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European CFO Embedded Value Guidelines

William R. Horbatt



Those readers following the evolution of embedded value (EV) outside the United States know that it is somewhat like the “wild west” out there, with different companies taking different approaches to calculating embedded values.¹ For example, all insurance companies are required to maintain minimum capital levels, but the manners of reflecting them in EV vary widely, with some companies including the cost of minimum solvency levels (if that) in their calculations while others are holding robust levels appropriate for obtaining a high credit rating. Common practice is to discount future profits using risk-adjusted discount rates, but these rates

could differ significantly between companies. It is almost universal practice to use a deterministic approach—using a single set of assumptions to calculate EV without even recognizing that options embedded in insurance contracts decrease value.

Needless to say, stock analysts covering European insurance companies are not pleased with this situation, since they find it difficult to compare the results of one company with another, and since they feel that the cost of embedded options in insurance contracts is ignored.

One might say that “the marshal is in town,” now that the chief financial officers (CFOs) of 19 European insurance companies organized a group called, not surprisingly, the European CFO Forum, which publishes guidelines for calculating EV during

the spring of 2004.² Readers can find these guidelines on the Internet at <http://www.cfoforum.nl>. The intention of these guidelines is to provide a series of standards that companies may follow while calculating EV, and although not mandating that companies rigidly follow them, to require that companies disclose any differences between their approach and the approach contained in the guidelines.

Since the interested reader can read the actual guidelines and a discussion of the thinking behind them at the previously mentioned Web site, this article will take a somewhat cursory look at the guidelines and present some personal observations about how these guidelines may affect practice.

The 12 Principles

The embedded value methodology guidelines of the European CFO Forum are organized into 12 principles, the first 11 dealing with the calculation of embedded values, while the final one addresses disclosure of embedded value to the public.

The first two principles place the guidelines in perspective by describing them as being “supplementary” to other financial reporting and by defining the businesses that must be covered in an embedded value report.

Principle 1: “Embedded Value is a measure of the consolidated value of shareholders’ interests in the covered business.”

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¹Previously guidelines were published on a national basis, such as the 2001 Association of British Insurers’ “Supplementary Information for Long Term Insurance Business (“The Achieved Profits Method”), and thus excluded a number of significant companies.

²The European CFO Forum is composed of representatives of the following companies: AEGON N.V., Allianz AG, Assicurazioni Generali S.P.A., AXA SA, Aviva plc, Fortis B.V., Försäkrings AB Skandia, Hannover Rueckversicherung AG, ING Groep N.V., Legal & General Group plc, Münchener Rückversicherungs-Gesellschaft, Old Mutual plc, Prudential Assurance Company plc, Scottish Widows Group, The Standard Life Assurance Company, Swiss Reinsurance Company, Swiss Life Group, Winterthur Group, Zurich Financial Services Group.

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In the introductory principle, the European CFO Forum recognizes that embedded value information is supplementary to the company's primary published financial statements (for example, U.S. GAAP or IAS financials). This is consistent with the U.K.'s current standards, which present earnings and balance sheets on an "achieved profits basis," along with the more traditional accrual accounting. Peer pressure is expected to induce companies to adopt the CFO Forum standards over time. For example, AEGON's June 7, 2004 press release on its 2003 embedded value calculations stated that:

"(The embedded value is) expected to be consistent with the new European embedded value principles in all material aspects."³

Principle 2: "The business covered by the EVM (embedded value methodology) should be clearly identified and disclosed."

The coverage principle requires including contracts in the embedded value whenever local regulatory officials consider them either long-term or life insurance. However, it also explicitly permits companies to include other business as well, such as short-term group life insurance, long-term health insurance and asset management business, regardless of the legal entity that writes the contract. Keep in mind that many European insurers are conglomerates that can include life insurance, property and casualty (P&C) insurance, mutual funds and even banks. In some instances, the majority of business is not life insurance. Hence the EVM can conceivably be applied to any contract sold by any of these entities. A survey of 18 international insurance companies⁴ reveals that:

- More than half of companies surveyed own banks. The most common treatment of banks is to include the book value of the bank in EV, followed by reporting EV only for the life insurance segment (thus ignoring the bank entirely in EV). At least one company, Generali, includes some future banking profits in EV by including:

"The value of in-force asset gathering business ... is the present value of the projected stream of future after-tax profits that are expected to be generated by the private banking arrangements... (or) the present value of the projected stream of distribution margins that are expect-

*ed to arise associated with the insurance and asset management products managed, together with fee income, net of costs, expected to emerge."*⁵

- The vast majority of companies surveyed write (P&C) insurance, but only a few of include P&C operations in EV (most frequently on a book value basis). A more innovative approach taken by AXA in 2003:

*"(AXA) introduced in 2003 the concept of PVFP of renewals for the P&C business ... (where the) PVFP is the present value of future statutory profits for P&C in-force renewals. ... All personal lines are renewed (in the EV calculation) as retention rate is very high (while) Large commercial lines are not renewed (but) Where, historically, the retention rate has been stable over time and high, commercial lines are renewed (in the EV calculation)."*⁶

The next four principles define three components of embedded value.

Principle 3: "EV is the present value of shareholders' interests in the earnings distributable from assets allocated to the covered business after sufficient allowance for the aggregate risks in the covered business. The EV consists of the following components:

- Free surplus allocated to the covered business,
- Required capital, less the cost of holding required capital,
- Present value of future shareholder cash flows from in-force covered business (PVIF)."

Principle 4: "The free surplus is the market value of any capital and surplus allocated to, but not required to support, the in-force covered business at the valuation date."

Principle 5: "Required capital should include any amount of assets attributed to the covered business over and above that required to back liabilities for covered business whose distribution to shareholders is restricted. The EV should allow for the cost of holding the required capital."

Principle 6: "The value of future cash flows from in-force covered business is the present value of future shareholder cash flows projected to emerge from the



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³June 7, 2004, Analyst Conference Call, slide 6.

⁴Companies included in the survey of 2003 embedded value practices include: Aegon, Allianz, AMP Aviva, AXA, Fortis, Generali, Hannover Re, ING, Legal & General, ManuLife, Munich Re, Old Mutual, Prudential, Skandia, Sun Life, Swiss Life, Swiss Re.

⁵Generali's "Backup information regarding value of in-force business as of 31 December 2003 and value added by new business written in 2003", p. 2.

⁶AXA presentation online at http://www.axa.com/axa_info/comfi/PDF/Conf/04-03-22%20CHEUVREUX%20-%20ST.pdf.

Actuarial assumptions such as mortality, morbidity, expenses and income taxes are “best estimates” of future experience.

assets backing liabilities of the in-force covered business. This value is reduced by the value of financial options and guarantees as defined in Principle 7.”

The value of the company’s distribution system, as shown as the value of profits from future business in an actuarial appraisal, is explicitly prohibited from inclusion in embedded value (see Principle 8). Following are some details that help in the calculation of the components of embedded value:

- (1) Liabilities are valued at the regulatory level, while assets are revalued at current market values, resulting in a value of “surplus.” The current required capital is deducted from this surplus value to determine “free surplus” in Principle 4.
- (2) To determine the required capital amount in Principle 5, the present value of future statutory profits is determined on two bases—with and without required capital. In the first case, required capital is calculated at each year-end and any excess capital is released into the profit stream. The difference between these two present values is the present value of required capital, which is the required capital component in Principle 5. The cost of required capital equals the excess of the current required capital over the present value of the same required capital released in future years.
- (3) The present value of in force (PVIF) in Principle 6 equals the present value of future statutory profits calculated above, excluding the impact of required capital.

Table 1

Methodology for Determining Required Capital	Number of Companies
Regulatory minimum	8
Credit rating agency model	3
Internal company model	3
Subtotal	14
Methodology not disclosed	4
Total	18

In Principle 5, the European CFO Forum also established a floor on the amount of required capital included in embedded value calculations equal to the solvency level below which regulators are empowered to take action. Practices vary widely for determining required capital. A survey of 2003 methods for determining required capital is revealed in Table 1.

The popularity of using regulatory minimum capital is expected to continue since Principle 12 requires that the amount and cost of holding capital using the regulators’ minimum solvency standard be disclosed.

Principle 7: “Allowance must be made in the EV for the potential impact on future shareholder cash flows of all financial options and guarantees within the in-force covered business. This allowance must include the time value of financial options and guarantees based on stochastic techniques consistent with the methodology and assumptions used in the underlying embedded value.”

Investment analysts are troubled by the opaqueness of financial statements related to financial options and guarantees. This principle is a direct response to those concerns.

This principle is not focusing solely on options embedded in interest-sensitive products like guaranteed minimum death and income benefits (GMDB and GMIB) or secondary guarantees like policies remaining in force on the condition that target premiums are paid. It also includes material interest rate guarantees in markets like Japan, where investment yields falling below guarantees resulted in insolvencies, and Spain, where guaranteed interest rates on traditional life insurance products are as high as 8 percent, compared to recent bond yields below 5 percent.

The survey of current EV practices of 18 international companies reveals that as few as four calculate the value of financial options and guarantees using stochastic techniques for 2003 EV, so significant stochastic work is expected in Europe before 2004 EV reports are published.

Principle 8: “New business is defined as that arising from the sale of new contracts during the reporting period. The value of new business includes the value of expected renewals on those new contracts and expected future contractual alterations to those new contracts. The EV should only reflect in-force business, which excludes future new business.”

The separation of true new business from renewals is an ambiguous area of EV practice. Some companies considered flexible premium products as single premium policies, with any additional premiums considered as new sales, while other companies projected the most likely level of additional premiums and included this in their PVIF calculations. This principle settles the issue in favor of the later approach. Since very few companies disclose their practices with respect to renewal flexible premiums (two out of 18 surveyed), another area of increased actuarial study is a possibility.

Principle 9: “The assessment of appropriate assumptions for future experience should have regard to past, current and expected future experience and any other relevant data. Changes in future experience should be allowed for in the value of in force when sufficient evidence exists and the changes are reasonably certain. The assumptions should be actively reviewed.”

Actuarial assumptions such as mortality, morbidity, expenses and income taxes need “best estimates” of future experience. Expense assumptions should reflect costs incurred in the holding company and sister companies that relate to the business covered by the embedded value calculation.

Principle 10: “Economic assumptions must be internally consistent and should be consistent with observable, reliable market data. No smoothing of market or account balance values, unrealized gains or investment return is permitted.”

Economic assumptions include assumptions about future asset yields, investment markets, inflation and risk discount rates. Economic assumptions are frequently calculated as the risk-free (10-year government bond) rate plus a margin. A survey of current assumptions compiled by the SOA’s International Experience Survey Working Group is available in the October 2004 edition of *International News*.

Among economic assumptions, risk discount rates (defined as the “return assumed to be required by shareholders”⁷) are the most subjective and are somewhat of a “black box”. Nine of the 18 companies surveyed disclose only the discount rates used, while five disclose only the risk premiums that are added to risk-free returns to determine discount rates. Among the remaining four companies disclosing their methodology to determine discount rates: Allianz used the capital asset pricing model (CAPM), AMP uses market consistent values (MCV), AXA uses an internal economic capital risk adjustment methodology and ING uses the weighted average cost of capital.

Risk premiums (above government rates) are currently in the 2.5 percent to 3.5 percent range for developed countries. A justification for reducing risk premiums was given by Skandia in its 2003 Annual Report:

Table 2

Required Disclosure	Companies Currently Disclosing
Assumptions	18
Methodology	17
Reconciliation of the change in EV over year	16
Sensitivity to assumption changes	17
Reconciliation between EV and GAAP	10
Total Companies Surveyed	18

“The reduction in discount rate reflects the results of a survey of other large multinational life assurance companies publishing embedded values and the fact that risks inherent in financial options and guarantees are now valued explicitly.”⁸

Principle 11: “For participating business the method must make assumptions about future bonus rates and the determination of profit allocation between policyholders and shareholders. These assumptions should be made on a basis consistent with the projection assumptions, established company practice and local market practice.”

European general account products have significant savings elements, and the practice in many markets is to pay bonuses (that is, policyholder dividends or excess interest credits in U.S. nomenclature) based upon pre-bonus performance. This practice is widespread throughout the countries adopting the euro, and in some countries, such as France, Germany, Italy and Switzerland, minimum bonuses are specified by law or countrywide practice.

As an example of this principle in action, German law historically permits companies to retain 10 percent of pre-bonus income, but competitive practice resulted in companies retaining less (as little as 4 percent). Reflecting a change in German law affecting policies issued after 1994, Allianz made the following 2003 EV disclosure:⁹

“Higher long term shareholder participation assumed in the EV model leads to increased (new business) value and margin. The after tax shareholder (German) participation rate is based on 2004 profit plans and results in an increase to above 10 percent.”¹⁰

An interesting aspect of such disclosures is that they can be used as “signals” to the market, much like airlines announce fare increases that are later rescinded if competitors do not match them.

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⁷Basis for Conclusions European Embedded Value Principles, 27.3.

⁸Skandia 2003 Annual Report, p. 75.

⁹Companies may retain up to 10 percent of investment income and a reasonable share of other income, the total may exceed the previous maximum of 10 percent of pre-bonus gross income.

¹⁰Allianz March 19, 2004 Analyst Conference Call, page 52.

Chairperson's Corner

Mark J. Freedman



Jerry Enoch told me that for my last chairperson's article, I need to take a much more serious approach than I did in the others. I'm assuming he was afraid I'd resist, which got him to hire someone to interview me, under the pretext of "trying to make my life easier." I reluctantly went along with the request, once I agreed on my interviewer.

For those of you old enough to remember the cartoon "Bullwinkle," Boris Badenov, the Russian spy, now spends his retirement years interviewing actuaries.

Mark Freedman: Hi, Boris. Before we start, I want you to understand that the views expressed in this interview will be my personal views and not necessarily the views of my employer.

Boris Badenov: I don't have time for chit-chat or caveats, so let's get started. Where do you think financial reporting for insurance companies is headed in the next 10 years?

MF: I think a number of things will occur. The two most important are that (1) accounting for insurance (and other financial instruments) will become more principle-based than rules-based, and (2) accounting standards will converge globally.

BB: Do you think the North American accounting systems are principle-based?

MF: Canadian GAAP is the most principle-based, U.S. statutory is probably the least and U.S. GAAP is in between. However, all three of these systems have problems.

BB: Can you give examples of problems?

MF: In Canadian GAAP, there are too many smoothing mechanisms, sometimes making it difficult to measure whether or not a company's financial position changed. In U.S. GAAP accounting, earnings patterns are a function of product classification, and sometimes a slight product design tweak can materially change the incidence of earnings. In U.S. statutory accounting, there is very little judgment, except in

asset adequacy testing. But, in most cases, the reserves booked are formula reserves, and the asset adequacy test is merely used to demonstrate reserve adequacy.

BB: What about embedded value or fair value?

MF: Embedded value (EV) is consistent with the way insurers currently price insurance products and acquisitions. However, EV also has difficulties, in that two companies with the same market value of assets and the same liability cash flows will show different embedded values, if the asset qualities are different. Depending upon how "fair value" is defined, it might be inconsistent with current product and acquisition pricing. But, the world may be headed down this route.

BB: What makes you think that?

MF: U.S. GAAP has been slowly moving down that route for years. SFAS 115 got companies halfway there with most of their invested assets. SFAS 133 took most derivatives and embedded derivatives there. SOP 03-1 forced a quasi-fair value type valuation of guarantees and options that SFAS 133 did not cover. FASB came out with Concepts Paper 7 and a recent exposure draft clarifying fair value concepts.

Canadian GAAP has a lot of fair value concepts in that reserves are prospective in nature with continual unlocking. And in Europe, the IASB strongly considered fair value, first unsuccessfully for financial instruments and then for insurance products. It will be interesting to see what direction the Board takes in defining Phase II for insurance products. And remember, FASB and IASB have agreed to ultimately converge accounting standards.

BB: What about on the regulatory side?

MF: Statutory standards in the U.S. are moving toward principle-based standards, given some of the recent RBC work, but this will probably happen at a slower pace than in GAAP. Europe seems to be moving faster with respect to economic capital requirements. Canada is effectively there.

BB: What about Russian GAAP?

MF: I don't know anything about Russian GAAP.



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BB: I've heard analysts are frustrated that by the time of the analyst conference call, the data is already obsolete. How will the industry deal with this issue?

MF: Accounting systems will need to evolve to the point of providing an instantaneous flow of information and analysis. This means that in the future world, when an analyst asks a question, the company can answer the question with up-to-the-minute data. Companies have a lot to gain from this. Once accounting becomes principle-based, understandable and up-to-date, the cost of capital should decrease.

BB: What type of actuarial skills are needed in this type of environment?

MF: Obviously there is always a need for technical abilities, especially related to valuation systems development. But sound business judgment and communication skills are becoming much more important traits than having the ability to get around rules.

BB: What will be the role of professional actuarial organizations, such as the Society of Actuaries?

MF: These organizations need to keep their eyes on the future in terms of who needs their services and exactly what they need. Then, they need to fine-tune education as needed and be in front of the public. Their major role is to keep their members professional and relevant.

BB: Natasha and I have been looking for the Squirrel and Moose for a long time. Do you think we'll ever succeed?

MF: Actuaries are also concerned about the longer term and the real key is patience. Chances are that if you wait long enough, you'll bump into them and do what you have to do.

BB: But, Natasha and I are well into our retirement years and can't get around as fast as we used to.

MF: Rocky and Bullwinkle are no youngsters, so maybe you'll run into them in a retirement village. And maybe you'll end up friends. By the way, Boris, you look pretty good for your age.

BB: Speaking of retirement villages, I understand that's where the council is putting you once your term ends. How would you like to be remembered and what do you plan to do?

MF: I've really enjoyed the work I've done with the Section Council and would like to stay involved in any manner that makes sense with the new Section Council. But, mostly I'd like to be remembered as the first Section Chair to clean the "smelly green jacket." How would you like to be remembered, Boris?

BB: I want to be remembered as the Russian spy who, along with his wife Natasha, catches Rocky and Bullwinkle. §

>> *European CFO Embedded Value Guidelines from page 5*

Principle 12: "Embedded value results should be disclosed at consolidated group level using a business classification consistent with the primary statements."

The accounting influence is obvious in the European CFO Group's detailed standards for public disclosure of embedded value information. Table 2 compares certain required disclosures with the survey of current practices:

Sensitivities currently disclosed include changes in the discount rate or investment yield (16 each), persistency (10), expenses or mortality/morbidity (six each), and the spread between general account earnings and crediting rates (three).

In addition to these required disclosures, each company must state whether the company is in compliance with the EVM, and if not, identify areas of compliance, provide a subdivision of critical information by groupings (segments) used in primary financial reporting and include a statement by the board of directors.

Conclusions

The European CFO Forum embedded value guidelines are expecting a hearty welcome from readers of embedded value reports. The improved disclosures are particularly appreciated since current practices vary widely among companies, making quantitative comparisons difficult to make, at best. Actuaries are already feeling the impact of the requirement to value embedded options and guarantees, as senior management asks them, sometimes for the first time, to quantify them. The awareness of their cost throughout organizations should improve company pricing and risk management.

The next frontier for embedded value appears to be the valuation of business outside traditional life insurance companies, be it in banks, mutual funds or other legal entities. The guidelines are sufficiently broad to permit companies to cross this frontier by disclosing how they apply the principles. This will be quite interesting to watch. §

FROSTies and FRUMPies



The secret panel of judges has met repeatedly and has determined the prizes for articles to be given out at the section breakfast at the annual meeting in New York (which should have already happened by the time you read this). I have been sworn to secrecy and given this information before its public announcement, so that I could write about it for the December issue of *The Financial Reporter*. For the benefit of those who do not attend the section breakfast, and to further honor our authors, I am

delighted to devote this article to the first FROSTies and FRUMPies.

I have just used two terms that have never appeared on an actuarial exam syllabus or probably in any publication. “FROSTies” are prizes for Financial Reporter Outstanding Treatises and “FRUMPies” are the prizes for Financial Reporter Uniquely Memorable Papers. In time, the distinction between these terms will undoubtedly become household knowledge. These terms were suggested to our distinguished panel of judges by Paul Margus of Berkshire Life, who was consequently honored by being awarded the first Honorary FRUMPie (Not much work for an award—way to go, Paul!)

FROSTies

Winners of the FROSTies receive a token check and one or more “custom” prizes that are symbolic of their contribution or their article. It is not yet known what custom prizes will actually be awarded, since the resources and abilities of our vast procurement department have not yet been tested. I will describe the prizes that the judges have stated might be awarded to them. As is often the case, I suspect that reality may vary from actuarial assumption.

Let the drum roll begin as I announce the five FROSTies. The “Meat and Potatoes” award is given to **Carl Friedrich** and **Kent Scheiwe** for their article in the August issue, “Design, Pricing, and Reserving Considerations for Universal Life Secondary Death Benefit Guarantees.” This article is a good example of the meat and potatoes that most actuaries need on a regular basis. In recognition of their article, they might receive a pair of suspenders, a symbol to some of a *secondary* guarantee.

Mike Lesar receives the “Duct Tape” award for cleverly fixing a circularity problem of SOP 03-1 in his article in

the August issue, “Resolution of Circularity Issues in SOP 03-1.” This article easily lends itself to a number of prizes. Without imagination or a big budget, we can give him a roll of duct tape. A slinky is reminiscent of circularity. Also appropriate is a Mobius strip covered with formulas from his formula-laden article.

The “Tool Box” award goes to **William Horbatt** for describing the current thinking about how to pack a tool box for embedded value in his article in the December issue, “European CFO Embedded Value Guidelines.” Obviously a toolbox (probably a toy) should be awarded, and a euro is also appropriate for this article.

Vincent Tsang and **David Heavilin** win a “Meat and Potatoes” award for their three-part series about SOP 03-1, “Practical Considerations for Implementing the New Statement of Position for Long Duration Contracts and for Separate Accounts.” This series probably provided enough meat and potatoes for an expedition. In recognition of this series, they should receive a roll of kite string, whose length represents the long duration contracts.

Our final FROSTie (the order is not significant) is the “Laser” award, which goes to (drum roll) **Don Solow** for effectively focusing on a specific, well-defined target: a problem with the IASB’s approach to the fair value of liabilities. His award-winning article in the December issue was titled, “On the Fair Value of Insurance Liabilities.” The Laser will garner him a laser pointer or a magnifying glass. He also receives a “Provocative” award (in the positive sense of the word) for the effect of his article.

FRUMPies

Recognizing that I am on track to write a “long duration letter from the editor,” I will try to pick up the pace as I announce the 11 FRUMPies.

Ken Hartwell receives the “Father Knows Best” award for presenting good “fatherly” advice about data quality that every young actuary needs to hear—and every not-so-young actuary needs to remember—“Data Quality” in the August issue. The best prize we could give Ken is a tape of “Father Knows Best,” but we’ll probably have to settle for a “Dear Abby” column.

The “Short and Sweet” award goes to **Max Rudolph** and **Valentina Isakina** for their short and easy-to-read article in the May issue about the ALM specialty guide. What could be better for them than a small box of chocolates.



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A simple “thank you” would no doubt be appreciated, even without profound thought or creative phrase.

John Morris walks away with the “Fram” award for his useful article in the December issue about replacements (the SOP about internal replacements). Of course, he will get a Fram oil filter.

The “Marathon Man” award clearly belongs to **Vincent Tsang** for writing the most words (parts 2 and 3 of the long duration SOP with runner-up David Heavilin and stochastic embedded value, in the December issue, with Carol Marler). The appropriate prizes are numerous. Ideally, we would find an Energizer bunny to present to Vincent. Surely he will receive a copy of War and Peace and a photo of the Olympic marathon.

Ed Robbins wins an “Eat Your Veggies” award for his article in the May issue about statutory deferred taxes. Some things are simply important for your health. Ed will receive a can of mixed vegetables and an IRS form for filing an extension (since the article is about *deferred* taxes).

The “Appetizer” award is delivered on a beautiful platter to **Mike McLaughlin, Mark Freedman and Ludovic Antony** for preparing us for international accounting in the February issue. Their efforts should earn them maps of the world or small globes.

Mike Lesar wins the “Supercalifragilisticexpialadocious” award for the most formulas per word in his article about circularity in SOP 03-1 in the August issue. To top it off, he also receives a “Heinz 57” award for having a sentence with more than 57 words. Of course, the first award merits a tape of “Mary Poppins,” and the second merits a bottle of Heinz 57. . I will leave it to someone else to study how much we should contribute to the Bush campaign to offset the political effect of this purchase. I do not promise to publish such a study in an upcoming issue.

It is only fitting that **Ted Schlude** receive the “Watchdog” award for continually and faithfully keeping us posted about what is happening at the NAIC, most recently in the May issue. No doubt he will treasure a glossy photo of a German shepherd to place behind his desk at work. Or perhaps he will have a greater attachment to a pair of binoculars, a symbol of his watchfulness.

The “Sportsmanship” award goes to **David Heavilin**. The eagle eyes of the section may have noticed that his biographical information was printed incorrectly in two different ways in the first two articles of the series about the long duration SOP with Vincent Tsang. Nevertheless, David showed his sportsmanship and persistence by co-authoring the third article in the series (and we got it right). This shows that, “The third time’s a charm,” so I think there will be a charm in David’s

future. He should also receive a change of address card and a supply of business cards. In order to ensure that the business cards are correct, they will simply say, “David.”

Laura Hay and **Rick Browne** earn an “Eat Your Veggies” award for their article about complying with Sarbanes-Oxley (SOX) Section 404 in the December issue. Some things are simply important for your health. In addition to a can of mixed vegetables, they should receive a pair of socks. I wish that, in addition, I could give everyone who is working to comply with Section 404 an antacid.

A “Provocative” award is being awarded to **Carol Marler** for her article “One Right Answer” in the May issue. She will also receive a blank SOA answer booklet for essay exams. Carol wrote, “in order to get the right answers, it is necessary to ask the right questions.” Now she can ask the right question and give the right answer.

Conclusion

Yes, an article such as this can have a conclusion. As we joke about characteristics of various articles, we can’t help but realize how much good there is in those pages that we receive once a quarter – because these authors spent their time to organize and present their thoughts to us. I hope these prizes give them some laughs and some good memories. Whether or not the prizes were duds and the comments fell flat, I think that the biggest prize goes to ALL the authors, and that is the satisfaction of knowing that by sacrificing time and energy, you have made our profession and our world better.

I hope that our readers will occasionally thank an author for what he or she has written. E-mail is fast and cheap. A simple “thank you” would no doubt be appreciated, even without profound thought or creative phrase.

I give my personal thanks to the authors for their insights, time and effort in writing, and for their patience with the editing process. In addition, I want to thank the judges and the procurement department for their work. You know who you are! Finally, I hope that some people reading this will consider giving the effort to write an article for a future issue of *The Financial Reporter*.

We hope these awards provide an additional acknowledgement and reward for these authors who have generously contributed their time and effort in writing articles for *The Financial Reporter*, and will perhaps encourage some of you to try your hand! 

—Jerry

On the Fair Value of Insurance Liabilities

Donald D. Solow



There has been much written recently about the International Accounting Standards Board's (IASB's) position that insurance liabilities should be valued at fair market value. In particular, controversy has arisen over the IASB's directive that the fair value of liabilities be computed using a discount rate related to the insurer's credit risk. The implication is that insurer A and insurer B, making identical promises to policyholders but having different claims-paying capabilities, would

hold different reserves. In fact, an insurer would be required to lower its reserves as its credit standing weakened.

There is no controversy, it seems, when fair value is applied to the asset side of the balance sheet. For example, if *A* and *B* both buy the same corporate bond, the fair value of the bond is the same for *A* and *B*. They both own the rights to identical sets of cash flows, so they value the bond the same. In other words, the value of a financial asset is not a function of who owns the asset.

If we view liabilities simply as negative assets, then fair value concepts must hold true on the liability side of the balance sheet. If *A* and *B* make identical promises, the liability they book must be the same. It is true that the owners of *A*'s liability and *B*'s liability (for example, debt investors) will not value the cash flows the same, even if the promises are identical. To examine this more closely, we need to look at the balance sheet of the owners of the financial instruments issued by *A* and *B*.

Let us denote the set of identical cash flows promised by *A* and *B* as (CF). If I buy the rights to (CF) from *A*, I have actually done two things:

- Purchased the rights to (CF) from *A*, and
- Sold a credit derivative (namely, a default put) to the shareholders of *A*.

To clarify, in making my purchase, I will own the right to receive the set of cash flows denoted by (CF). At the same time, I will have granted the

shareholders the right, but not the obligation, to put the company to me if the company's net equity is less than zero. This is how shareholders limit their liability to the amount invested. As owner of (CF) (and therefore a creditor of *A*), I cannot make a claim against the shareholders for any excess of liabilities over assets.

Let us denote the credit derivative by *P*. After purchasing (CF) from *A*, my total asset is (CF)+(-*P*), where the minus sign indicates I am short the put. Since it is an option, the value of *P* is always positive or zero, so my net asset value is less than the value of (CF). In this way, I reflect on my balance sheet the possibility that *A* will not be able to pay me the amounts due under the terms of the financial instrument. I value (CF) using the risk-free rate, since the risk of default is taken care of in (-*P*). (Let us denote the risk-free rate and the risk rate as *j* and *k*, respectively, and the net present value of (CF) at the risk-free rate and at the risk rate as $NPV_j(\text{CF})$ and $NPV_k(\text{CF})$, respectively. Then the credit put *P* has value equal to $NPV_j(\text{CF}) - NPV_k(\text{CF})$).

Continuing along these lines, we see that the shareholders of *A* have a long position in *P*, so the value of this credit derivative to the shareholders is +*P*, where the plus sign indicates they own the put.

It then becomes clear that the value of *A*'s liability is $NPV_j(\text{CF})$. It is easier to see this by summarizing all the balance sheets:

- I own financial instruments having value $NPV_j(\text{CF})$ and (-*P*) (which sum to $NPV_k(\text{CF})$, as expected);
- The shareholders of *A* own *P*; and
- *A* owes $NPV_j(\text{CF})$.

Note the sum of all the assets and liabilities is $NPV_j(\text{CF}) + (-P) + (+P) - NPV_j(\text{CF}) = 0$, as must be the case, since the act of making accounting entries doesn't create wealth. According to the IASB's position, though, the balance sheets will appear as follows:

- I own financial instruments having value $NPV_j(\text{CF}) + (-P) = NPV_k(\text{CF})$;
- The shareholders of *A* own *P*; and
- *A* owes $NPV_k(\text{CF})$.

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... controversy arising over the IASB's directive that the fair value of liabilities are computed using a discount rate related to the insurer's credit risk.

In this case, the sum of all the assets and liabilities is $NPV_k(\mathbf{CF}) + P - NPV_k(\mathbf{CF}) = P!$ Thus the IASB's approach has created wealth in the system in an amount equal to the value of the credit default put. This happens because the value of this credit derivative has been double-counted. It appears simultaneously on the balance sheet of *A* and *A*'s shareholders. We know, of course, that only one credit derivative was written, so it can't appear both as an asset for the shareholders and as an offset to *A*'s liability. It can be seen that the credit derivative is owned by the shareholders. Let the equity of a company be denoted by *E*. Then $E = \text{Assets} - \text{Liabilities}$. The shareholders have a claim on *E* when $\text{Assets} > \text{Liabilities}$. If $\text{Liabilities} > \text{Assets}$, the shareholders give the company to the creditors, and are not responsible for the amount by which Liabilities exceed Assets . This is the virtue of limited liability. Stated another way, the shareholders intrinsic net asset value, denoted by $\mathbf{NAV}(\text{LTD.})$, equals $\max \{\text{Assets} - \text{Liabilities}, 0\}$.

Notice that if the shareholders's liability is not limited, $\mathbf{NAV} = \text{Assets} - \text{Liabilities}$. This is the case in a general partnership, for example. We can determine the financial value of limited liability, *X*, by solving for *X* such that one financial instrument, $\mathbf{NAV} + X$, has the same value as another financial instrument, $\mathbf{NAV}(\text{LTD.})$. We see that *X* has the following values:

- If $\text{Assets} \geq \text{Liabilities}$, $X = 0$;
- If $\text{Liabilities} > \text{Assets}$, $X = \text{Liabilities} - \text{Assets}$.

X is clearly an option. When the company has positive net asset value, the intrinsic value of *X* is zero. When the company is insolvent, *X* has positive value equal to the amount by which liabilities exceed assets. This is the same payoff pattern as a put option on the net asset value with a strike price of $\mathbf{NAV} = 0$. If \mathbf{NAV} is positive, there is no intrinsic value to the put. If \mathbf{NAV} is negative, the put has value, and is exercised by "putting" the company to the creditors and avoiding any responsibility for the excess of Liabilities over Assets .

This logic allows one to reach the conclusion that the credit derivative is owned by the shareholders of the company and not the company itself. The value of the derivative is embedded in the stock price. No shares of a corporation trade at negative values. (On the other hand, interests in a general partnership could conceivably trade at negative values, since the partners are liable for all the debts of the company.)

In short, then, I maintain that if insurer *A* and insurer *B* make identical promises (by issuing identical financial instruments), these promises must be valued at the risk-free rate, and the liability established by *A* and by *B* will be equal. The owners of these financial instruments, under the law, have no recourse to the shareholders of *A* or *B* in the event of insolvency, and so, in effect, implicitly write a credit derivative to the shareholders in order to own the financial instruments. Since *A* and *B* may have different credit standings, the value of the short puts issued by the owners of the financial instruments will differ, and so the value to the owner of *A*'s instrument versus *B*'s will differ. These credit derivatives are owned by the shareholders of *A* and *B*, and allow for the limited liability inherent in common stock.

The IASB's position forces both the shareholders of a corporation and the corporation itself to claim ownership of the credit derivative, thus double-counting the derivative and causing an unsound valuation of the liabilities. $\$$

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Actuarial Aspects of SOX 404

Laura J. Hay and Richard H. Browne

As insurance companies move to implement the requirements of Section 404 of the Sarbanes-Oxley Act (SOX 404), it is clear that examination of actuarial processing is a significant piece of the assessment of the company's internal control over financial reporting (ICFR). This is not surprising when one considers:

- Policy reserves often comprise 70-85 percent of total life insurance liabilities.
- DAC assets may represent as much as 40-70 percent of GAAP surplus.
- Loss reserves often represent a significant percentage of liabilities for companies writing property/casualty, health or disability business.
- Value of business acquired (VOBA) asset for purchases of a company or block of business may be a key driver of earnings.

In this article we present an overview of management's responsibilities under SOX 404 and then consider some aspects of implementation for actuarial functions.

Overview of SOX 404

For most public companies, other than foreign issuers, compliance is required by year-end 2004. Foreign issuers are required to comply with their fiscal year beginning after July 15, 2005. In addition, the NAIC/AICPA Working Group has exposed proposed revisions to the Model Audit Rule incorporating certain SOX 404 provisions as early as 2006, which will bring statutory financial statement preparation under similar requirements for most U.S. insurers. The NAIC is considering an exemption for smaller companies.

Management Responsibilities

The SEC rules implementing Section 404 of the Sarbanes-Oxley Act require management to:

- Accept responsibility for the effectiveness of the company's ICFR.
- Evaluate the effectiveness of the company's ICFR using suitable criteria.
- Support the evaluation with sufficient evidence, including documentation.
- Present a written assessment of the effectiveness of the company's ICFR as of the end of the company's most current year.

Compliance with these requirements must be addressed in management's annual report, which must contain a statement that the independent auditor has issued an attestation report on management's assessment of ICFR.

PCAOB Standard No. 2

The standards that the auditor must use to attest to management's assessment of ICFR are established in PCAOB Standard No. 2. On March 9, 2004, the Public Company Accounting Oversight Board (PCAOB) issued its Auditing Standard No. 2—an audit of internal control over financial reporting performed in conjunction with an audit of financial statements. This standard establishes performance and reporting requirements, when an auditor is engaged, to audit a company's financial statements and management's assessment of the effectiveness of ICFR. The standard describes an extensive process that will clearly include costs. The board notes in its release, however, that the benefits derived from developing and maintaining a system of effective ICFR are numerous.

Under the provisions of Standard No. 2, management's process for assessing the effectiveness of the company's ICFR should include the following:

- Determining which controls to test, including controls over all relevant assertions relating to significant accounts and disclosures in the financial statements.
- Evaluating the likelihood that control failure could result in a financial statement misstatement and the magnitude of such a misstatement.
- Determining the specific business units or locations to include in the evaluation.
- Determining whether any identified deficiencies in ICFR are significant or constitute material weaknesses.
- Communication of its findings.

Management cannot use the auditor's procedures or findings to support its assessment of the effectiveness of ICFR. Likewise, the standard is very specific as to the limited extent to which the external auditor may rely on the work of internal auditors, other company personnel or third parties working under the direction of company management.



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The Control Framework

Part of management's responsibility for evaluating the effectiveness of its ICFR is to identify a suitable control framework in which to evaluate the ICFR. The most common control framework being used in the United States is the Internal Control Integrated Framework published by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). Sarbanes-Oxley recognizes the COSO framework as an appropriate framework, but does not require it. There are other control frameworks, especially in Europe, which are in use. COSO considers all of the following components:

- *Control Environment* – The control environment sets the tone of an organization, influencing the control consciousness of its people.
- *Risk Assessments* – Every entity faces a variety of risks from external and internal sources that must be assessed both at the entity and the activity level. Section 404 compliance is concerned with the risks associated with misstating the company's financial statements.
- *Control Activities* – These policies and procedures help ensure management directives are carried out.
- *Information and Communication* – Identifying, capturing and communicating information pertinent to the key financial statement processes and controls in a form and time frame that supports all control components.
- *Monitoring* – Monitoring an internal control system—a process that assesses the quality of the system's performance over time.

COSO Control Framework

The COSO framework, as shown in Figure 1 is broader than financial reporting as it spans across the operations, financial reporting and compliance areas of the company. For SOX 404 compliance, the assessment of controls occurs over financial reporting but there is overlap in some areas of operations and compliance. Also, it spans the specific locations or business units included in the evaluation.

The Key Steps in an Effective Evaluation Process

We have identified the following major project steps that will be necessary to implement an effective evaluation process within the control framework:

1. *Plan and scope of the implementation.* It will be necessary to determine the locations/ business units

and the significant controls included. Define the project approach and identify milestones, timeline and resources.

2. *Document the controls.* Document the design of significant controls for all significant locations and business units.
3. *Evaluate the controls.* Evaluate the design and operating effectiveness of internal control over financial reporting and document the results of the evaluation.
4. *Identify and correct deficiencies.* Communicate the findings and correct any deficiencies where the evaluation step indicates deficiencies in the design and operating effectiveness of controls.
5. *Report on internal control.* Prepare management's written assertion about the effectiveness of ICFR.
6. *Independent audit of internal control.* Prepare information for the independent auditor to conduct the internal control audit.

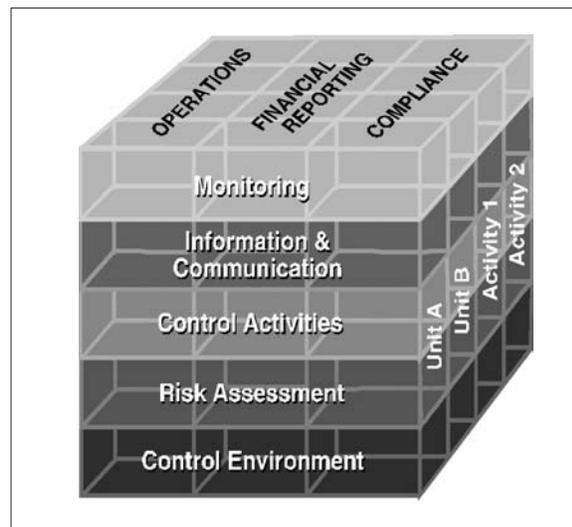
Implementation of SOX 404 in the Actuarial Context

We will now consider, within the structure of a control framework, some of the key issues and areas of concern that companies are encountering as they implement SOX 404 within the actuarial domain. These center around planning and scoping, risk identification, control assessment, testing controls and preparing the level of documentation.

Planning and Scoping. Though it is a time-consuming process, well-thought-out planning really pays off. We have seen in companies that are well into the process that management of the SOX effort is most frequently through a steering committee that includes officers from key business areas, including actuarial. A detailed plan is usually developed that identifies timing, tasks and responsibilities. Where outside resources are used, it is usually for project management and/or documentation assistance.

Generally, companies go through a detailed scoping phase, and then refine it as the project comes to life and develops. In order to identify the locations—or processes—included in the actuarial control evaluation, it is necessary to identify the actuarial processes and sub-processes that feed and support the financial

Figure 1 | COSO Control Framework



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Figure 2 | Management Review Process



statements. How is this done? Usually, this is done based on discussions with actuarial and non-actuarial personnel. Clearly identify the process owners and the sub-process owners and determine the objectives of the processes and sub-processes.

A key point is that the importance of the scoping phase is not underestimated. Indeed, there is some controversy around what is included in the scope of the actuarial evaluation. Nearly everyone

agrees that processes that directly support GAAP reserves, DAC and VOBA is included. But there are a number of more controversial areas upon which financial statement figures are more indirectly dependent. These include the pricing process and dependence upon pricing assumptions, the modeling process used in developing models for actuarial calculations, the performance of experience studies and the underwriting process. Moreover, sometimes GAAP reserves and tax reserves are dependent on statutory reserving processes.

In determining what areas are included in the scope, most companies use qualitative criteria to decide what processes are material to the financial reports—whether there are business or industry risks associated with the processes and whether the processes are connected with the direct production of financial results. Some have also developed quantitative criteria involving the estimated potential impact of misstatement on income from operations, revenues and assets.

Risk Identification. It is important that the types of risks involved in the actuarial processes and sub-processes are identified, for only when the risks are identified can one focus on the controls around those risks. We can characterize the “risk profile” of actuarial processing by noting that the processes of determining policy reserves, loss reserves, DAC balances and other actuarially determined amounts in the financial statements are summarized as consisting of four key risk areas:

- *Data* – The process of gathering and interpreting data. This might include policy inventories, paid claims data, mortality and persistency studies, etc.

- *Actuarial valuation systems* – The programs, spreadsheets and other processes used to calculate reserves, DAC, etc.
- *Compilation process* – The process of compiling calculated reserves and other pieces of financial statement balances for input to the statement assembly process.
- *Management review process* – The ways in which management evaluates the processes involved in data gathering and interpreting actuarial valuations and the compiling the results.

Let’s consider the kinds of business risks involved in actuarial processes and subprocesses. These may or may not apply to specific companies, but are illustrative of the types of risks that may be encountered.

- Incomplete data is used in the reserve calculations. For example, excluding claims data on certain manually handled products from a claim lag analysis and the loss reserves are misstated. Failing to update an extract program to include new plans results in policy reserves that are understated.
- The balances recorded on the balance sheet are not adequate because they do not accurately reflect contract obligations, or they are calculated using inappropriate methodologies and assumptions for the underlying contracts.
- Inaccurate approximations are used for interim valuations. It is not uncommon to use different techniques for interim versus annual valuations; this is a consideration.
- Performing untimely calculations. If calculations are not timely, this tends to strain the financial reporting process and the likelihood of misstatement may increase.
- Incorrectly coding system modifications may result in errors in calculations and a misstatement of output.

The compilation process is too complex and leads to a misstatement of results, which may include manually inputting a large number of separate calculations into a compilation spreadsheet, a poorly designed compilation spreadsheet or program, or a number of other conditions.

There is excessive reliance on a key individual for a specific subprocess. Actuarial resources are thinly spread across the organization, with little cross-training.

A key point is that the importance of the scoping phase is not underestimated.

Assessment of Control. The control evaluation process will involve identifying appropriate types of controls, determining whether appropriate controls exist and assessing whether the existing controls are effective. It is also important to consider the control environment in the entity, because, whatever controls are in place, there are many situations that could contribute to a controls being ineffective: human errors, collusion circumventing the separation of duties, management override of the structure to commit fraud, changing conditions which may weaken a system that was adequate at one time and situations in which an employee is performing conflicting job duties.

For each risk that is significant for a process or sub-process, it is necessary to place adequate controls, and document them. We have seen in many companies that good, effective controls are in place, but that there is not adequate documentation of those controls. There are several things that the control documentation should include. First, the purpose of the control needs documentation—what risks are being controlled? Second, responsibility for the control needs identification. Third, the control needs explanation. For example, a control is as simple as an actuary's tick marks on a worksheet indicating it has been reviewed—these tick marks need explanation. Finally, a procedure for providing evidence that the control was performed needs documentation. Examples of the types of controls we are seeing in the actuarial areas include:

- Reconciliation of control totals for input and output files of a computer process.
- Formal review processes to assess that the calculations, methodologies and assumptions used in reserve determination are accurate and appropriate.
- Reconciliation of the general ledger and calculated balances.
- Formal peer review of key areas of judgment in determining actuarial balances as well as critical manual calculations or adjustments.
- Overall review of the results by the chief actuary.
- Regular review by management of changes in actuarial assumptions and methodologies.
- Periodic sample testing of calculations.
- Trending and other analytical analysis of actuarially determined balances.
- Password protection of key spreadsheets and other programs.

- Cross-training of personnel to eliminate over-reliance on a single person.

The process owner should assess the controls and develop tests for the controls. The process owner identifies and documents these tests for the specific controls to determine the effectiveness of the control design and its current operation. Are the risks being managed? The process owner is responsible for documenting the test results and providing these results to management. Many companies are preparing documentation of controls and assessment results using a control assessment tool designed to facilitate the process.

Testing of Controls. While most companies have many controls in place, few have gone through a formal testing process of these controls before SOX 404. What does the process owner need to do in order to test an identified control? The key steps to this process should include:

- Determining what actions are necessary to define the effectiveness of the control.
- Adding and/or changing the test steps for each control as changes are needed.
- Executing the test activities.
- Documenting the test results, noting that all results must be available for both internal and external audit.
- Determining and documenting if compensating controls exist that would be effective if the specific control doesn't exist or is not effective.
- Preparing a remediation plan for the control if it is determined to not be effective and ensuring that it is executed.

Note that if a needed control is determined ineffective, remediation will generally require putting changes and controls in place that can demonstrate effectiveness over the year in real-time. In other words, an effective control requires placement prior to the date of attestation.

We have seen several techniques for testing controls in the actuarial area. One is a high-level review using inquiry and observation of control activities. This will usually involve interviewing individuals responsible for performing key process activities. Another is to perform a detailed walk-through of processes in selected assessments, inspecting control evidence maintained by the individuals responsible

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Responsibilities Of The Actuary For Communicating Sarbanes-Oxley Control: Effectiveness In Accordance With Actuarial Standards of Practice

Thomas R. Auvinen



Section 404 of the Sarbanes-Oxley Act of 2002 (SOX) requires the company's annual report to contain an "internal control report" which includes an assessment, as of the end of the fiscal year, of the effectiveness of the internal control structure and procedures of the company for financial reporting. This assessment is presumably created by the company's internal audit staff and attested to by the company's independent auditors.

The process of estimating actuarial assets and liabilities for the financial statements is part mechanical and part judgmental. The mechanical part, such as gathering data, performing calculations and transmitting results, is easily evaluated with controls that record the successful completion of steps in the process and the assumptions used. The process of forming an opinion or making a judgment is not as easily captured in a series of auditable steps. SOX does not specifically require an actuary to attest to the actuarial items in the financial statements; however, in view of the fact that the most critical aspects of actuarial valuation, viz., selection of assumptions, adequacy of reserves, environmental factors affecting results, conformity with FAS 60, 97, etc., are not easily auditable by the internal auditors, the company's assessment report needs to rely on some kind of report or statement from an actuary.

Since the actuarial valuation process is outside the area of expertise of the internal auditors, an actuary must attest to the fact that sufficient control procedures are in place to ensure the accuracy and appropriateness of the actuarial assets and liabilities, that they were followed at year-end, and that any significant changes in assumptions or methods are noted. This article addresses the scope and form of the actuary's report. Several questions need to be answered. Which Actuarial Standards of Practice (ASOPs) apply and what do they require of the actuary? Is this a formal or informal communication? Is it, in fact, a Prescribed Statement of Actuarial Opinion

(PSAO)? The viewpoint of the article assumes that the actuary's report is written by an actuary employed by the company. Many of the concepts also apply to an external actuary.

Existing Actuarial Guidance

ASOP No. 21 (second exposure draft 1/04): *Responding to or Assisting Auditors or Examiners in Connection with Financial Statements*. The company actuary acts as a "responding actuary" when dealing with the auditor. The responding actuary should prepare to discuss data, assumptions and methods; in particular a) the data used, b) the source of assumptions and c) the methods used. In addition, the responding actuary should prepare to discuss "known circumstances that had a significant effect on the preparation of those elements of the financial statement for which the actuary is the responding actuary." These include a) changes in the operating environment, b) trends in experience, c) product or plan changes and changes in product mix, d) changes in the company's methods, policies or procedures, or in statutory valuation bases and e) compliance with relevant new or revised accounting rules, laws and regulation or other government promulgations.

ASOP 21 does not require the actuary's work in conjunction with an auditor to result in a PSAO. However, ASOP 21 does not have the last word on this issue, because "law, regulation or accounting requirements" may apply, and as a result, the actuary's communication may be a PSAO. So SOX may, directly or indirectly, require an actuarial report to the auditors or to management, thus making it a PSAO.

ASOP No 41: *Actuarial Communications*. This ASOP applies to written and oral communications, including communications to the actuary's employer. In determining whether the communication should be written or oral, the actuary should consider the complexity of the assignment, the actuary's perception of the significance of the actuarial findings and relevant communication guidance in other ASOPs. In addition, the form and content of the communication should be clear and appropriate to the particular circumstances. The communication will probably not



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be subject to the standards of an “actuarial report,” even if it is written, if the intended audience does not include investors or regulators.

ASOP No 23: *Data Quality*. This ASOP does not require the actuary to audit data; it deals with the actuary’s review of data and the disclosure of data issues. An actuary’s report should include the following disclosures:

- a) The source of the data.
- b) The materiality of any potential biases of which the actuary is aware that are due to imperfect data.
- c) Adjustments or modifications made because of imperfect data, other than routine corrections made by reference to source documents.
- d) The extent of reliance on data supplied by others.
- e) In the event the actuary has not sufficiently reviewed the data, any resulting limitation on the use of the actuarial work product.
- f) Any unresolved concern the actuary may have about the data that could have a material effect on the actuarial work product.

The guidance cited in the three previously mentioned ASOPs is most commonly followed by company actuaries for informal internal reports. The primary exception is for statutory values that are covered in the annual Actuarial Opinion. There is no formal actuarial opinion required covering GAAP items that would include the disclosure items in the above ASOPs, or for that matter, covering the adequacy or appropriateness of reserves.

The Meaning of Internal Controls

In order to determine which valuation functions, processes, activities, etc., fall within the scope of Sarbanes-Oxley, we first need to understand what “internal controls” means in the context of SOX and by what criteria management will assess the effectiveness of the internal controls.

First, some history:

In 1985 a private sector initiative, known as the Treadway Commission, was formed to study the financial reporting system in the United States. In response to a 1987 report issued by the Treadway Commission, a committee of sponsoring organizations of the Treadway Commission (known as COSO), undertook an extensive study of internal controls. In 1992, COSO published Internal Control-Integrated Framework, which defined internal control as “a process, effected by an entity’s board of directors, management and other personnel, designed to provide

reasonable assurance regarding the achievement of objectives” in three categories—effectiveness and efficiency of operations, reliability of financial reporting and compliance with applicable laws and regulations. The scope of internal control, according to COSO, extends to policies, plans, procedures, processes, systems, activities, functions, projects, initiatives and endeavors of all types at all levels of a company. In 1995 the AICPA incorporated the definition of internal control set forth in the COSO report in Statement of Auditing Standards No. 79 (codified as AU 319).

The COSO definition of internal control is broad and would, in my opinion, include most aspects of the actuary’s work in the valuation process, including adequacy of reserves and conformity to FAS 60 and 97, etc. However, the SEC adopted a more limited definition of internal control in its final rule to implement Section 404. The COSO definition could still come into play in the assessment process, as I shall explain later.

The final SEC rule adopts the term “internal control over financial reporting” in place of the broader “internal control.” In Exchange Act Rules 13a-14(d) and 15d-14(d), it then defines this term to mean:

“A process... to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles and includes those policies and procedures that:

- (1) Pertain to the maintenance of records that in reasonable detail accurately and fairly reflect the transactions and dispositions of the assets of the registrant.
- (2) Provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the registrant are made only in accordance with authorizations of management and directors of the registrant.
- (3) Provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of the registrant’s assets that could have a material effect on the financial statements.”

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The COSO definition of internal control is broad and would, in my opinion, include most aspects of the actuary’s work in the valuation process, including adequacy of reserves and conformity to FAS 60 and 97, etc.

COSO is not required, ... because "...other evaluative standards exist outside the United States and that frameworks other than COSO may be developed within the United States in the future."

This definition is obviously only a subset of the COSO definition. The final rule on management's annual assessment of and report on the internal controls over financial reporting states, however, that management must base its evaluation of the effectiveness of internal control over financial reporting on

a suitable, recognized control framework that is established by a body or group that has followed due-process procedures, including the broad distribution of the framework for public comment. "The COSO Framework satisfies our criteria," they go on to say. COSO is not required, they continue, because "...other evaluative standards exist outside the United States and that frameworks other than COSO may be developed within the United States in the future.¹"

So it looks like COSO is the standard to use in the United States for the time being.

Actuarial Valuation Processes Falling within the Scope of Sarbanes-Oxley

Table 1 shows a list of valuation processes and steps (not exhaustive by any means) with an indication of whether (in my opinion) they fall under the COSO or the SEC definition of control.

These are broad categories. Actual controls would be much more detailed. Of course, there will be differing opinions on my "Yes/No" indications above.

Who Attests to Actuarial Controls and What Form Should it Take?

Assuming that the COSO definition is the operative one, what does the assessment of the internal control report imply with respect to actuarial values in the financial statements? At a minimum, I think the following is implied:

That...

Table 1

Process	SEC	COSO
Validation of input data	Yes	Yes
File/Data security measures	Yes	Yes
Appropriateness and accuracy of algorithms	No	Yes
Adequacy of reserves	No	Yes
Conformity with law (including taxes)	No	Yes
Appropriateness of assumptions	No	Yes
Follow documented workflow	Yes	Yes
Identify change in assumptions/methods	Yes	Yes
Document assumptions/methods	Yes	Yes
Analysis, review and approval process	Yes	Yes
Worksheet checks and balances	Yes	Yes

- 1) The valuation input data has been reconciled to the underlying records of the company with the following material adjustments and concerns.
- 2) The manipulation of data, including calculations, was performed within a framework that included checks and balances on the accuracy of the result and included measures to prevent unauthorized access or modifications.
- 3) The actuarial methods and assumptions used conform to accepted actuarial standards and generally accepted accounting principles and are consistent with the previous year, with exceptions.
- 4) The net actuarial liability together with anticipated future premiums are sufficient to pay all future benefit obligations for the policies in force.

All of the above are evidenced by controls, which may take the form of a sign-off or a process followed. It seems to me that the annual assessment of the internal controls contains within itself an actuarial opinion, namely, items 1 through 4 above (at a minimum). Does this opinion call for a formal "actuarial report?" And does this actuarial report constitute a prescribed statement of actuarial opinion, since it forms, in essence, a part of a required SEC disclosure? I think there is a strong case for an answer in the affirmative. If that is the case, the actuary should prepare such a report and submit it to the CEO and CFO (who ultimately must make the assurances concerning the financials) or at least to the internal auditor for inclusion in the assessment report. §

¹Final Rule: Management's Reports on Internal Control Over Financial Reporting and Certification of Disclosure in Exchange Act Periodic reports II B. 1.

for performing the key process activities. A third approach is selecting a sample for which work is reperformed to ensure proper processing and recording.

Other considerations in assessing a control should include the length of time the control has been in operation and whether the control is operating as designed on a consistent and timely basis from period to period. Indicate in the assessment whether the control was overridden by management. Finally, identify any mitigating controls to follow should this control fail.

Documentation. In preparing documentation of the SOX 404 self-assessment process, companies should always keep in mind that both internal and external auditors review the documentation. We have identified the following “best practice” documentation that companies are using:

- Formal identification of processes and sub-processes in the actuarial area which impact the financial statement.
- Identification of the risks involved with these processes and subprocesses.
- Narrative descriptions of the processes and subprocesses.
- Process flow charts.

- A control matrix, which includes for each key control the control objective, the specific control activity, a description of the type of testing, the financial statement accounts involved and other relevant information.
- Documentation of testing the controls, as described above.

Conclusions

When one considers the number of processes and subprocesses, along with all of the potential business risks involved at various intervention points it is apparent that identifying and assessing all of the necessary controls in a company is a major project that will have significant cost. But what is the impact on the company if a control fails? Any of the following can occur:

- Misstated, inaccurate, or misleading reports
- Risk is not appropriately mitigated
- Fraud
- A cost of taking corrective action

As the PCOAB stated, “the primary benefit of an effective internal control structure... is to provide the company its management, its board and audit committee, and its owners and other stakeholders with a reasonable basis on which to rely on the company’s financial statements.” This is the goal that companies should keep in mind. §

Hot off the press!

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Rethinking Embedded Value: The Stochastic Modeling Revolution

Carol A. Marler and Vincent Y. Tsang

In the United States, all publicly traded insurance companies prepare at least three sets of financial statements: statutory, GAAP and tax. These three sets of financials are prepared for different purposes and do not necessarily provide relevant information for measuring the “value” of a company’s insurance business.

Statutory financial statements focus primarily on solvency issues and are prepared for insurance regulators. The conservative margins in statutory reserves, together with the general practice of immediate expensing commissions and other acquisition expenses, make statutory surplus an inappropriate quantity to measure the value of an insurance company’s covered business.

Relatively speaking, GAAP financial statements are better tools for senior management and outside investors to measure the financial health of an insurance company because GAAP financials are prepared on a “going-concern” basis. GAAP liabilities and deferred acquisition cost (DAC) are based on best-estimate assumptions. Unfortunately, GAAP has its own idiosyncrasies. As an example, companies report some or all of their invested assets at market while GAAP benefit reserves are reported at book. This mixture of market and book values makes it difficult to justify that GAAP equity is a fair representation of the value of an insurance company’s covered business.

Embedded value fills a void left by statutory, GAAP and tax financial statements. Tax financial statements are, for the most part used for determining the amount of taxes payable to the governments. Aside from tax planning, the tax financial statements have very little use.

As senior management and outside investors cannot use these readily available financial statements to measure the value of covered business, embedded value (EV) has emerged to fill the void. Many companies now publish EV as a supplemental disclosure item.

Embedded Value

Using embedded value to measure the value of an insurance company’s covered business is not a new idea. This concept was born many years ago in the United Kingdom. It has since spread to Canada and

Australia, as well as to most of Europe. To some extent, the concept is also spreading within the United States, as many companies prepare EV for their European parent companies. While the concept is spreading and gaining acceptance, the general practice for calculating EV is hardly standardized.

Recently, a group known as the CFO Forum, comprising chief financial officers from 19 European insurance companies, published the European Embedded Value Principles (EEVP) that define the calculation and reporting of EV of the covered business. Participating companies have committed to apply these 12 principles to their EV calculations and disclosure for 2005 year-end, if not sooner. As EEVP applies to insurance contracts rather than to the entity selling the contracts, these principles are also applicable to insurance contracts issued by banks or other non-insurance companies. European CFOs are establishing embedded value principles.

This is an important step in standardizing the general practice for EV. We hope that EEVP serves as a starting point for further refinements, and that the insurance industry and the actuarial profession will ultimately develop an established standard of practice for EV.

Principles 1 and 2 identify the scope of the embedded value calculation. Principles 3-8 provide high-level guidance for the calculation procedures. Principles 9-11 provide guidance for choosing actuarial and economic assumptions. Principle 12 focuses on disclosure.

These principles are also accompanied by “Guidance,” an expanded discussion relating to each of the principles, and “Basis for Conclusions,” which is supplementary commentary on how these principles should be applied in specific circumstances. Any noncompliance with the underlying guidance should be explicitly disclosed. For more information, please visit the Web site at <http://www.cfoforum.nl>.

Need for Stochastic Modeling

While Europeans are working feverishly on stochastic models and techniques for embedded value, their American counterparts are not idle. In fact,

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American insurance companies are no strangers to stochastic scenarios. On the GAAP side, the newly promulgated Statement of Position 03-1 calls for using stochastic techniques to determine the additional liabilities for excess benefits. On the statutory side, there are two proposed regulations involving stochastic analysis. If the proposed Actuarial

Guideline for VA CARVM and the proposed regulation for Risk-Based Capital (RBC) Phase II are adopted, insurance companies will soon be using stochastic models and techniques to determine statutory reserves and RBC for variable annuities with book guarantees. Companies with adequate resources are already performing the proposed stochastic analyses

Table 1 | Summary of the 12 Principles

Principle	Description
1	EV is a measure of the consolidated value of shareholder's interests in the covered business.
2	The business covered by the EV methodology should be clearly identified and disclosed.
3	EV is the present value of shareholders' interests in the earnings distributable from assets allocated to the covered business after sufficient allowance for the aggregate risks in the covered business. The EV consists of the following components: <ul style="list-style-type: none"> • Free surplus allocated to the covered business • Required capital less the cost of holding required capital • Present value of future shareholder cash flows from in-force covered business (PVIF) The value of future new business is excluded from EV.
4	The free surplus is the market value of any capital and surplus allocated to, but not required to support, the in-force covered business at the valuation date.
5	Required capital should include any amount of assets attributable to the covered business over and above that required to back liabilities for covered business whose distribution to shareholders is restricted. The EV should allow for the cost of holding the required capital.
6	The value of future cash flows from in-force covered business is the present value of future shareholder cash flows projected to emerge from the assets backing liabilities of the in-force covered business. This value is to be reduced by the value of financial options and guarantees as described in Principle 7.
7	Allowance must be made in the EV for the potential impacts on future shareholder cash flows of all financial options and guarantees within the covered business. This allowance must include the time value of financial options and guarantees based on <i>stochastic models</i> (emphasis added) and techniques consistent with the methodology and assumptions used in the underlying embedded value.
8	New business is defined as that arising from the sale of new contracts during the reporting period. The value of new business includes the value of expected renewal premiums on those new contracts and expected future contractual alternations to those new contracts. The EV should only reflect in-force business, which excludes future new business.
9	The assessment of appropriate assumptions for future experience should have regard to past, current and expected future experience and to any other relevant data. Changes in future experience should be allowed for in the value of in-force when sufficient evidence exists and changes are reasonably certain. The assumptions should be actively reviewed.
10	Economic assumptions must be internally consistent and should be consistent with observable, reliable market data. No smoothing of market or account balance values, unrealized gains or investment return is permitted.
11	For participating business, the method must make assumptions about future bonuses and the determination of profit allocation between policyholders and shareholders. These assumptions should be made on a basis consistent with the projection assumptions, established company practice and local market practice.
12	EV results should be disclosed at the consolidated group level using a business classification consistent with the primary statements.

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European CFOs are establishing embedded value principles.

and evaluating their potential financial impacts. Stochastic modeling is growing in the United States.

In its traditional form, EV is generally calculated using a single deterministic scenario with best-estimate assumptions. Although sensitivity testing is common, only a few alternative scenarios are typically considered. For products with financial options and guarantees, a deterministic scenario seldom provides a full and realistic picture of the embedded risks. As the volume of business with embedded financial options and guarantees is growing, Principle 7 calls for companies to abandon using deterministic scenarios to value the effects of financial options and book guarantees on distributable earnings. Instead, the effects should be valued using stochastic models and techniques. The value of financial options and book guarantees is then subtracted from the present (PVIF) of the covered business. The European CFO Forum calls for stochastic modeling for EV.

This guidance in Principle 7 is certainly a big step in the right direction. In our opinion, stochastic analysis is not only the future of financial reporting of insurance business; it is also the state-of-the-art technique for pricing insurance products with complicated financial options and guarantees.

Only a few years ago, companies writing variable annuity business with guarantees surprised analysts and investors, and even their own senior managements, with severe hits to earnings due to reversals in the equity market. Principle 7 is a response to this. Reasonably enough, users of financial statements are no longer satisfied with financial projections based on rosy assumptions about the future. They want to know how bad things can get under reasonably adverse conditions. While the definition of “reasonably adverse” has not been finalized, it is clear that stochastic modeling is the ideal tool to explore the possible range of values. Those who use our reports can then make informed judgments about the risks being undertaken and the degree of leverage inherent in our product designs. This issue is also the driving force for the U.S. GAAP and statutory directives involving stochastic modeling. Companies have suffered because they have not used stochastic modeling.

Challenges of Stochastic Modeling

After recognizing some of the benefits of stochastic modeling, it is time to address the challenges.

Generally speaking, stochastic analysis uses a model of invested assets, an actuarial model for the covered business, and a whole array of randomly generated scenarios to simulate financial results. The process involves running the underlying actuarial model multiple times, and generating a large number of statistics that provide the actuary with financial measures, under various interest yield curves and equity market performance for each year of the projection. Other model behavior, such as account values, competitive pressures and lapse rates, vary in response to the stochastic variables, which are typically interest rates and equity returns.

Correlations among assumptions. Assumptions for stochastic models, unlike deterministic models, must take into account correlations among various components, such as lapse and credited interest rates. The credited interest rate, in turn, depends on the projected asset yield rate and the company’s strategy for investing and for managing spreads. The actuary must also determine the possible correlation between equity market movements and interest rate changes. Thus, the first issue for stochastic analysis is to objectively define the correlation between interest rate with equity performance, as well as, correlations, among other assumptions.

In most instances, defining correlations among various assumptions is more challenging than setting their baseline assumptions. Baseline assumptions are generally extrapolated from past experience. Unfortunately, there is not credible data to quantify correlations among various assumptions. The assumption-setting process calls for actuarial judgment and a healthy dose of psychology to consider policyholder behavior under various “what if” conditions.

Number of scenarios. A second and closely related issue is (a) how to determine the optimal number of scenarios, and (b) how to validate the results. One possible way to determine the optimal number of scenarios is to use an iterative approach. An initial set of scenarios is run and the process is followed by a second set. Results of the first set of scenarios are then compared with the combined results of both sets of scenarios. If the mean and variance are materially different, a third set is run and the comparison is made between the results of the previously combined sets and the third one. This iterative process is continued until the difference resulting from adding more scenarios falls within a predetermined tolerance. Historical mean and variance is also compared fairly readily. A lot of open questions remain about the tails of the distribution, particularly for equity

returns. Debate continues to rage over theories such as mean reversion and regime switching. When considering the extremes of the generated stochastic scenarios, it is not easy to decide whether the pattern is totally unrealistic or merely unlikely.

Eliminating bias. Another related issue is the question of whether the stochastic scenarios are unbiased (that is, whether the generated values for financial options and guarantees using the scenarios are consistent with the market value for derivatives). Such inconsistencies are particularly obvious when performing stochastic modeling for equity-indexed policies that are fully hedged. The main ideas of pursuing a hedging strategy, of course, are to mitigate the hedged risks and to minimize effects of market fluctuations on distributable earnings. When a set of interest and equity scenarios do not reproduce market value of hedging assets, it is likely that there are inherent biases in the scenarios. Adjustments are therefore needed until the market value of hedging assets is properly reproduced.

Computational limitations. A final modeling issue is perhaps the most difficult. Since the actuarial model for the embedded value analysis is based on the values of reserve and surplus as of the valuation date, what shall we do when reserve and surplus are defined stochastically? Layering another set of stochastic projections for each projection and for each projection year generates exponentially growing system demands. We believe that insurance companies should first do adequate homework in identifying a meaningful set of scenarios. Otherwise, we may soon run out of computers for quick turnaround time. There is talk about resolving this “stochastic on stochastic” issue with distributed processing software. Despite this possibility and despite Moore’s law (which calls for computer power to double and costs to halve every 18 months), the amount of work to do seems to be growing faster than resources available.

Need for Simplifications

Some clever individuals once noticed the approximate interaction between the interest rate and the time period required to double a sum at compound interest. Based on simple approximations, the rule of 72 emerged, allowing one to quickly recognize that approximately 12 years is needed to double a sum at 6 percent (6 times 12 = 72), or that a 4 percent compound interest will double a sum in about 18 years (4 times 18 = 72).

Wouldn’t it be useful to have a similarly approximated method that would allow us to estimate the

results of a stochastic model under a new set of assumptions without having to run another 1,000 scenarios? This kind of estimate was useful in the past when profit tests were run overnight on mainframe computers. One output column showed the change in results from a \$1 change in premium. However, developing such useful adjustment factors for stochastic models will have to be the subject of a future paper.

Example

To illustrate the importance of using stochastic models and techniques to measure the significance of financial options and guarantees, we constructed a simple example. In order to keep the calculations manageable, this example looks only at the net present value of benefits and the interest adjustment for target surplus.

From this projection, we can see how much the deterministic version of the embedded value may be overstated. Key assumptions are listed below:

- The underlying block is a cohort of variable annuity business with guaranteed minimum death benefits (GMDBs) equal to premium roll-up at 5 percent per annum.
- The fund value as of the valuation date is \$100,000, with all deposits invested in equity mutual funds.
- Annualized mortality and expense charges are 2.20 percent.
- Required capital is 4 percent of statutory reserve.
- GMDB is \$100,000 at the valuation date (at-the-money).
- For simplicity, the cash surrender value is assumed to be the statutory reserve.
- Equity returns are assumed to follow a Regime-Switching Lognormal Model with Two Regimes (RSLN-2). The average of simulated equity returns is approximately 4.40 percent per annum.
- Discount rate is 9 percent per annum.
- There is no free surplus.

The present value of GMDB payments in excess of account value under a deterministic scenario of 4.40 percent equity return is approximately \$1,137. This is compared in Table 2, on page 24, with present values of GMDB payments in excess of account value under a set of 500 stochastically generated equity returns.

The simulated results indicate that there is a wide range of possible financial impacts. Almost all of the chosen statistics (with the exception of median) are greater (worse) than the present value of GMDB payments

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Companies have suffered because they have not used stochastic modeling.

in excess of account value under the deterministic scenario. This signals the importance of using stochastic models to quantify potential financial impacts of financial options and book guarantees. Obviously, the effects

would be a lot less if there are hedging assets, such as put options, to mitigate the equity risk.

Table 2

Single Deterministic Result	1,137
Average	1,433
Median	1,131
90 th Percentile	3,422
83 rd Percentile	2,941
60 th Percentile	1,606
75 Conditional Tail Expectation	3,311
65 Conditional Tail Expectation	2,982

In this example, the best-estimate, deterministic result is usually optimistic. There is no stipulated guidance on which statistics should be used to infer the value of the embedded financial options or guarantees. If the mean is perceived to be a reasonable candidate, the value of the GMDB guarantee is \$1,433 and is approximately 26 percent higher than the value under the deterministic scenario. If one decides to use the 83rd percentile or 65 conditional tail expectation as possible candidates, the value of the GMDB guarantee will be doubled. Regardless of the final choice, companies should appropriately disclose the basis for the valuation of financial options and book guarantees.

This simulation is based on an at-the-money book guarantee. The importance of using stochastic scenarios to quantify the value of financial options and guarantees becomes even more significant and apparent when (a) the book guarantees are deeply in-the-money, and (b) the book guarantees are priced with aggressive mortality and expense (M&E) charges.

By-products

Although much stochastic modeling work is done in response to the requirements of various regulatory bodies, it is a mistake to perform the exercise solely for the sake of compliance. It is a mark of professionalism for us to perform this work as well as possible. When this is done, additional valuable insights may be harvested and the final work product can be transformed into a valuable management tool. Given the amount of work that goes into stochastic models for embedded values and other purposes, what valuable results may be derived in the course of the work?

Performing stochastic modeling for asset-liability management has shown some useful by-products already, including increased communication between actuaries and investment people. Formulating strategies and developing assumptions for interactive effects need not be reinvented for other applications, including EV calculations.

Similar benefits can be derived from the process involved in stochastic modeling. This includes recognition of how product features interact with the environment to either increase or mitigate the riskiness of the business. As the risk management function grows in importance, stochastic modeling will become an important tool for identifying the key risk drivers for each block of business and in developing strategies and programs for managing the potential financial impact.

Conclusions

In the days of Isaac Newton, physics was deterministic, and the worldview of the time is sometimes referred to as a clockwork universe. In the early 20th century, this worldview was shattered by Albert Einstein, Max Planck and Werner Heisenberg, introducing relativity, particle/wave duality and quantum indeterminateness to the way physicists view the world. This new worldview took time to gain acceptance. Einstein himself found the counterintuitive nature of quantum dynamics hard to swallow. As its power to explain real-world phenomena was demonstrated, the scientific establishment adopted these new principles as a starting point for further exploration of the complexities of matter and energy.

Obviously, using stochastic rather than deterministic models to measure the value of covered business should not be considered as important as the discovery of relativity or some other scientific breakthroughs. Our point is that we should be open to new ideas. Whenever the current valuation method is either not keeping pace or inappropriate for the insurance business, it is only natural to seek better alternatives. There is no guarantee that stochastic analysis can resolve all issues; it is a definite improvement. §

Don't Miss This Second Chance

The Proposed DAC on Internal Replacement SOP to Re-emerge Soon

John D. Morris

Editor's Note: This article was written in August 2004. Some events it anticipates as occurring in the future may already be in the past on the publication date.

It is not often that one is given a second chance. But if all goes according to current plans, actuaries and other insurance professionals will be given a second chance later this year. At its July meeting, the Accounting Standards Executive Committee of the American Institute of Certified Public Accountants (AcSEC) voted, among other things, to re-expose the current draft of the SOP: Accounting by Insurance Enterprises for Deferred Acquisition Costs on Internal Replacements Other than Those Specifically Described in FASB 97 (DAC for Internal Replacements SOP or SOP). Although it is unusual for the AcSEC to re-expose a document, given the significant changes that occurred since the March 2003 exposure draft, AcSEC decided a limited new exposure was appropriate. However, it will be a limited exposure, having occurred in October or early November. This will be an opportunity for actuaries to take advantage of a rare second chance.

Background of Proposed SOP

If this SOP is new to you, you may be interested in knowing that the AcSEC has been working on this project since 1999. The guidance in the SOP originated with that which is provided in EITF 96-19 Debtor's Accounting for a Modification or Exchange of Debt Instruments. EITF 96-19 provides that substantive modifications of debt, based on a quantitative measure, should be accounted for as the extinguishment of that debt and the creation of new debt. Copies of EITF 96-19 can be found on the FASB's Web site at <http://www.fasb.org/public/> for a small fee, or you can ask your company's public accounting firm to borrow their copy.

The DAC for Internal Replacement SOP uses this underlying principle to provide that substantial changes to an insurance contract, based on a qualitative measure, should be treated as an extinguishment of the original contract and the issuance of a new contract. The AcSEC considered a quantitative test similar to what is used in EITF 96-19 for debt instruments. However,

the AcSEC concluded that a quantitative test is not acceptable because of the complex nature of insurance contracts and the potential for manipulation due to the subjectivity of assumptions required to perform such a test. For non-substantial changes, the SOP requires that the original DAC should continue to be amortized by treating the new contract as a continuation of the original contract.

Recent Developments

At its July meeting, the AcSEC voted to make changes to the draft SOP based on comments received from the FASB. The FASB questioned how the guidance included in the draft SOP could indicate that (1) adding a guaranteed minimum return does not change the fundamental nature of contracts, while (2) capping the returns fundamentally changes the contract. The FASB suggests that these two situations are treated similarly: adding a guaranteed minimum return is treated as a fundamental change—the same as adding a cap on investment returns.

The FASB also questions the appropriateness of capitalizing sales inducements and acquisition costs associated with internal replacement contracts that are substantially unchanged, instead of expensing them as incurred. Additionally, the FASB does not agree that sales inducements offered in conjunction with an internal replacement that results in a substantially unchanged contract are accounted for, as if the sales inducement were explicitly identified in the original contract at inception—i.e., the FASB did not see these inducements as eligible for capitalization, as they did not exist in the original contract at inception.

The AcSEC reconsidered these items and voted to make changes to the SOP in accordance with the FASB's comments. The AcSEC also agreed to defer the proposed effective date of the SOP until 2006.



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continued on page 27 >>

Introduction to “Lifric”

Errol Cramer

Lifric is the phonetic moniker for the American Academy of Actuaries’ Life Financial Reporting Committee (LFRC). Its key objectives are (1) to represent the viewpoints of life financial reporting actuaries in providing advice to financial rule makers, and (2) to provide practical guidance to life insurance financial reporting actuaries. Its main focus is on U.S. GAAP; although, more recently, international accounting standards have become increasingly important. LFRC’s activities are of direct interest to members of the Financial Reporting Section, many of whom are Academy members. Academy guidance is in the form of public documents, which are generally available free to members and nonmembers alike. The purpose of this article is to introduce the reader to LFRC in general. Subsequent articles will provide information about specific current financial reporting activities of LFRC.

Some may recall LFRC by its prior name a few years back as the Committee on Life Insurance Financial Reporting (COLIFR).

LFRC’s Place in the Academy

LFRC reports to the Academy’s Life Practice Council. Other committees of the Life Practice Council handle U.S. regulatory reserving and risk-based capital issues. LFRC handles U.S. and international GAAP issues, as well as certain financial reporting aspects of U.S. statutory statements. LFRC is comprised of experienced actuaries actively involved in financial reporting, with representatives from a variety of insurers and from the major public accounting and consulting firms. I chair the group, with Ken LaSorella as vice-chair. It is an active committee with a full agenda that meets regularly and has frequent teleconferences. Details about LFRC’s membership and activities can be found at <http://www.actuary.org/yearbook/life.htm#2> or by contacting the staff person, Steve English, at the Academy (email.English@actuary.org).

Guidance Provided by LFRC

The Academy provides information using a variety of resources tailored to meet the specific situation at hand, including periodicals, reports and comment letters. General information about available resources can be found on its Web site at [actuary.org/resources.htm](http://www.actuary.org/resources.htm). For example, some of the recent guidance provided by LFRC includes the following:

- Frequently Asked Questions (FAQ) papers address select issues. An example is the draft FAQ on FASB Statement No. 133, which addresses

items related to computing the fair value of certain embedded policy benefit liabilities. LFRC will update this in 2004 for practice regarding modco reinsurance.

- Practice Notes are generally also in the form of Q&As, and set out common practices without judgment as to preference or suitability. Practice Notes address specific questions and to educate actuaries on newer issues. Practice Notes get updated as needed to reflect evolving practice. An example is the Practice Note on the AICPA Statement of Position (SOP) 03-1: Accounting and Reporting by Insurance Enterprises for Certain Nontraditional Long-Duration Contracts and for Separate Accounts. LFRC will be updating this in 2004 for recent developments, including a recent Financial Accounting Standards Board (FASB) Staff Position paper and a Technical Practice Aid under development by the AICPA.
- White Papers are occasionally prepared to provide a comprehensive analysis of a specific topic. An example is the Academy’s White Paper on the “Use of Best Estimate and Risk Margins in Unpaid Claim Liabilities for Insurance Companies,” which is under development with the assistance of LFRC. This deals with the selection of the best estimates, with or without margins, among ranges of possible values and how this compares across different practice areas.
- Monographs are documents that set out the appropriate practices for a specific major item. An example is a monograph on purchase GAAP for life insurance, which LFRC will be developing for 2005.

It should be noted that the guidance provided by LFRC is generally advisory only, as only the Actuarial Standards Board or the financial rule-making bodies may set binding guidance. LFRC has at times been involved in providing education to actuaries on U.S.-specific issues by providing speakers for Society and Academy meetings.

Influence Provided by LFRC

LFRC takes an active role in helping to shape financial rules that involve actuarial viewpoints. For life reporting issues, LFRC will directly comment to rule makers, and at times will actively participate in the development of rules or guidance. In situations of a more general reporting nature, the Academy’s Financial Reporting Council (FRC) will take the lead.

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The FRC includes representatives from the various practice areas, i.e., LFRC plus its property and casualty, health and pension counterparts. To be proactive, the FRC has annual meetings scheduled with relevant rule making bodies, including the Securities and Exchange Commission (SEC), FASB, AICPA and the Public Corporations Accounting Oversight Board (PCAOB). These meetings serve to ensure that actuaries remain recognized by and available to the rule makers, and can provide input where most valued. The initial meeting with the recently formed PCAOB is an interesting example of this process. They request that actuaries take the lead in developing techniques for fair valuing employee stock options; although Wall Street prices equity options, they see actuaries as well-skilled in valuing long-term employee benefits.

The FRC is actively engaged in International Accounting Standards developments. This has relevance to all actuaries, even those working in firms that oper-

ate only in the United States, because FASB has a stated objective of convergence with international accounting standards. The International Actuarial Association (IAA) is developing its initial Practice Notes, and LFRC will be reviewing and commenting on the aspects of the exposure drafts that are related to life insurance.

Summary

In summary, LFRC, as part of the Academy, represents the actuarial profession to public policymakers regarding life financial reporting issues. So it is important that all life financial reporting actuaries are able to follow the activities of LFRC. This is especially true, given the trend in accounting and reserving away from prescriptive guidance toward principles-based guidance, where more reliance is placed on the relevant business specialists in determining the practice details. Finally, LFRC is an important source of guidance for practicing life financial reporting actuaries. We plan to inform you of our activities in future articles. §

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Other Changes to Original Exposure Draft

What else has occurred with this SOP since the original exposure draft was issued? First, the AcSEC received 10 comment letters to the exposure draft, including one from the American Academy of Actuaries' Life Financial Reporting Committee. The AcSEC's view of the comment letters was that the original draft SOP was confusing and its underlying principles were not well communicated. However, the AcSEC did not feel that any of the comments identified critical flaws in the SOP that would require major changes in the SOP's underlying guidance. Nor did the AcSEC feel that the SOP should be abandoned, as was suggested by at least one commenter.

Second, in an effort to respond to the comments received, the AcSEC modified the draft SOP to make the underlying theory more understandable. Gone are the concepts of inherent nature and primary benefit, which many found to be confusing and arbitrarily defined. The revised SOP includes a more straightforward presentation of the requirements that must be met for a contract to be considered substantially unchanged, including a flowchart of those requirements. Lastly, the AcSEC also acknowledged their concern for companies' ability to administer the provisions of the proposed SOP when it approved an alternative DAC accounting methodology for qualified internal replacements that resulted from a contract exchange. Under the alternative

methodology, the DAC amortization for the replacement policy would be a prospective only calculation, starting with the DAC allocated to the new contract from the original policy.

The AICPA Web site contains materials discussed in the AcSEC meetings, available at <http://www.aicpa.org/members/div/acctstd/general/mtgagen.htm>. Click on the April and July 2004 links to get the current draft of the SOP and other relevant information about the SOP discussed by the AcSEC. This link can also be checked in early September to get copies of an updated draft SOP that AcSEC will be discussing at their next meeting on September 8th and 9th. The original March 2003 exposure draft SOP can also be found on the AICPA Web site at http://www.aicpa.org/members/div/acctstd/edol/acctg_for_DAC_2003_03.asp.

What's Next?

The changes made in response to the comments received from the original exposure draft, along with changes suggested from the FASB, were significant enough for the AcSEC to vote to re-expose the SOP, and thus give us a rare second chance. To take advantage of this opportunity, actuaries should be prepared to provide quick feedback on the new exposure draft, when it is released later this year. Once the AcSEC and the FASB approve the final wording in the exposure draft, you will be able to get a copy of the document at the AICPA's Web site (<http://www.aicpa.org>) under "Exposure Drafts." §



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