volume the cause? Are productivity gains important? Are there one-time expenses which distort the data? Is future premium volume likely to be consistent with past levels?

The actuary is frequently faced with the difficult task of identifying poorly performing sub-lines of business. Often, the underwriter brings a very helpful experience to the task of relating statistical observa'ions of unprofitability to what is actually going on. For example, high severity liability losses may be disproportionately associated with legal jurisdictions that are viewed as hostile.

Prospective underwriting changes, perhaps in reaction to the anticipated rate changes, should also be taken into account. As an example, we have seen a number of instances where the actuary reviews a poorly-performing product line in great detail and concludes that substantial rate increases are necessary. It is noted that there may be some opportunity to gain effective rate increases by employing more stringent underwriting standards, but little work is done to explore the optimal trade-off between the two alternatives. The policyholder base may view coverage restrictions more or less favorably than a rate increase, with the company being indifferent from a financial perspective as to which course is taken.

What Changes Have Occurred in the Environment During the History of the Program? What Changes are Likely Prospectively?

As an example, the use of medical malpractice data gathered in the 1980's needs to be considered in the light of the very substantial tort reform laws that were passed in most states. Behavioral changes of insureds that have occurred over time are also important -- for example, a number of surety writers have experienced declines in recoveries from the bonded entity as attitudes have relaxed over the stigma of declaring bankruptcy. In municipal liability, the sources of claims vary considerably over time; zoning-related claims, for example, tend to vary with real-estate activity.

Looking forward in time tends to be quite difficult, but if the key variables can be identified from historical experience, then the prospective analysis can at least be somewhat informed. As an example, marine hull lost costs are quite sensitive to the capacity utilization of the shipyards that repair them. Reviewing the likely future utilization rates may therefore be more appropriate than mechanically reviewing trends in historical loss costs. Likewise, the tremendous increase in very high severity professional malpractice claims for lawyers, accountants and other professionals is attributable in part to political pressures on various regulatory bodies to identify parties responsible for the enormity of financial institution failures. It is obviously difficult to mathematically model this change based on historical data and yet the actuary does have an important role to play, given his ability to mathematically translate the perceived qualitative factors underlying the deterioration into a suggested rate increase.

What Issues Can be Identified by the Actuary as a By-Product of the Ratemaking Process?

The actuary is well placed by virtue of his broad understanding of the marketing, underwriting and financial issues confronting an insurance company to identify areas of improvement in company operations as a by-product of the ratemaking process. We list several examples of this below:

- *Does the Commission Structure Optimize Company Profitability?*

  The actuary will normally review commission levels as part of estimating expense loadings. Frequently, the actuary will help review agent profitability in terms of both loss ratio and internal expenses associated with the agent. As such, the actuary is often well-placed to identify the optimal structure providing the agency force with an incentive to write either greater volumes of premium or more profitable business.

- *Does the Cost Structure Have Implications for Ancillary Products?*
  Frequently, the actuary is the only individual having an understanding of both the cost structure of a product and what the product actually is. He is therefore ideally placed to identify the need for and scope of ancillary products that can be sold in a cost-effective fashion. For example, we have seen instances of professional liability products sold via direct mail, where the incremental cost of selling other items needed by the customer is very small.

- *Can Steps be Taken to Structure the Product to Lower "Regulatory" Expenses?*
  In many markets, residual market assessments are significant. Is it possible to restructure the delivery of the product to minimize these assessments -- for example, writing coverage in the form of an aggregate excess of loss?

- *What Pricing Strategy Should be Employed?*

  The work of most pricing actuaries is driven by cost-based pricing -- what does it cost to deliver the product and give a reasonable return on capital. The alternative pricing strategies of value-based and competitive based pricing are well documented elsewhere. The actuary's understanding of both the detailed nature of the product and the costs associated with its delivery leave him well placed to identify the possibility of evaluating the optimal pricing strategy. For example, the profitability of the product may well vary over the life-cycle of the customer; older physicians close to retirement could have significantly better claims experience than their more active, and younger, colleagues. Alternatively, the age of the policy may be an important determinant in assessing ultimate loss ratios; many writers of private passenger automobile insurance have experienced significantly better results on their renewal books of business.

Conclusion

We have illustrated a number of issues that the actuary may wish to consider as an adjunct to traditional actuarial analysis. Clues to addressing these issues are often evident in the actuarial database but require in-depth probing. We believe that such consideration is essential if actuaries are to broaden their role and become insurance company "business-managers".