RISK MANAGEMENT SECTION
"A KNOWLEDGE COMMUNITY FOR THE SOCIETY OF ACTUARIES"

Risk Management

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Actuaries
The Best-Kept Secret in Business™

Risk Management Section's Terrible Twos

by David N. Ingram

The Risk Management Section recently turned two years old. As many of you who are parents know, a two-year-old can be quite a handful. Two-year-olds are just learning that they can be much more independent. They have more skills than one-year-olds and much more potential to cause trouble.

Our group has been growing like a small child. Last count, our membership was around 3,000 with more than 500 from the CAS (see the section membership statistics at end of this article). Our parents, the SOA and the CAS have both recently expanded their commitment to risk management and to the importance of our mission.

Our response, like a two-year-old, has been to run off in several directions at once. However, unlike the typical two-year-old, we have the advantage of having many legs and many, many hands. And hopefully, many heads as well.

The section council has expanded from nine to twelve members and we have also consolidated our committee structure. We will be operating with only six committees. Each committee will be empowered and expected to act within the broad directions that have been set down by the council. We will be making a special effort to break out of the standard for section councils, where the council members act as surrogate volunteers for the entire section membership. Committees will be made up of section council members working with non-council members. YOU can help. You do not need to be elected to the council to make a contribution.

The newsletter committee, headed by Ken Seng Tan and Ron Harasym, will be continuing to produce this excellent publication. They are looking for help from people who are willing to write articles and from folks who would be able to help develop articles.

Hubert Mueller, Larry Rubin and Tony Dardis are leading the efforts for the Continuing Education Committee. They will be developing sessions for SOA meetings as well as for stand-alone continuing education programs like last year's very successful webcast.

The Risk Management Section will be again co-sponsoring the ERM Symposium in Chicago this April. Valentina Isakina is leading the Organizing Committee and council members Hubert Mueller, Frank Sabatini and Kevin Dickson have been working on the committee. You should have already heard about the program for 2006. We will be starting work on the 2007 ERM Symposium this summer and will be looking for new committee members.

Fred Tavan and Ron Harasym are heading the Research Committee. They have a working committee that is reviewing research proposals and finding staff for the project oversight groups. They need several additional people to work with the Research Committee and on oversight committees.

The rest of the section activities fall into the category of Special Projects. There are quite a range of these including: Risk Index, Operational Risk, Risk Management Terms, Risk Preference, ERM, Extreme Value Modeling, Policyholder Behavior, Actuarial Value Proposition, Best Practices and Local Networking.

In addition, while we generally find two-year-olds doing "side-by-side" play, I am hopeful that the SOA and CAS members of the section will very quickly move into actual collaboration. And along the way to collaboration, we quickly need to learn from each other the techniques, skills and experiences that we have developed in our separate actuarial practices. To do that, we are trying to encourage folks to share their risk measurement and management experiences in hopes that sharing will help

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2006 SOA Section Membership Statistics (as of January 12, 2006)

Section	Total Section Members
Education	693
Financial Reporting	3,758
Actuary of Future	899
Futurism	676
Health	3,486
International	1,747
Investment	4,778
LTCI	1,649
Management and Personal Development	1,302
Marketing and Distribution	2,108
Pension	3,950
Product Development	3,869
Reinsurance	2,392
Risk Management (exclude CAS members)	2,306
Smaller Consulting Firm	585
Smaller Insurance Company	685
Taxation	575
Technology	1,503
Grand Totals	**36,961**

identify these areas for learning and collaboration. If you have any thoughts, ideas or experiences to share that might further this learning and collaboration, please contact me or any member of the section council.

Finally, before you pass on the content of this publication, I want to mention one more thing about volunteering. Five years ago, when the first Risk Management Task Force Committees were formed, few of the volunteers had much risk management experience. Today, if you did a roll call of those initial volunteers, the majority of them now have full-time risk management jobs. This is still a new and growing area. The risk management job candidates with volunteer experience will have two advantages over those without. They will have learned some valuable things about some specific areas of risk management through their volunteer work and they will have that volunteer work on their resume. If you might be interested, contact me or any section council person. We can fill you in on these success stories and on current volunteer opportunities. ✦

> “...Risk management job candidates with volunteer experience will have two advantages over those without.”

Risk Management Section Growing

by Mike Boa

Year 2005 was a year of remarkable growth for the joint CAS/SOA Risk Management Section, as casualty actuaries joined in force. More than 500 members of the CAS have joined the section, bringing the total section membership to about 3,000.

The rapid growth will help the section to achieve its primary 2006 objectives of expanding ERM educational opportunities, fostering risk management research, and supporting the initiatives in promoting actuaries as risk managers.

The work of the section is accomplished by its teams, and the additional CAS members will help get the work done while providing a casualty perspective. The teams include:

- Membership Value Team
- Communications and Publications Team
- Newsletter Team
- Continuing Education Team
- Basic Education Team
- Risk Management Research Team
- Marketplace Relevance Team
- Professional Community Team

The Research Team provides support and direction to several specific initiative-related research committees, two of which are led by CAS members. Mark Verheyen is chairing the Operational Risk Management Committee, while Michael Belfatti is chairing the Standard Risk Management Terms Committee.

In addition to the chance to be on the front line in advancing actuaries in the risk management arena, members of the section enjoy other benefits, such as receiving invitations to section networking events, like the one held during the 2005 CAS Annual Meeting in Baltimore. The CAS Vice President of Risk Integration and ERM, John J. Kollar, led a discussion over (real) breakfast with about 25 other early-risers about the value that actuaries can bring to the risk management profession.

Section members also receive Risk Management, the section newsletter, and e-mail communications announcing upcoming research, projects, continuing education events and other activities.

Additional information about the section, including an application to join, can be found on the SOA Web site at *http://www.soa.org/ccm/content/?categoryID=342001*.✦

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Dynamic Risk Modeling

by James E. Rech

The year was 1995 and the Casualty Actuarial Society's Dynamic Financial Analysis Committee (DFAC) had published its first DFA Handbook. The handbook provided a cookbook approach outlining numerous considerations in the development of a dynamic financial analysis model. The mere fact that the handbook consisted of nearly 85 pages of considerations and was reflective of the perceived notion that DFA modeling was a "daunting task;" few firms were willing to expend the time and costs in developing and maintaining such extensive DFA models.

The DFA world continued to evolve. The DFAC created new "chapters" for the DFA Handbook in order to expand the scope of the original handbook. More recently, the DFAC changed its name to the Dynamic Risk Modeling Committee (DRMC). The name change was indicative of the more current thought process that advocates the usefulness of dynamic modeling techniques for projects with various scales of scope and purpose. Firms were willing to fund the development of more specific dynamic risk models addressing reinsurance strategies, stochastic reserving, aggregate loss distributions, catastrophe modeling, predictive modeling, etc. The power of dynamic modeling techniques in addressing specific management concerns is now evident.

Ten years have passed since that original DFA Handbook. Last year, the DRMC set up a Working Party (WP) to rewrite and update the renamed DRM handbook. Attesting to a wide interest in the handbook, the membership of the WP was fairly evenly distributed among credentialed actuaries, students and non-actuaries. Geographically, while the majority of members were in the United States, we have several members located outside the U.S. boarders.

The concept of this new handbook is to build upon the substantial contributions from previous authors. As such, much of the current undertaking is based on reorganizing, updating and editing the current DFA Handbook in conjunction with other existing DRMC published articles. The revised (and renamed) "Dynamic Risk Modeling Handbook" is intended to provide a basic understanding of and practical guidelines for the development and implementation of dynamic risk models common to the property and casualty insurance industry. In addition, it is hoped that the DRM Handbook will become a basic reference source for the educational needs of future modelers and the practical day-to-day application needs of experienced practitioners.

The scope of this rewrite is to:

- Restructure and edit the existing core chapters of the current "Dynamic Financial Analysis Handbook" for consistency.
- Add new chapters including "Introduction," "Asset Modeling," "Coherent Risk Measures", and "Presentations of DRM Results."
- Introduce practical examples within these core (and new) chapters to illustrate the concepts using the Public Access DFA Model where that would be helpful to illustrate a concept.
- Add a bibliography relating investment concepts on the syllabus to Dynamic Risk Modeling (the syllabus now has sections on Part 8 that address interest rate models for example).
- Add at least five (5) case studies choosing from the subjects listed below (as Appendices) –
  - Interest Rate Models
  - Investment Policy Statements (IPS) and the economic dependencies between Asset Classes and Liabilities
  - Financial Risk Management (hedging and the use of financial derivatives, options, swaps and forwards)
  - Surplus Allocation
  - Reinsurance
  - Alternative growth strategies by line of business

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Dynamic Risk Modeling Handbook

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  - Alternative investment strategies
- Integrate some (or all) of the new case studies with the Work Products of the Working Party on Executive Level Decision Making using DRM and the Working Party on the Public Access DFA Model.
- Set up guidelines for future enhancements, corrections or additions to the new handbook.

It is anticipated that the examples and case studies used in the handbook will be based on the public access model and will be coordinated to the greatest extent possible with the development of the Casualty Actuarial Society's new Risk Modeling Workshop. Documentation, enhancements and "conversion" to "open source" for the public access model is the subject of another WP being sponsored by the DRMC, so coordination of the handbook with this WP is also part of the process.

The general guideline was for the DRM Handbook Working Party to complete its assignment within one year. Unfortunately, the original time frame has turned out to be optimistic. While the majority of the handbook is now in its editing stage, we still require a great effort on one of the primary casualty chapters, Price/Reserving Models. But first, the basics of the handbook: The structure of the DRM Handbook will include nine chapters and three appendices.

Chapters

1. Introduction
2. Overview of the DRM Process
3. Strategies
4. Scenarios
5. Asset Modeling
6. Price/Reserve Modeling
7. Performance and Risk Measures
8. Coherent Measures of Risk
9. Presentations of DRM Results

Appendices

1. Bibliography
2. DRM Checklist of Considerations
3. Glossary of Terms

Because the distribution of the handbook will be digital, it is intended that it will be regularly updated to highlight technical advances and innovations in risk modeling.

While the majority of the DRM Handbook is progressing nicely, there are still a couple of areas in which the handbook requires additional efforts. The first area is in the development of Chapter 6, Price/Reserve Modeling. The second area is in the development of the five case studies for the handbook. We are still looking for writers for these critical additions to the DRM Handbook. If you are interested, please contact Run Yan at *run.yan@mercer.com* or myself at *jresch@gpwa.com*. ✦

> "It is anticipated that the examples and case studies used in the handbook will be based on the public access model and will be coordinated to the greatest extent possible..."

Chief Risk Officer Forum
Principles for Regulatory Admissibility of Internal Models

by John C.R. Hele and Henk van Broekhoven

The Chief Risk Officer (CRO) Forum, comprising risk officers of the major European insurance companies and financial conglomerates, was formed to address key risk issues. It is a technical group focused on developing and promoting industry best practices in risk management. The membership is made up of the following companies: AEGON NV, Allianz AG, Aviva PLC, AXA Group, Converium, Fortis, Generali, ING Group, Munich RE, Prudential PLC, Swiss Re, Winterthur and Zurich Financial Services. In the November 2005, Issue No. 6 of *Risk Management*, the June 2005 CRO Forum study, "A Framework for Incorporating Diversification in the Solvency Assessment of Insurers" was presented. This article summarizes the other CRO Forum study published at that time.

Introduction

The CRO Forum has undertaken a study to benchmark internal models, so as to discuss the admissibility of these models for regulatory purposes in the context of Solvency II. In internal models the true risk profile and solvency position of a company is reflected and therefore the use of internal models provides a real incentive for improved risk measurement and risk management. The study presents the results of the benchmarking of internal models and also presents a proposed set of principles that could be used by regulators for validating and admitting internal models for regulatory capital purposes.

Inventory of Risk Measurement Frameworks Used by CRO Forum Members

The CRO Forum established a benchmarking team consisting of Damir Filipovic and Daniel Rost of the University of Munich, with Mercer Oliver Wyman for supplementary support. A detailed questionnaire, set up by the benchmarking team, was completed by all participants and three regulatory agencies. The survey outcomes were discussed with the risk management departments of all 13-member companies. There were also responses from BPV (Switzerland), DNB (Netherlands) and BaFin (Germany).

Overview of the Results of the Benchmarking Study

The most important and interesting conclusion is that the approaches used by the participants in the benchmark study are highly similar. In some cases there are differences, often driven by differences in the type of business.

With respect to the framework definition, most of the participants (69 percent) use a VAR approach with a one-year time horizon, and more than 75 percent follow an economic approach. The vast majority (85 percent) only use, at maximum, one year of new business. Only a few (15 percent) use the IAA (A Global Framework for Insurer Solvency Assessment) advised TailVaR as the risk measure due to the complexity of this measure. With respect to the confidence levels, all participants use a confidence level above 99.5 percent (99.6 percent to 99.99 percent). For solvency purposes a regulatory consensus appears to be converging to 99.5 percent.

Overall, the modeling methodologies used are in line with those recommended in the IAA Solvency Framework paper. The important issue is that ALL risk should be measured in a consistent way. All participants model and measure market risk and credit risk. Most participants (more than 75 percent) also model credit risk for reinsurers. As expected the quantitative measurement of operational risk is still in its infancy.

The interesting conclusions on the framework implementation are that most (69 percent) have a detailed documentation system, but that only about half (54 percent) have a formalized sign-off procedure. Also it seems that, although critical for gaining senior management commitment, links to management compensation are still in their infancy.

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Overview of the Resulting Principles Defined by the Chief Risk Officer Forum

Principle Risk Modeling Framework

- Internal models need to be based on the adverse movement in the Economic Value of the difference between the Assets and Liabilities, calibrated to an annualized 99.5 percent probability of solvency.
- Modeling approaches based on longer time horizons or alternative risk measures (e.g., TailVaR) are permissible, provided the calibration approach used can be shown to be consistent with an annualized 0.5 percent probability of economic insolvency
- One year's new business should be explicitly modeling, based on assumptions that are consistent with business plans, where this has a material impact on the risk profile of the group
- Assets that are not likely to be available in the event of insolvency (for example, profits from future new business, the component of deferred tax assets arising from losses carried forward), should not be included as available capital in the internal model
- Best estimate liability cash flows should be discounted at swap rates, as they are typically the most liquid, complete and reliable risk-free rates available. This is more conservative than using a truly economic discount rate that would include an allowance for the credit spread of the insurer itself (or of the counterparty to whom the liabilities would be transferred in the event of insolvency)

Principle Modeling Market Risk

All sources of market risk need to be modeling probabilistically with inter-factor dependencies explicitly modeling.

- Choice of modeling approach (simulation-based or analytical) and granularity of modeling needs to be proportionate to the risks/businesses being modeling. For example:
- *Interest rates* — Cash flow matching taken account of by modeling of the whole yield curve
- *FX mismatch risk* — Currency mismatches between assets and liabilities/supporting capital explicitly modeling
- *Equity risk* — Equity risk modeling based on analysis of the relevant market index where concentration in individual sectors/individual stocks differs from the index, such concentrations should be explicitly modeling
- *Real estate risk* — Real estate risk modeling based on analysis of the relevant property market index, or reasonable proxies if such an index is unavailable—where concentration in individual sectors/individual stocks differs from the index, such concentrations should be explicitly modeling
- *Derivatives/market risk mitigation* — Explicit modeling through simulation/scenarios, with counter-party credit risk also being measured.
- *Embedded options and guarantees explicitly modeling through simulation modeling:*
  - Management actions (e.g., bonus rates on participating business, dynamic asset allocation policies), where material, should be explicitly and realistically modeling, with modeling management actions codified as policy and disclosed to the supervisor
  - Policyholder behavior, where material, should be explicitly and dynamically modeling, with key assumptions (which could be either expert-opinion based or empirically based) being dis closed to the supervisor
- *Parameterization of volatility and dependencies between market risk factors should be derived from an appropriate and reliably time series of market data, and should be estimated accounting for tail dependencies (e.g., understressed conditions)*

Principle Modeling Credit Risk

- All sources of credit risk need to be modelled, or demonstrated to be insignificant.
  - Investments
  - Reinsurance/derivative counterparty failure
  - Credit insurance
  - Trade creditors, debtors
- All different manifestations of credit risk should be modeling
  - Default risk
  - Migration risk
  - Spread risk

> People have trouble incorporating a priori probabilities, which can be the most important factor with qualitative information in estimating probabilities.

- Credit insurance should be modeling using methodologies that reflect the specific exposure characteristics and risk mitigation options inherent in the business
- If credit exposures can be accurately represented by external credit indices (e.g., Euro 'A' corporate bond index) and credit concentrations are not material relative to the relevant index, then default risk, migration risk and spread risk can be modeling on integrated basis through direct modeling of the index (e.g., through an Economic Scenario Generator)

If representative credit indices are not available, or credit concentrations are material, then default and migration risk need to be modeling explicitly in a manner aligned with the principles of Basel II.

Principle Modeling Insurance Risks

- For life/health insurance mortality, morbidity and persistency risk should all be measured, ensuring that parameter, process and calamity risks are all covered by the modeling
- For non-life insurance the risk associated with current year underwriting (premium risk) and prior years' underwriting (reserve risk) should both be measured (either in an integrated model, or separately), again ensuring that parameter, process and calamity/catastrophe risks are all covered by the modeling
- For both life /health and non-life insurance process, catastrophe/calamity and parameter risk should be measured using either scenario or probabilistic approaches
    - Process (or volatility) risk, the risk associated with the anticipated year-to year volatility in insurance result, should be measured probabilistically, supported by scenario analysis where appropriate
    - Separate estimation of calamity/ catastrophe risk should be carried out using scenarios/probability distributions based on scientific analysis and expert opinion
    - Parameter risk – if significant, level and trend risk should be measured separately based on a combination of scientific analysis, expert opinion and analysis of historical experience
- Reinsurance/risk transfer
    - Proportional reinsurance can be modeling consistently with the approach used for modeling the gross losses
    - For additional credit to be given for non-proportional reinsurance scenario or probabilistic approaches must be used
    - Capital must be held to cover the risk of counterparty failure, taking into account possible dependencies between the size of gross losses occur ring and counterparty failure

Principle Modeling Operational risk

- Operational risk needs to be explicitly accounted for under Pillar 1, in a manner aligned with the principles of the Basel II approach

Reaction to the Study

Regulators and other interested parties were appreciative and complimentary toward the study. Solvency II is moving ahead in 2006 with internal models as a core foundation in the framework. Work is now underway by the Committee European Assurance (CEA), the European Insurers Association, and also with the help of the CRO Forum, on the development of a recommended standard model for insurers. Solvency II regulations are expected to be drafted by 2007 for an expected introduction by 2010, creating a modern financial regulatory insurance system for Europe. ✦

More detailed information can be found in the June 10, 2005 CRO-forum paper: "Principles for Regulatory Admissibility of Internal Models." Copies can be obtained at the secretariat, CRO Forum: *Giselle Lim. gisellelim@kpmg.com*

Further information:

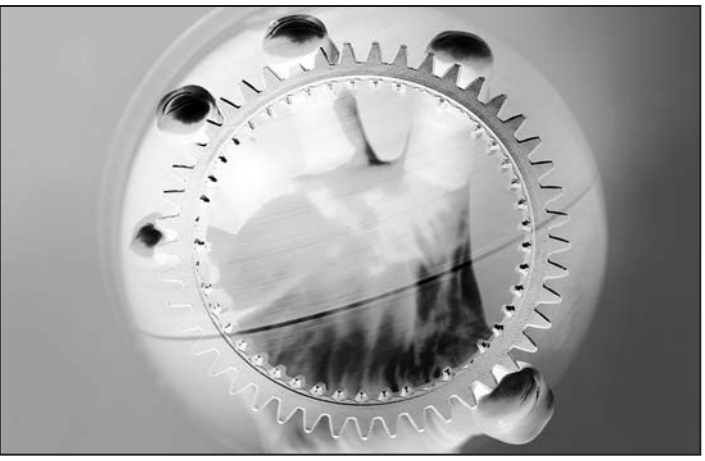
Risk Management, Issue No. 6, November 2005: "Chief Risk Officer Forum: A framework for incorporating diversifications in solvency Assessment of insurers."

"Solvency Assessment Models Compared," CEA and Mercer Oliver Wyman, March 2005

IAA: "A Global Framework for Insurer Solvency Assessment" 2004

Internal Controls—The COSO Way

by Dorothy L. Andrews



The Committee of Sponsoring Organizations (COSO) of the Treadway Commission was started by professionals from the following five professional organizations: The American Accounting Association, The American Institute of Certified Public Accounts, The Financial Executives Institute, The Institute of Internal Auditors, and The Institute of Management Accountants. Actuaries like to think of COSO as a euphemism for accountants taking over the world, especially in view of its sponsorship. The COSO has as its primary goal the improvement of corporate financial reporting, which makes it a stronghold in the emerging practice of Enterprise Risk Management.

The COSO published *Internal Control—Integrated Framework*, in 1992 in response to recent corporate scandals and audit improprieties. It should not be a surprise to anyone that business scandals lead to increased regulations. The Security and Exchange Commission (SEC) and the National Association of Insurance Commissioners (NAIC) have as their mission to protect consumer interests from the effects of corporate misconduct. Their only weapons are legislation and regulation, but they are aimed at the good, the bad, and the ugly alike. Paradoxically, the SEC and the NAIC, in effect, contribute to the erosion of consumer value because the burden of increased legislation and regulation challenge the best and biggest of companies to survive profitably under tough economic and regulatory conditions. The COSO principles of internal control are intended to be self-policing, by providing a framework to place under surveillance the activities of key areas of a company. A surveillance system should link key activities across an organization and illustrate the impact on the organization of a failure in a key activity. For example, if policies error from a reserve valuation run, then the surveillance system should capture the missing policies and trigger an alert to indicate, at the very minimum, that the number of policies valued does not agree with the policy count of the valuation file. While more complicated alerts are possible and appropriate, it was rare to find insurers with this simple model in place to validate reserves in my many years of performing actuarial audits on insurance companies.

The new approach to risk management as embodied in the COSO principles looks at organizational risk from a broader perspective than would traditional risk management. Traditional risk management was purely concerned with the frequency and severity of expected losses. The new risk management paradigm has a much wider wingspan and circles over a much wider landscape of an organization with its internal control doctrines. The COSO defines 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 the following categories: 1) Effectiveness and efficiency of operations, 2) Reliability of financial reporting, and 3) Compliance with applicable laws and regulations.* It is important to understand the fundamental concepts upon which this definition rests. *First, internal control is a process, a means to an end, not an end in itself. Second, internal control is effected by people. It is not merely policy manuals and forms, but people at every level of the organization. Third, internal control can be expected to provide only reasonable assurance, not absolute assurance, to an entity's management and board. Fourth, internal control is geared to the achievement of objectives in one or more separate, but overlapping categories.*

Let's examine briefly each of these fundamental concepts.

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Process

The most important thing to understand about internal control is that it is a management tool consisting of a network of business activities that are not only inter-related, but also reactive to negative stimuli within the network. This network extends to and is ingrained in every corner of the organization, making it as much of the essence of the organization as that expressed by the organization's mission statement. In this way, internal control is not intended to relieve management of an active and participatory role in running the business or the responsibility of adverse consequences of business activities.

The COSO way describes internal controls as "built-ins" rather than "built-ons" to an organization's infrastructure. The difference is that built-in controls are internal to a process, while built-on controls are external to a process. For example, enabling valuation systems to programmatically verify policy counts and premiums against financial ledger amounts is an example of a built-in control. In this scenario, discrepancies are highlighted immediately and appropriate actions can be taken. A built-on control would involve a manual reconciliation of the two files, which, depending on resources, may or may not get done. Built-in controls are the handmaidens to effective quality initiatives, aiding in the containment of the cost of doing business and decreasing reaction time to adverse events.

People

We all know the cliché, "Our people are our greatest asset," or something similar. These assets, however, can erode company value if ill-trained to perform as needed. Internal control is implemented by every member of the organization, from the board members to the receptionists and security guards. They all have a role to play in effecting sound internal control management. Most people in an organization do not understand the impact their jobs have on the work productivity of others. For this reason, it is important to train associates at all levels of an organization in the principles of risk management. The principles emphasize the impact and inter-relationships among firm activities.

Information is a most valuable asset in a company and senior management depends on high quality information to steer the organization in a profitable direction. However, the flow of information in many organizations is a lot like playing the familiar, childhood telephone game. In the telephone game, a message is whispered from one person to the next until it gets to the last person in the line. The last person stands up and recites the message and a comparison is made to the content of the message whispered by the first person in the line. With near perfect probability, the recitation made by the last person has no relationship to the content of the initial message whispered. This game epitomizes the flow of information in most insurance companies with senior management as the final stop. The installation of a sound set of internal controls will improve the handoff of information around the organization, and empower management to better manage the company. Key to installing internal controls is an associate education program, which focuses on the interplay and impact of activities conducted throughout the organization. At the very minimum, risk management education should begin with new hires and then extend to others with the goal of changing the current culture to a more risk-conscious one.

Reasonable Assurance

An organization may not succeed with internal controls, but it clearly cannot survive without them. They are not absolute in the preventing management from navigating the organization in the wrong direction, however. By their very nature, internal controls have limitations, as it is nearly impossible to manage for every operational and enterprise contingency. But, internal control systems do allow for retrofitting and upgrading as an organization sees fit to narrow the range of events that can nudge it off course. This

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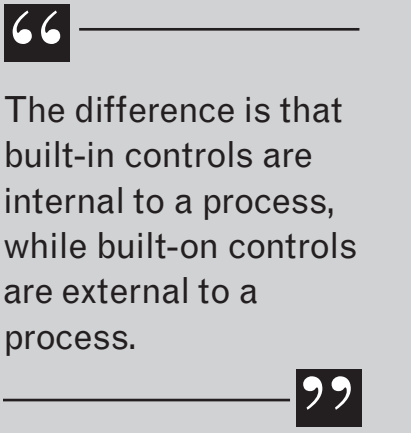

Internal Controls—The COSO Way

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implies there must always be someone on watch and ready to react to adverse indicators triggered by the system.

Objectives

Company objectives generally fall into one of three categories: operations, financial reporting, and compliance. Operational objectives include all those objectives relating to the effective and efficient use of firm resources. Financial objectives relate to the preparation of financial statements. And compliance objectives relate to compliance with laws and regulations. Operational objectives differ from the other two in that the achievement of the latter two objectives can be measured by external means. For example, either a company is compliant with a law or it is not. Operational objectives come in two flavors: internal and external. The achievement of internal operational objectives is subject to the people and processes of an organization. External operational objectives are not always within complete and total control of the organization. For example, the achievement of a specified investment return is not in the sole control of management. The internal control infrastructure should be responsive in measuring the fit or lack of fit between external organizational objectives and unfolding experience.

It should be recognized that an organization's objectives may fall into more than one category to address different needs and assign accountability for meeting those objectives to different officers of the company. The overlap should not prevent a reasonable assignment of expectations in meeting each category of objectives.

The Five Components of Internal Control

The COSO has defined internal control as consisting of the following five components: control environment, risk assessment, control activities, information and communication, and monitoring. Each of these components is worthy of more attention than the treatment given here. However, a coloring of the role of each component in building an effective internal control system is important to complete this discussion.

Under COSO, a control environment is the sum total of the people making up the organization. Their integrity, ethical values, and competence are the main drivers of a company's success or failure. Education becomes key in making sure each member of an organization understands the risk culture management values and in making sure all members understand the required competencies required for their role.

The risk assessment function on a basic level identifies, analyzes and manages related risks. On a higher level, risk assessment involves the integration of risk recognition with objectives related to sales, production, marketing, financial and other activities. This integration should enable all these activities to work in tandem to maximize company value.

Control activities consist of the policies and procedures that monitor the execution of management directives. These activities come in many different forms depending on the directive. Approvals, authorizations, verifications, reconciliations, reviews of operating performance, security of assets, and segregation of duties are among the types of control activities supported by a system of internal control. They are designed to prevent intentional and unintentional breaches of the risk policy of an organization.

It is universally agreed that the delivery of quality information is the central ingredient to good decision making. The COSO recognizes all the sources of both internally and externally generated data and supports a complete inventory of such to define the inter-relatedness of all the pieces. These inter-relationships form the basis

of a risk management surveillance system and are integral to an internal control process. The communication to and education of associates further cements the importance of the roles performed by others and the impact of these various roles in concert and in isolation.

Lastly, the ever important activity of monitoring is a necessary evil to ensure the process in working as desired. Periodic evaluations are necessary to flag irregularities in the system. The scope and frequency of these activities is a function of the degree to which manual processes are involved. More manual tasks naturally become candidates for more monitoring to maintain equilibrium in the system. It is important to report imbalances upstream for immediate resolution to empower management to adjust the course of the organization toward a more profitable direction.

In summary, installing internal controls is no small task. Many organizations have antiquated systems and depend on manual processes controlled by people to understand the organizational mechanics that drive bottom line results. It also becomes very challenging to assess how and when pertinent data adversely changes form or if it has changed at all. Maintaining data integrity as data flows throughout the organization must be a top priority and a key objective in designing an internal control process. A second priority and design incentive must be the alignment of individual goals with company objectives. History has shown us that a misalignment is often the root cause for the deterioration of company value. It is more true than not that the likelihood of a catastrophe event bringing down an organization is much, much smaller than that of mismanagement. Therefore, if an organization needs two reasons for installing internal control processes, then maintaining data integrity and preventing mismanagement are very strong ones.

Required reading for all risk officers: *Internal Control—Integrated Framework*, September, 1992 and *Enterprise Risk Management—Integrated Framework*, September, 2004, by the Committee of Sponsoring Organizations of the Treadway Commission. Both are available from the American Institute of Certified Public Accountants (*www.aicpa.org*) for less than one business scandal or one faulty audit. ✦

“History has shown us that a misalignment is often the root cause for the deterioration of company value.”

Standard & Poor's Enterprise Risk Management Evaluation of Insurers

by David N. Ingram

In October 2005, Standard & Poor's Ratings Services announced a new addition to the analysis process that leads to the ratings of insurers: Enterprise Risk Management (ERM) evaluation criteria.

Within the evaluation of ERM capabilities, Standard & Poor's will primarily be looking at how management of an insurer defines the loss tolerance of the firm and the processes that are being performed to assure that losses experienced by the insurer are kept within that loss tolerance. In addition, the ERM evaluation will focus on the degree to which insurer management views risk and return for risk-taking in setting corporate direction and in strategic decision-making.

The ERM evaluation will primarily be a subjective view of quality of management practices. The focus will be to look for practices that are being carried out in a systematic and consistent way that will lead to the control of future losses in a predictable manner and that will lead to an optimal risk/reward structure for the insurer's businesses. The ERM practices will be viewed in comparison to the risks of the company and to the practices of peer companies with similar risks. Standard & Poor's will look for sophisticated risk-management practices to deal with sophisticated risks.

Insurers will be viewed as having "excellent," "strong," "adequate" or "weak" ERM.

To reach those views, Standard & Poor's will evaluate ERM quality in five areas:

I. Risk Management Culture

Risk management culture is the degree to which risk and risk management are important considerations in the everyday aspects of corporate decision-making. To evaluate risk management culture, Standard & Poor's will look at the staffing and organizational structure of the people who are charged with executing the risk management function in the insurer. The governance structure as it relates to risk management is another aspect of risk-management culture. A favorable indicator of risk-management culture is a structure that is indicative of a high degree of influence on decision-making by risk management staff. Communication of risk and risk management—both inside and outside of the insurer—are also indicators of risk-management culture. An insurer with a strong risk management culture will have a very transparent risk management process within the company and with other interested parties through their public communications.

II. Risk Controls

Risk control is achieved through identifying, measuring and monitoring risks as well as by setting and enforcing risk limits and managing risks to meet those limits through risk avoidance, risk transfer and risk offset or other risk-management processes. Standard & Poor's will evaluate risk-control processes for each of the important risks of an insurer. Consistency between the overall corporate risk tolerances and the specific risk limits will be an important consideration. Summary descriptions of risk-control programs as well as examples of actual execution will be reviewed. Standard & Poor's will be looking for insurers that have programs that are structured to effectively deliver the risk control needed to maintain the exposures and losses within the risk tolerances as well as consistent execution of those programs that is sufficiently embedded in everyday practices that future execution can be reliably inferred.

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III. Extreme Risk Management

Extreme-event risk management is concerned with the impact of low frequency adverse events on the company. Low frequency events cannot easily be managed via a control process because the monitoring is not expected to show any results in most periods. Common extreme event risk control practices include trend analysis, stress testing, contingency planning, problem post mortem and risk transfer. Standard & Poor's will be looking for insurers to show that they are practicing extreme risk management in advance of problem events and will also be looking for the results of effective extreme event risk management during and after adverse events. Those results will include prompt information on the exposure of the insurer to loss from the actual event, prompt and surefooted insurer response to the event, losses that are moderated in some fashion, and a clear set of lessons learned and adjustments to future procedures.

IV. Risk and Economic Capital Models

Risk and economic capital models are an important part of ERM. Effective flow of information about risk positions and their possible impact on the insurer are key to effective risk management. Standard & Poor's assesses the risk models of an insurer in relation to the risks of the insurer and to the processes that the insurer has to use the information from the risk models. An insurer with effective risk models will be able to show that the models produce the information needed to perform the basic risk-control functions that are needed to sustain losses to within their risk tolerances. This means that the risk models need to produce information that is sufficiently accurate, up-to-date and timely to drive correct and well-timed risk-management decisions and actions. These models need to be clearly understood by management. The insurer needs to demonstrate a regular process of model validation as well as a process for updating data about the business activity being modeled and the assumptions that are used in the model. The model needs to be sufficiently robust to produce insight into all of the risks that are retained as well as the risks that are written but not retained. The models need to provide information that is both descriptive of the size of the risk and information that is actionable in managing the risks. If those two different objectives are met by different models, then the two models need to be reconciled regularly.

To accomplish strategic risk management, insurers need to determine the risk capital that is associated with their products, investments and operations. Evaluation of an insurer's processes for developing risk capital involves looking at the underlying assumptions, data flows, validation and calculation processes. Insurers that use regulatory or rating agency risk-based capital formulas without modification will be pressed to demonstrate that those models appropriately capture the actual risks of their specific business. Insurers that modify those formulas in an appropriate manner to reasonably approximate the capital needed to support their risk positions are seen to have adequate practice in this area. Economic capital models are sophisticated and detailed models that produce spot values for capital needs, often linked closely to specific market values on the exact day of the calculation. For very complex risks, economic capital models might be the only manner of reasonably identifying capital needs.

At this point, Standard & Poor's will be looking for appropriate processes to develop risk capital amounts that are consistent with the insurer's risks and risk-management programs, that have an update and validation process that produces a result that is consistent with the intent of the insurer, and that are produced on a schedule that will support usage in the insurer's strategic risk-management processes.

Standard & Poor's will be continuing to develop robust processes of evaluating insurers' Economic Capital processes so as to better inform our overall view of the financial strength and capitalization in particular. This review will only be performed for companies that are found to have effective and coordinated processes for risk control, business continuity, risk management culture, and risk models.

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> "As ERM becomes the mantra for today's insurance organizations, companies can fail to assess the real impact of reinsurance in the ERM integration process."

ERM Evaluation of Insurers

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V. Strategic Risk Management

Strategic risk management is the process that an insurer uses to incorporate the ideas of risk, risk management and return for risk into the corporate strategic decision-making processes. Risk capital is usually a key concept in these processes. Standard & Poor's analysis of strategic risk management will start with understanding the risk profile of the insurer and getting management explanation of the reasons for recent past changes in the risk profile as well as expected future changes. Risk profile can be expressed in terms of risk capital for various risks or for each of the businesses of the insurer. Insurers might also be able to express an understanding of the sensitivities of that risk profile to the time view and the loss tolerance of the metric used. Standard & Poor's looks at the method used for the allocation of any diversification benefit that is incorporated into the risk profile and the impact of the allocation choice on the strategic decisions made using the risk capital.

Strategic processes that could be affected by risk and risk management thinking include capital budgeting, strategic asset allocation, product risk/reward standards, risk-adjusted financial targets, and performance measurement, dividend practices and incentive compensation. The degree to which risk capital is vital to these processes and to which risk and risk management are a consideration on these process is indicative of the quality of strategic risk management.

Concluding Remarks

The evaluations of each of these five areas will be combined into a single classification of quality of ERM. The degree of importance of each factor in that judgment will vary on an individual basis among insurers according to the specific situation of the insurer. (See Table 1 on page 17).

The importance of ERM in that process will depend on the risks of the insurer and the capacity of the insurer to absorb losses. For an insurer with a high capital position and/or excellent access to capital and a business plan that concentrates on retaining only those risks that are less complex and well understood by the company, ERM will be less important in forming the rating decision. For insurers with tight capital and/or limited access to capital that are exposed to very complex risks, ERM will be a very important part of the rating decision. However, capital is not seen as a substitute for ERM. A company with a high capital position still needs to be able to demonstrate that it has the ability to maintain that position through limiting future losses. In addition, Standard & Poor's will continue to view an insurer with more capital to be more secure than an insurer with less capital. ✦

Table 1: Definitions of ERM Classifications

Classifications	Definition
Excellent	Insurer has extremely strong capabilities to consistently identify, measure and manage risk exposures and losses within the company's predetermined tolerance guidelines. There is consistent evidence of the enterprise's practice of optimizing risk-adjusted returns. Risk and risk management are always important considerations in the insurer's corporate decision-making.
Strong	Insurer has strong capabilities to consistently identify, measure and manage risk exposures and losses within the enterprise's predetermined tolerance guidelines. A strong ERM insurer is somewhat more likely to experience unexpected losses that are outside of its tolerance level than is an excellent ERM insurer. There is some evidence of the enterprise's practice of optimizing risk-adjusted returns, though it is not as well developed as those of leading industry practitioners. Risk and risk management are usually important considerations in the insurer's corporate decision-making.
Adequate	Insurer has capabilities to identify, measure and manage most major risk exposures and losses, but the process has not been comprehensively extended to all significant risks facing the enterprise. Insurer loss/risk tolerance guidelines are less developed. Execution of its existing risk-management programs is sufficient, albeit less comprehensive, than are strong and excellent ERM practices. Unexpected losses are more likely to occur, especially in areas beyond the scope of the existing ERM practices. Risk and risk management are often important considerations in the insurer's corporate decision-making.
Weak	Insurer has limited capabilities to consistently identify, measure and manage risk exposures across the company and, thereby, limit losses. Execution of its risk-management program is sporadic, and losses cannot be expected to be limited in accordance with a set of predetermined risk/loss tolerance guidelines. Risk and risk management are sometimes considered in the insurer's corporate decision-making. Business managers have yet to adopt a risk management framework, are satisfying regulatory minimums without regularly applying risk management to their business decisions, or have very recently adopted a risk management system that has yet to be tested.

ERM ≠ EC²

by Sim Segal

> To successfully implement an ERM program supported by EC, insurance companies must build the EC model only after carefully considering its interaction with each step in the ERM process.

Most companies have begun to consider implementing enterprise risk management (ERM) in some form. ERM is a process that includes several steps, including:

1) Establishing an ERM framework and risk governance
2) Risk identification
3) Risk assessment
4) Risk response
5) Incorporation into performance measurement/management
6) External risk reporting

Some companies are more advanced along this process than others, though few have mastered all of the steps above. However, many insurance companies have become overly focused on one of these steps in particular, risk assessment. Many insurers hear ERM and immediately think Economic Capital (EC)— the process of building a model to quantify the amount of required capital based on an internal assessment of company-specific risks and correlations. This is partly because EC has the compelling potential to reduce required capital by recognizing risk diversification benefits, as well as many other applications. Also, the actuaries involved in ERM are attracted by the challenge of such a complex modeling exercise.

Such companies also tend to begin the EC effort very early in the ERM process, effectively jumping ahead to the risk assessment step (step 3). EC takes a long time, so there is a tendency to get started in a hurry. Insurance companies typically have a highly complex set of risks and some very long-term contracts. Quantifying these risks often involves advanced tools and techniques, which can push the envelope of modern data/projection systems.

EC can be a valuable component of the ERM process for insurance companies. However, an over-emphasis on EC, to the point of neglect of other steps in the ERM process, can reduce the effectiveness of an ERM program. This is analogous to building a critical machine part without first considering how it will mesh with its neighboring parts and gears. At best, this will cause friction; at worst, the process will grind to a halt. These ERM programs typically suffer from an incomplete integration of EC into decision-making processes and a lack of buy-in from internal and external stakeholders. As a result, these ERM programs are experiencing difficulties, regardless of how sophisticated, complete and accurate their EC models may be.

To successfully implement an ERM program supported by EC, insurance companies must build the EC model only after carefully considering its interaction with each step in the ERM process.

ERM Framework

This step involves defining the ERM process steps and how they will interact, developing an implementation plan, and defining the metrics and procedural structures for key strategic ERM decisions—those made by the ERM committee.

Building the EC model without an ERM framework in place requires assumptions as to the extent and timing of each ERM process step. This can easily result in the EC model being unable to support other ERM steps in a timely fashion. One mid-size insurer was in the midst of building a robust EC model when the ERM framework was revealed requiring that EC support product pricing within a very short time period. The EC model being developed was too robust to complete within the required time frame. However, had the overall framework and plan been known in advance, the EC model could have been built in advancing stages of robustness to provide at least adequate pricing support in the near term.

Another implication of putting EC modeling ahead of this step is that EC may be unable to support a key strategic ERM decision—managing enterprise risk exposure to within risk appetite. The capital-only basis of the EC measure may be inconsistent with the ERM framework definition of risk appetite. For example, risk appetite may be expressed as a measure of shareholder value volatility (based on a discounted projection of distributable earnings) rather than

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a measure of capital alone as provided by the EC model. This would cause delays while the EC approach is adjusted to support this, though the length of the time needed will vary depending on the specific EC methodology employed.

Risk Governance

In this step, management establishes the organizational and functional risk governance structure, including identifying the executive risk owners and defining their roles. Not involving the executive risk owners early on in the EC process can foster opposition to EC. Without input from executive risk owners, the model results will be suspect. However, this can be quickly remedied once they are engaged, simply by revising model assumptions and other inputs. Of more concern though is the lack of political buy-in from internal stakeholders. Most executive risk owners are from the business segments. Excluding these stakeholders from early involvement may give the impression that EC is an effort that will be controlled and imposed by corporate, with few useful applications for management. This will cause resistance in every arena of ERM in which EC is intended to operate. The longer this notion is allowed to take hold, the more challenging it is to overcome. Because EC is primarily intended as a tool employed by the risk takers in the business segments, the earlier these stakeholders are involved and receive this message, the better.

Risk Identification

If the EC model precedes the risk identification step, the EC model may be incomplete, having ignored certain risks. For example, key risks (to include in EC quantification) may have been defined in this step using qualitative criteria, whereas the risks included in the EC model may have been based on quantitative thresholds. This can result in delays while the missing risks are introduced into the EC approach and EC results are revised based on new risk correlation factors. If this is not corrected, the EC model will be unable to support decisions involving the risks excluded and the EC amount for the remaining risks will be based on an incomplete correlation covariance matrix.

Risk Response

This step includes the full range of decisions that will be supported by risk information in the ERM process. Prior to building the EC model, it is important to understand the scope of decisions that the model must support. Without this, the integration of EC into key decision-making processes may be incomplete. There are a number of issues that must be addressed in advance, including the following:

At what level of the organization will EC be expected to support decisions—enterprise, business segment, product line, etc.? This impacts EC model structure and required data and assumptions. For example, assume that the EC model was constructed to support only business segment-level decisions—the level for which this company has existing financial data and supporting allocations (e.g., investment income, expenses, etc). However, once the risk response step is defined, there is a requirement that EC support product-level decisions. This will cause significant delays to produce the required data inputs and model enhancements and to satisfy other requirements, such as training an additional layer of management in the use of EC.

What types of decisions will be supported—strategic (e.g., strategic planning, capital management, etc.), tactical (e.g., retention efforts, hedging programs, etc.), pricing, etc.? This impacts the processes with which the EC effort must be coordinated. This involves coordination of people and processes, integration of systems and building applications that support the specific decisions. One large multi-line insurer developed its EC model in isolation, without the coordination needed to integrate the model into decision-making processes through the company. As a result, after a lengthy and costly EC model development exercise, the model was only used by the corporate area and remained disconnected from decision-making processes in the business segments.

What risks must be reflected in the decisions supported—just financial risks or also operational risks? This may impact the EC modeling approach. At many companies, the EC approach uses a shortcut method (e.g., a fixed percentage of capital) for assessing operational

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ERM ≠ EC²

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risks. Some of these companies later realize, in the risk response step, that there is a need for a more robust approach to operational risk consistent with that used for financial risk. This results in delays while the EC model is enhanced to address operational risks in the same way it addresses financial risks. At companies where this issue is not addressed, the EC model is unable to support decisions involving operational risks, e.g., evaluating alternate risk mitigation techniques.

> “Companies believing that EC can operate in a vacuum will likely find their ERM program soon running out of air.”

Performance Measurement/Management

EC measures should not be integrated into performance measures and certainly not into incentive compensation until the EC model is fully developed and stabilized. However, to secure internal stakeholder buy-in and support for the EC effort, it is important to clearly communicate early in the process that EC measures will ultimately be incorporated into performance measurement/management. This demonstrates senior management commitment and will align internal stakeholder interests with the EC effort. In addition, credibility with external stakeholders such as rating agencies will, in part, depend on whether this is being done. A lack of internal stakeholder buy-in to the EC effort is an indication that the company will not have a strong ERM program.

Although EC measures will not be incorporated into incentive compensation for some time, the EC approach should consider its implications. One important consideration is that EC is highly sensitive to assumptions. To maintain a credible EC measure, a disciplined process should be established for the setting and changing of assumptions. This may include a combination of providing incentives (disincentives) for accuracy (inaccuracy) and establishing corporate guidance and review protocols for any material changes.

External Risk Reporting

Similar to the performance measurement/management step, EC measures should not be used in external reporting until the EC model is credible. However, internally communicating the intent to eventually incorporate EC into external reporting conveys management commitment to the EC approach and can be an additional tactic for securing internal stakeholder support.

In successful EC programs, EC measures are likely, at some point, to be included in external reporting—whether implicitly as a part of business segment earnings (i.e., interest on allocated EC) or in a segment-level Return-on-EC (ROEC) measure or in some other manner. As a result, it is useful to think through how and when the EC measures should be so employed, and the likely implications of doing so, during the EC development process. This can assist in discussions with stakeholders and in various choices made in the EC development process. If this is not done, there is a chance that risk disclosures will not be in synch with EC, which may be interpreted by external stakeholders as a signal that the ERM program is not being implemented as well as it could be.

As insurance companies begin implementing ERM, there are many steps in the process that must be considered. The risk assessment step, often represented by EC, is a critical step in this process, and when done correctly can be the catalyst for a powerful ERM program. However, companies believing that EC can operate in a vacuum will likely find their ERM program soon running out of air. In contrast, companies realizing and proactively addressing the inter-dependencies between the risk assessment step and other ERM process steps will more quickly reap the benefits of a successful ERM program. ✦

Thirteen Ways to Kill a Company

by Jennifer Bowen

A 2003 study of the 30 largest corporate failures, frauds and accounting fiascoes yielded 13 attributes shared by various groups of companies that had landed in trouble:

70% Unusually high dependence on debt, or marginal ability to meet debt repayment requirements; acquisitions saddled the company with huge debts; or overpaid for acquisitions.

57% Falsified financial statements and/or nonfinancial operating metrics to boost stock price and/or keep financing costs low.

53% Unusually rapid growth and/or underpriced product for rapid growth, and/or knowingly accepted more high-risk business than other firms.

47% Failed to stress-test assets and liabilities under a variety of assumptions about future economic and market conditions, to apply sophisticated valuation methods to embedded derivatives, to carefully study cash flow implications of proposed transaction(s), or to act on results of such analysis.

47% Lack of integrity in the company's internal processes, systems and controls.

43% Management failed to set appropriate standards of ethics, integrity, accounting, or corporate governance; inadequate oversight by the Board of Directors.

23% Top executives, and sometimes directors, used shareholders' funds as personal piggybank, often without informing all appropriate board members; insider trading.

17% Management's reluctance to admit problems led to higher-risk investment strategies or financial engineering.

17% Strategy was not focused, clear or consistent; or misunderstood market.

17% Company's nature was fragile, based on nontransparent leverage.

10% Significant financing arrangements were tied to the company's credit rating and, in some cases, stock price. Without the credit rating or stock price strength, all the structures imploded.

10% Not able to adapt and grow as deftly as competitors; not able to match competitors' price prowess; inferior product.

10% Rogue trader concealed mounting losses, or principal misrepresented product.

Exhibit 1 on pages 22-24 lists the companies included in the study and provides a brief summary of the reasons for their inclusion.

Exhibit 2 on pages 25-26 provides an example of each of the 13 attributes as manifested in one company, respectively, from the study.

In 2003, I took on a new role at Jefferson Pilot Financial (JP) as vice president, internal audit planning & development. My primary goal was to develop and implement risk-based audit planning. It was a great opportunity to apply the knowledge I had gained from studying about Enterprise Risk Management (ERM), by participating on the Society of Actuaries' Risk Management Task Force, as well as my understanding of JP gained through my work in its corporate actuarial department.

At the time, JP did not have a comprehensive ERM framework that could be used as the basis for such audit planning. In 2004 I created a JP-specific framework for risk-based audit-planning, but in 2003 I was asked to provide an audit prioritization in a shorter time than I would be able to complete one based on a study of JP's own risks.

The methodology I chose for the initial prioritization was to study the largest corporate failures that had occurred, determine the attributes they shared, and then identify the areas or activities within JP that could at least theoretically be exposed to analogous risks.

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Exhibit 1

Company	Country	Business Type	Loss (billions)	When	Cause
WorldCom	USA	tele-communications	$104	2002	Inappropriately accounted for $3.8 billion in expenses; inflated profits.
Enron	USA	energy	$68	2001	D & O's created complex outside partnerships that kept billions of dollars in losses off Enron's balance sheet. Recorded equity without receiving the cash. Underestimated costs; booked all projected profits on future sales. Arthur Anderson acted as Enron's outside auditor and also performed internal auditing services.
Adelphia Communications	USA	cable	$60	2002	$4.6 billion of undisclosed loans to founding Rigas family. Unconventional transactions, questionable accounting.
Global Crossing	Bermuda	tele-communications	$31	2002	Bogus capacity swaps inflated revenue; insider trading
Case Studies of failed European Union insurers	15 EU countries	insurers	$30	1996-2001	From a population of 270 actual cases of actual failures and near-misses, 21 case studies were formulated. Each case study is an amalgam of more than one case, to preserve anonymity. Conference of Supervisory Services of the EU countries performed the study to identify risks that can lead to failure. Management problems appear to be the root cause of every failure or near-failure.
Penn Central	USA	railroad	$30	1970	Diversification; problems from merger of Pennsylvania Railroad and New York Central Railroad in 1968; incompatible computer systems and signaling systems.
Mirant Corporation	USA	energy	$19	2003	Liquidity strain; low power prices; slow economy.
Baldwin-United	USA	piano maker/insurer	$17	1983	Acquisitions financed by debt, but the company portrayed them as cash deals.
Kmart	USA	discount retailer	$15	2002	Cut back on promotions during economic downturn; tried to compete with Wal-Mart & Target on similar brand names.
FINOVA Group	USA	financial services	$14	2001	Cash flow timing mismatch; imprudent lending practices; crisis of confidence on the part of its investors and lenders.
NTL, Inc.	USA	cable operator	$13	2002	Debts spiraled due to tech-boom spending spree.
Reliance Group Holdings, Inc.	USA	insurer	$13	2001	During an ill-fated aggressive expansion in the 1990s, the company wrote billions of dollars in high-risk policies at bargain prices, then found itself responsible for massive unexpected losses; divested itself of key business while retaining run-off exposure.
NRG	USA	energy	$11	2003	Power industry's post-Enron credit crunch.

Exhibit 1 (continued)

Company	Country	Business Type	Loss (billions)	When	Cause
Continental Illinois National Bank	USA	bank	$10	1984	Faults in management, internal controls, loan pricing; overly aggressive; lending involvement with three of the largest corporate bankruptcies in 1982; turned increasingly to foreign markets to fund domestic operations; little retail banking business and therefore relatively small amounts of core deposits.
First Capital Holdings	USA	life insurance	$10	1991	Irregular investment practices and manipulation of life insurance statements (First Capital Life Ins. Co. and Fidelity Bankers Life Ins. Co.).
Federated Department Stores	USA	retailer	$8	1990	Saddled by debt from the highly leveraged Campeau Corporate takeover of Federated.
Conseco	USA	financial services	$7	2002	Subprime lending; $120 million D & O settlement.
Tyco	USA	conglomerate	$6	2002	Tax evasion; CEO and CFO issued bonuses to themselves and other employees without the approval of the board; CEO, CFO & general counsel gave themselves interest-free loans for personal purchases of property, jewelry, and other frivolity. The loans were never approved or repaid.
Waste Management	USA	trash hauler	$6	1998, 2001	SEC litigation; inflated company's earnings; restated 1992-1997 earnings by $1.7 billion.
Long Term Capital Management	USA	hedge fund	$5	1998	In 1997, concluding that the capital base was too high to earn the rate of return on capital for which they were aiming, LTCM returned $2.7 billion of capital to shareholders, increasing its leverage to about 25 to 1. Made the firm riskier in the hope of bolstering returns to shareholders. Market conditions deteriorated sharply, leading to major losses. Russia devalued the ruble and declared a moratorium on future debt repayments; resulting losses on related bonds and other speculative positions caused LTCM's leverage ratio to climb to 45 to 1. The Federal Reserve worked out a rescue financed by private banks and brokerage houses.
Montgomery Ward Holding Corp.	USA	retailer	$5	1997	Inadequate business strategy.
First Executive Corp. / Executive Life	USA	insurer	$4	1991	Invested heavily in junk bonds; falsely advertised products, speculated with the premiums; adverse publicity fueled a bank run, forcing a $4 billion portfolio liquidation before the market rose 50-60% in 1991-2.
Cendant Corporation	USA	travel, real estate, financial services	$3	1998	$500 million of revenue reported by CUC from 1995 to 1997 was simply invented. Sixty-one percent of CUC's 1997 net income was fake.

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Exhibit 1 (continued)

Company	Country	Business Type	Loss (billions)	When	Cause
HIH	Australia	insurer	$3	2001	Egregious under-reserving; inability to price risk properly; inadequate consideration of timing of cash flows. Rather than responding to the underlying causes of poor performance, HIH management used and relied on questionable transactions giving rise to doubtful accounting entries. Poorly conceived & executed business decisions. Risks were not properly identified and managed. Board hardly analyzed company's future strategy. Inadequate policies and guidelines in essential areas.
HealthSouth Corporation	USA	health care services	$2	2003	Overstating earnings to make it appear that the company was meeting Wall Street expectations.
Spiegel	USA	retailer	$2	2003	Credit cards for higher-risk candidates; merchandising missteps; failure to publicly report improbability of continuing as a growing concern.
Allfirst Bank	USA	bank	$1	2002	Complex and very determined, hidden trading losses; internal and external collusion; controls did not work; foreign exchange trading operations.
Barings Bank	UK	bank	$1	1996	Rogue trader Nicholas Leeson hid massive losses; internal structure of Barings Futures Singapore was seriously flawed by the fact that Leeson had control of both front and back offices.
Drexel, Burnham Lambert	USA	investment bank	$1	1998	180 different lawsuits; wide variety of wrongdoing.
General American	USA	insurer	$1	1999	Liquidity strain from 7-day puts on its GICs.

My search was almost entirely Google-based, although I did have some helpful documents as a result of my participation on the Risk Management Task Force.

The first stage was to determine which companies were worthy of inclusion in this elite group. I was not sure at first how many companies I would include or what the minimum loss should be.

I decided that I was looking for failures, frauds and accounting fiascoes. Something very bad had to have happened, although the company might technically have survived it. I was also flexible with respect to quantifying the loss involved, because I was gathering information from many sources and the data were very heterogeneous.

I decided to use whatever I could find in the way of pre-event assets (if the result was a bankruptcy, for example), dollars of income-statement loss, drop in market capitalization, etc. Because I was trying to identify a group of companies for whom the financial repercussions were generally accepted to be very great, I considered this an acceptable methodology.

I ended up with 30 companies and a loss-amount threshold of about $1 billion.

Exhibit 2

Attribute	Company	Example
Unusually high dependence on debt or marginal ability to meet debt repayment requirements; acquisitions saddled the company with huge debts; or overpaid for acquisitions.	WorldCom	Amassed about $32 billion in both bond and bank-loan debt during a two-decade spree of more than 70 acquisitions.
Falsified financial statements and/or nonfinancial operating metrics to boost stock price and/or keep financing costs low.	Enron	Used partnerships to create the illusion that assets had been sold, funneling cash into Enron at critical times, when the company was struggling to meet Wall Street's expectations. Used "parking" transactions – where true ownership of an asset is hidden through secret guarantees against loss.
Unusually rapid growth and/or underpriced product for rapid growth; and/or knowingly accepted more high-risk business than other firms.	Conseco	Failed to take advantage of opportunities to raise cash either by selling insurance companies or issuing new stock. Tried to grow its way out of its problems. Made loans for mobile homes and other purposes that turned out to be riskier than those it already had. The aggressive lending was accelerated rather than being reined in.
Failed to stress-test assets and liabilities under a variety of assumptions about future economic and market conditions, to apply sophisticated valuation methods to embedded derivatives, to carefully study cash flow implications of proposed transaction(s), or to act on results of such analysis.	LTCM	Failed to account for the fact that a substantial portion of its balance sheet was exposed to a general change in the "price" of liquidity. If liquidity became more valuable (as it did following the crisis) its short positions would increase in price relative to its long positions. This was essentially a massive, unhedged exposure to a single risk factor. According to the complex mathematical models used by LTCM, the positions were low risk. Stress-testing against this lower correlation might have led LTCM to assume less leverage in taking this bet.
Lack of integrity in the company's internal processes, systems, and controls.	Allfirst	For five full financial years, Allfirst controls and treasury management apparently failed to spot any irregular or questionable trading.
Management failed to set appropriate standards of ethics, integrity, accounting, or corporate governance; inadequate oversight by the Board of Directors.	Drexel Burnham Lambert	Brokers traded on and exchanged inside information obtained while assembling financial backing for corporate raiders. Milken was engaged in stock parking and colluded with Boesky and others to manipulate the stocks of takeover targets. He actively misled regulators.
Top executives, and sometimes directors, used shareholders' funds as personal piggybank, often without informing all appropriate Board members; insider trading.	Adelphia	$4.6 billion of undisclosed loans to Rigas family.

continued on page 26 ◗

Exhibit 2 (continued)

Attribute	Company	Example
Management's reluctance to admit problems led to higher-risk investment strategies or financial engineering.	HIH	Expansion into lines of business beyond the expertise of the underwriters. Strategic decisions based on limited information. Rather than responding to the underlying causes of poor performance, HIH relied on questionable accounting transactions which disguised the seriousness of the situation.
Strategy was not focused, clear, or consistent; or misunderstood market.	Kmart	Kmart's failure was a failure of marketing. Completely misunderstood market, guessed in the absolutely wrong direction, and was completely out of touch. Strategy was all over the place.
Company's nature was fragile, based on non-transparent leverage.	Baldwin United	Acquisitions financed by debt, but the company portrayed them as cash deals.
Significant financing arrangements were tied to the company's credit rating and, in some cases, stock price. Without the credit rating or stock price strength, all the structures imploded.	General American	Downgrade triggered investors calling in nearly $6.5 billion in GICs.
Not able to adapt and grow as deftly as competitors; not able to match competitors' price prowess; inferior product.	Penn Central	Penn and New York Central cultures clashed badly. There was confusion among the crews and Penn Central had problems with the unions even though it was forced to guarantee employment to all existing workers as a condition for the merger. Some trains were misplaced for days. Piggyback vans used by corporations like Eastman Kodak missed connections. Freight business began to go elsewhere. Major industrial customers abandoned Penn Central.
Rogue trader concealed mounting losses, or principal misrepresented product.	Barings Bank	Rogue trader hid massive losses.

I excluded companies for more reasons than just size.

Other reasons for exclusion:

a) ongoing investigation—causes not yet clear;
b insufficient information;
c) Asian companies, whose situations were often not clear enough to me;
d) too complicated;
e) victim of litigation;
f) problems were too industry-specific.

I excluded savings & loan companies because there were so many of them and their problems were generally similar and specific to the industry, and not relevant to my company, which was in the life insurance business as well as communications (radio & TV stations and sports programming). I also excluded banks lending to the energy industry, for much the same reasons.

I recorded attributes for each company, based on the assessments that I found in published articles. I only used conclusions that authors of the articles had drawn; none of the company-specific analyses were my own.

Here are some of my own observations, after studying the stories of so many companies:

Industry Specific Risks

There are different types of industry-specific risks. Some of these have to do with regulation, some with environmental issues and some with economic aspects of the industry. Looking back at some of the big scandals, though, I see that

some of the company killers associated with entire industries are really industry-concentrated *bad habits* or socially acceptable *deviant behavior*. It was not necessary for these industries to have crashed and burned, either financially or reputationally. Some examples of these behaviors are fraud and aggressive lending by S&Ls, insider trading and stock manipulation by investment bankers, and conflicts of interest by auditors. Because these phenomena do not necessarily arise from the institutions themselves, they must be choices made by individuals who happen to work in those industries. My observation is that it should be a competitive advantage in the long run to not engage in such behaviors. It is convenient to categorize the S&L failures as having common characteristics, but it was not necessary for those behaviors to occur. Perhaps a certain type of person was attracted by an environment that allowed enough freedom for those behaviors, but it was still a matter of personal choice.

The Path to Ruin

For purposes of risk-based auditing it was relevant to look at the attributes of these companies and not just the causes of their failure. For one thing, the cause of failure is usually not that simple. But I am more aware now of the path to ruin and the different stages it might go through. Besides twists and turns, it might make a few circles or become a sort of spiral.

I saw during this research that there were different types of fatal errors that started companies down that path. But there were also different points at which corrections could have been made. There are different degrees of seriousness of the trouble that a company has gotten itself into, and different degrees of desperation in its response to that trouble.

The point at which the risk manager or auditor is going to make an observation might be in any of those stages. This is one reason for a holistic approach to risk management. Because you don't know whether the company might be in the bad strategy stage, the aggressive behavior stage, the loss control stage or the desperation stage, you have no idea which stage you might need to look for when making plans for what to observe.

Human Factors

I still have not seen any new-fangled business model that has convinced me that good management is anything other than maturity.

The LTCM case was about judgment and maturity in two ways: 1) the fund managers returned capital to investors and increased leverage, chasing high returns; and 2) they did not do enough stress testing of key assumptions in their complex mathematical model.

Even General American's situation, which some could say was a complex ALM matter, could be viewed as a case of relying too much on outside consultants in making decisions with great risk potential. Also, with 20/20 hindsight we can see that reading, and giving thoughtful consideration to, a key provision in a contract was all that was needed to see what a huge risk was involved. That did not require a complex mathematical model.

In most of these cases, basic human nature was a key driver, and basic business principles played a key role. I agree that it is very important to have good tools, and to apply controls at all levels. But this research showed me that lack of discipline, judgment, integrity, and a sense of responsibility by people in powerful positions was the undoing of many of these companies.

It is sad to see that it has taken a string of corporate disasters to raise awareness of the need for more accountability on the part of corporate executives and board members. It is hard to beat the sobering influence of significant jail sentences as the best deterrent for embezzlement or fraud.

To counter the next level of inadequacy, though, *below* intentional crime, the Risk Management (RM) culture has emerged as the best way to achieve the effectiveness and accountability of corporate executives and management. Risk management will not be effective if it is viewed merely as an exercise in filling out forms, reporting metrics, and establishing covariance matrices. It will not mean a change in corporate life until it is represented by respected executives who have a place at the table and whose voices are expected to be heard whenever important decisions are being made. The Board of Directors is assured that the voice representing RM is bringing up important considerations, asking appropriate questions, leveling the playing field within the enterprise on a risk-adjusted basis, providing an aggregate risk profile for the overall enterprise, and helping to ensure that the risks the enterprise takes on are "calculated" risks. ✦

Risk Management Investor Survey

by Mary Ellen Luning

Ernst & Young LLP is conducting a series of surveys around risk, exploring attitudes toward risk and its management, comparing viewpoints across key stakeholder groups including investors, senior executives and audit committees.

Author's Note: Much of this article is excerpted directly from the investor survey performed by an E&Y team headed by Thomas McGrath, global managing partner, Client Services and Accounts.

As members of the Risk Management Section, there is no doubt in your minds that Enterprise Risk Management (ERM) is a hot topic. More than that, it is at the top of the minds of senior management, boards of directors, and investors in all industries. Driven by fear of major business failures and under increasing compliance-related pressures, companies are focusing on their exposures, and risk management has become part of the essential fabric of the corporate governance structure.

Ernst & Young LLP is conducting a series of surveys around risk, exploring attitudes toward risk and its management, comparing viewpoints across key stakeholder groups including investors, senior executives and audit committees. While these surveys are not specific to the insurance industry, or to the U.S. market, they are quite relevant to our environment, especially the most recent survey of 137 major investors. The survey participants are the institutional investors and asset managers who run some of the world's largest investment portfolios, who represent significant investors in most of our organizations.

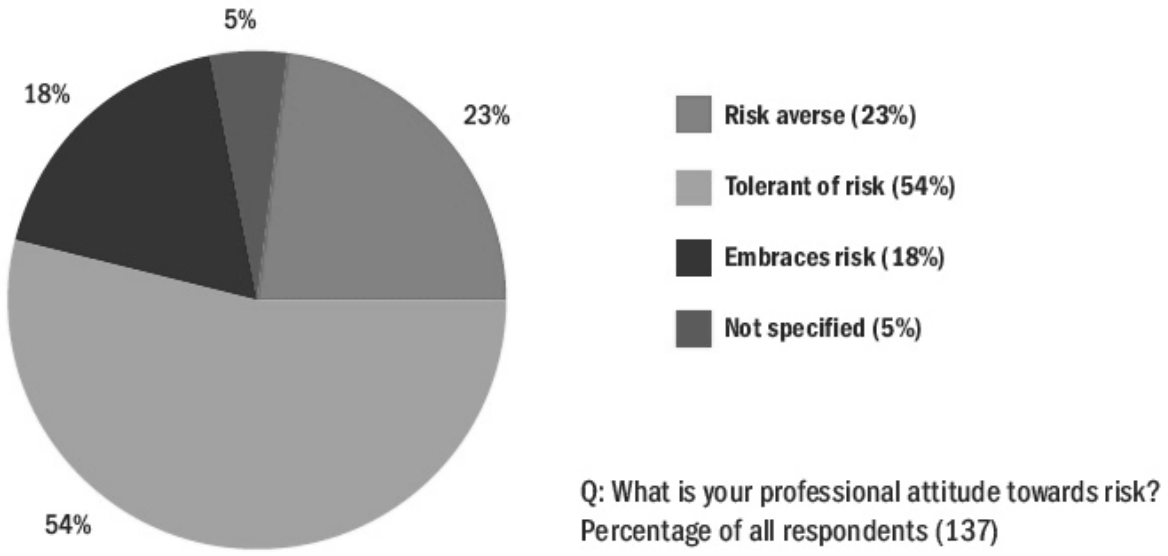
The results of the survey may not be that surprising to the Risk Management Section, but the survey confirms the direction we are taking as an industry with increased focus, changes in our corporate culture and integrated approaches around risk management. For one, the survey showed that investors do not want to eliminate risk (Exhibit 1), but expect risk to be managed effectively. Therefore, they must understand the risks they are taking and thus, when making investment decisions, transparency is at the top of their list of priorities (Exhibit 2). Investors want to know more about how risk management concepts are applied in your organization. The study clearly shows that what you communicate about risk management is absolutely affecting those decisions (Exhibit 3), with 61 percent saying that they have decided not to invest where risk management was deemed insufficient.

Based on the survey results, it is clear that risk is playing an increasing role and receiving greater emphasis in investment decisions. So what are investors looking for? The investors surveyed identified "clear ownership of risk" as a primary success factor. In addition to an integrated approach, they are clearly focused on the corporate risk culture, e.g., an understanding of risk throughout the organization, active board involvement, a dedicated risk function, etc. (Exhibit 4). Having a separate risk management function was high on the list of success factors, but the results indicate that most investors feel that ownership still lies ultimately with the CEO and the Board (Exhibit 5).

It is clear that investors are hungry for more information on risk management in making their decisions, and in many cases they are currently basing decisions on incomplete information. The good news is that there is a premium available for those companies that can demonstrate successful risk management through frequent, effective and transparent investor communications. In summary, our ability to meet investor needs and maximize shareholder value through communicating our risk profile and demonstrating the effectiveness of risk management activities is not just important to operating our businesses, but is also increasingly driving the value and valuations institutional investors place on our organizations. ✦

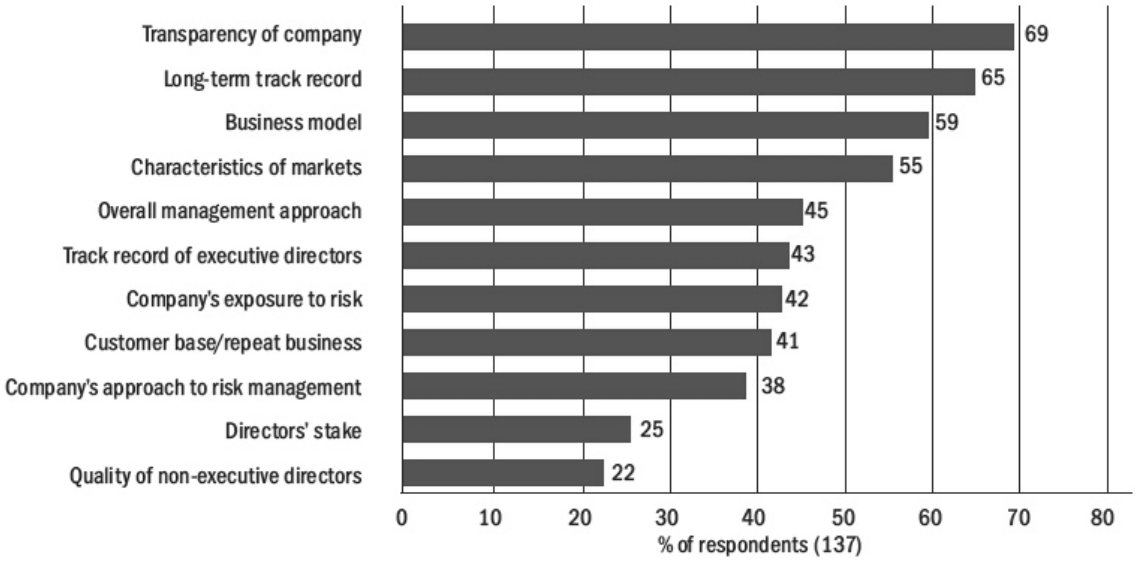
Mary Ellen Luning, FSA, MAAA, is a senior manager in Ernst & Young's Insurance and Actuarial Advisory Services practice. This article is based on a survey of investors prepared by Thomas McGrath, global managing partner, client services and accounts. She can be reached at *maryellen.luning@ey.com.*

Exhibit 1: Investor Risk Appetite



Q: What is your professional attitude towards risk?
Percentage of all respondents (137)

Exhibit 2: Transparency Is a Priority



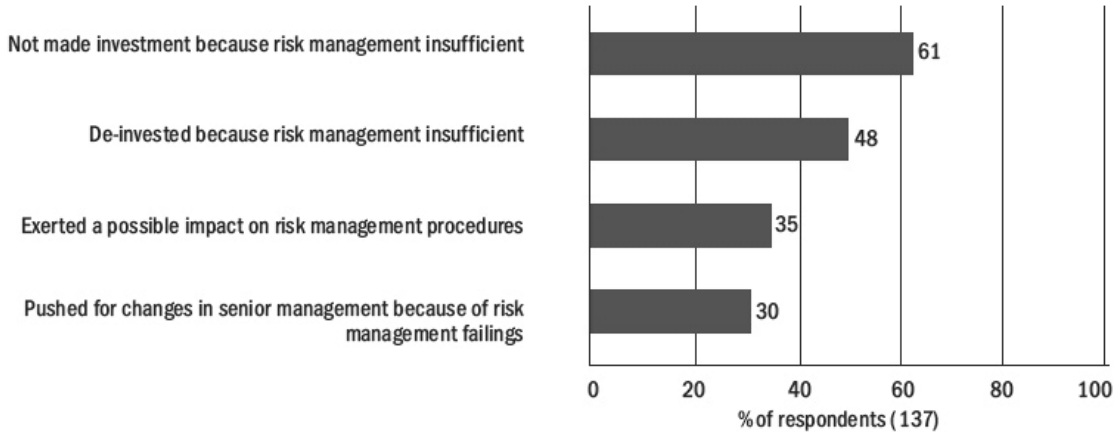
Q: When you are considering making an initial investment in a company, what priority do you give to the following? (High rating – % respondents giving 8, 9 or 10 rating on 1-10 scale)

continued on page 30 ◗

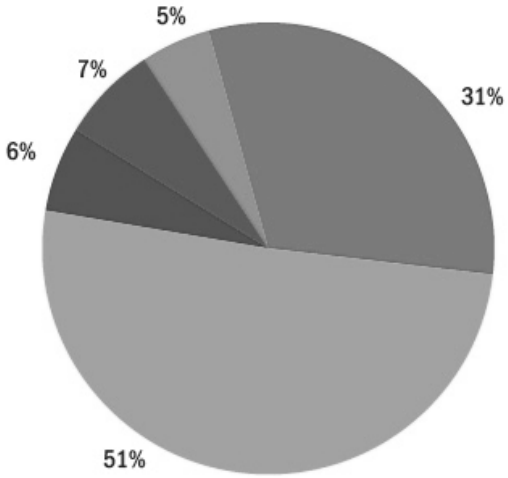
Risk Management
Investor Survey

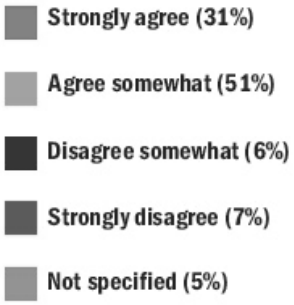
◗ continued from page 29

Exhibit 3: How Investors Use the Information



Q: Have there been any instances you can recall where you, as a major investor, have...?



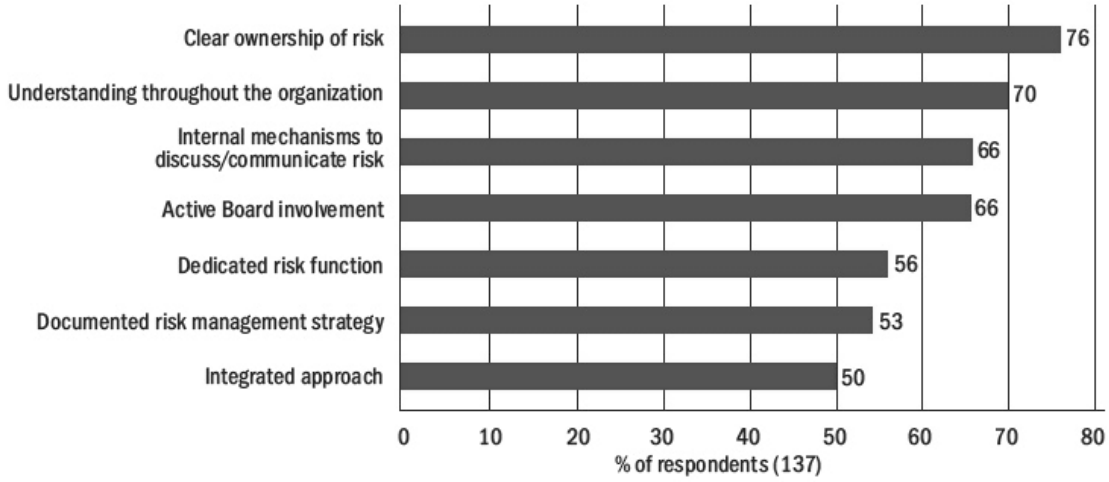


Q: Do you agree or disagree with the view that it is worth paying a premium for companies that can demonstrate a successful approach to risk management?
Percentage of all respondents (137)

Future Challenges for Companies … according to investors:

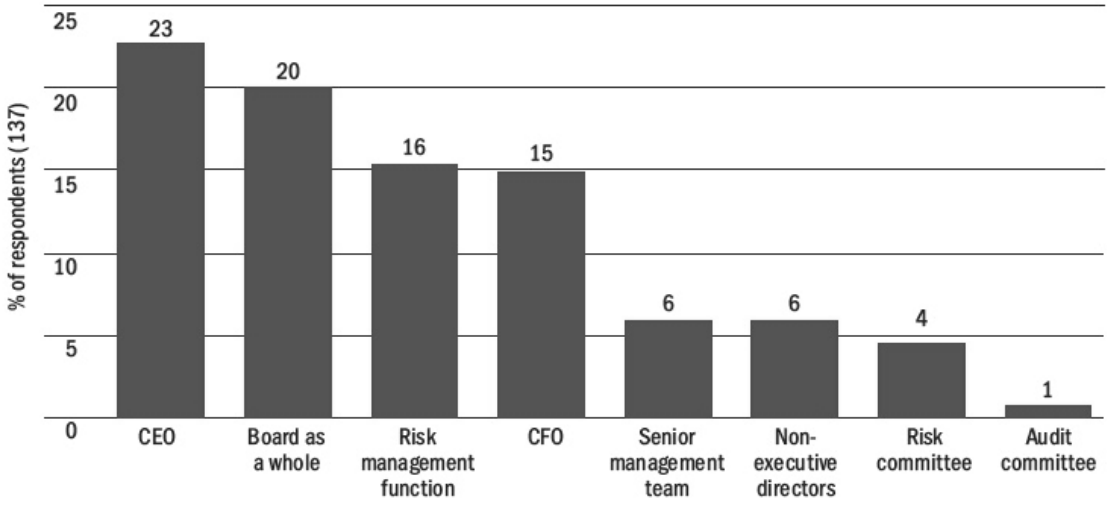
- *"Deciding what risks to mitigate and what risks to leave exposed." Fund Director, United Kingdom*
- *"As an investor I want the companies to truly commit themselves to change what is wrong when it comes to risk management." Senior Investor, Brazil*
- *"To be more integrated and flexible and have the ability to change as the company's growth and profile change." Chief Investment Officer, United States*
- *"Simply making sure that everything they say is the truth." Senior Investor, United States*

Exhibit 4: Success Factors



Q: How important are the following to the success of a company's approach to risk management?
(High rating – % respondents giving 8, 9 or 10 rating on 1-10 scale)

Exhibit 5: Ownership



Q: Who do you prefer to see own the issue of risk within the companies you invest in?
Note: Respondents were asked to make a single selection only.

Policyholder Behavior in the Tail: Variable Annuity Guaranteed Benefits Survey Results

by James Reiskytl

The Society of Actuaries' Risk Management Task Force is trying to develop better estimates of policyholder behavior in the tail (PBITT). Our mission is to examine and ultimately give guidance to actuaries on how to set policyholder assumptions in extreme scenarios. We are most interested in the assumptions used by companies or consultants for the scenarios in the 90 CTE calculations if stochastically modeled, or the assumptions for events that occur above two standard deviations of expected experience. Our first effort was an SOA questionnaire that confidentially gathered the range of assumptions actuaries use in pricing, reserving, and risk management of minimum guarantees on Variable Annuity (VA) products:

- Guaranteed Minimum Death Benefit (GMDB): guarantees minimum account value at death.
- Guaranteed Minimum Income Benefit (GMIB): guarantees minimum monthly in come at annuitization.
- Guaranteed Minimum Withdrawal Benefit (GMWB): guarantees a minimum stream of income, provided it is withdrawn within specified limits over time.
- Guaranteed Minimum Accumulation Benefit (GMAB): guarantees minimum account value at a specified future date.

The survey is available on the SOA risk management Web site *http://www.soa.org/ccm/content/areas-of-practice/finance/research/policyholder-behavior-in-the-tail-survey-results/*. The questions that were asked in the questionnaire include:

1. The profile of the companies.
2. What equity tail scenarios are assumed?
3. How the companies model the lapse and their utilization functions?
4. The lapse rates in the tail.

In this article, we provide an excerpt of our survey results on GMIB and hopefully thereby encourage readers to review our full summary report for greater details.

James Reiskytl, FSA, MAAA, is retired and lives in Mequon, Wis. He can be reached at *jimreiskytl@wi.rr.com.*

1. The Profile of the Companies

The following table gives the profile of the participating companies (in millions) that issue GMIB:

	Net Premiums	Account Value	Guaranteed Value
Average	1,373	2,439	3,447
25th Percentile	306	300	521
75th Percentile	1,339	3,252	5,406

2. The Assumed Equity Tail Scenarios

Due to the proliferation of guaranteed minimum death benefits and guaranteed living benefit, a tail scenario is most likely one with poor equity markets. However, depending on the type of guarantees sold, a tail scenario for company A may not necessarily be a tail scenario for company B. For example, a company with substantial ratchet guarantees may be most hurt by a rapidly rising scenario followed by a crash, but a company with mostly return of premium guarantees will not be badly hurt by such a scenario. The wide variation in style of in-force business may explain the wide array in responses to this question, as demonstrated in Exhibit 1 on page 33.

3. Description of Lapses and Utilization Functions

It was responded that *69 percent (11 out of 16) use dynamic utilization for GMIBs:*

- Of the 10 that described their function, 40 percent (4 out of 10) explicitly stated that dynamic utilization is a function of in-the-moneyness and attained age.
- The remainder only refers to in-the-moneyness as a factor for determining dynamic utilization.
- One carrier considers the option value of exercising the GMIB versus the option

value of holding onto the variable annuity in addition to considering in-the-moneyness and attained age.

4. Lapse Rates in the Tail

Carriers were then asked to list their lapse rates in the tail scenario they described at the beginning of the survey under four different benefits (GMDB, GMAB, GMIB, GMWB). The carriers with the highest and lowest overall lapse rates, along with the average across the carriers, are highlighted as shown in Exhibit 2 for GMIB.

It is our hope that the results of this survey will enhance the actuary's ability to set assumptions for these products in extreme scenarios. They may also provide a basis for further discussion of what may become current practices.

For our future activities, we plan to report the difference in RBC results using these assumptions for a modeled block of business at an upcoming SOA Investment Symposium to try to provide a possible measure of these reported results.

We also plan to do this survey again this year. Hopefully the next report will include company responses for the new VA RBC Component Requirements for December 31, 2005. Our next survey will address lapses assumed on Universal Life products with secondary guarantees in the tails.

We greatly appreciate the time and efforts of those who responded. We encourage and welcome comments, questions and suggestions from all of you. Please send them to either James Reiskytl at *jimreiskytl@wi.rr.com*, chair of the Policyholder Behavior in the Tail Working Group or Steven Siegel at *ssiegel@soa.org*. ✦

Exhibit 1: Tail Scenario Given by Respondents

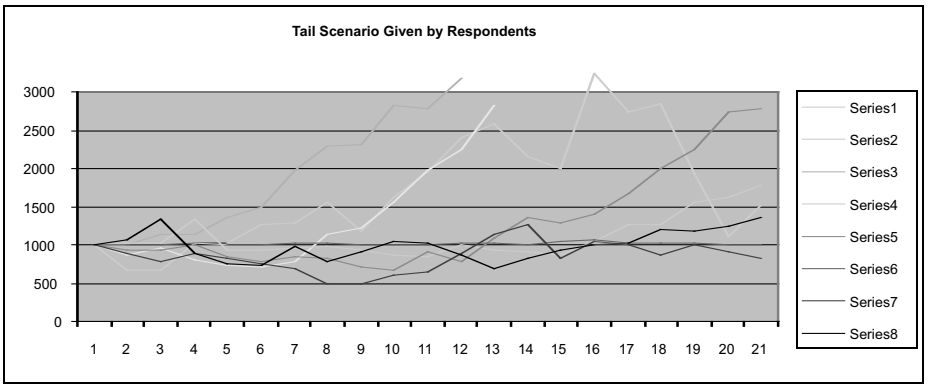
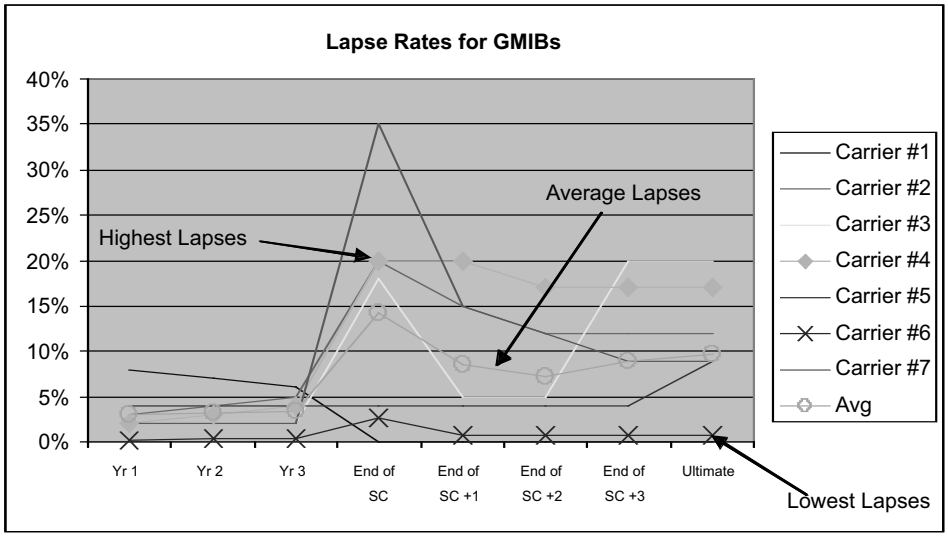


Exhibit 2: Lapse Rates for GMIBs



Continuing Education—2006 Activities

by Hubert Mueller

The Risk Management Section is planning a number of Continuing Education (ContEd) activities for 2006. These will include, but are not limited to:

I) Spring Meeting Sessions

Once again, we have put together a series of sessions for the upcoming spring meetings.

a) Life Spring Meeting (May 23-24, Hollywood, Florida)

Sessions to be offered (with the session coordinator noted in parentheses), include:

- **ERM and Corporate Governance (David Ingram)**
  In a talk show format, our panelists will be asked a series of questions on corporate governance issues relating to risk management and actuarial roles. Attendees will receive a practical understanding of how ERM fits into corporate governance, and the effectiveness of companies' ERM progress in this area.
- **Economic Capital (EC) – Recent Trends in Implementation (Hubert Mueller)**
  This session will allow attendees to learn how other companies are using EC in making business decisions, views towards EC by rating agencies and recent trends in the marketplace.
- **Hedging Variable Annuities (VA) – A Practical Discussion (Dan Guilbert)**
  Panelists will discuss the benefits of hedging VA guarantees (including death benefits and living benefits), the challenges they face and how they keep score. Attendees will get insight into the approaches used by companies for hedging the risk from VA guarantees and challenges faced in execution and measuring effectiveness.
- **Implementing Stochastic Methodologies for Reserves & Capital (Hubert Mueller)**
  This two-part seminar will take a look at recent developments regarding the introduction of principles-based rules for determining reserves and capital for life and annuity products, and discuss initial experience with the year-end 2005 filings for VAs (C-3 Phase II).
- **Measuring and Pricing for Tail Risk (Larry Rubin)**
  Panelists will review various approaches for measuring and managing tail risk and how to price for tail risk using capital-market consistent techniques. Attendees will gain a practical understanding of current pricing techniques and risk management approaches for measuring and managing tail risk.
- **Avian Influenza: Is Your Company Prepared? (Max Rudolph)**
  This facilitated workshop is designed to be a follow-up to the session on tail risk, focusing on avian influenza. Attendees will share information and techniques for stress testing their company's preparedness to pandemics through scenario planning.
- **Managing Market Conduct Risk (Frank Sabatini)**
  This session will examine the driving forces behind market conduct events for distribution systems and insurance products and the practices being employed to minimize the exposure to these events. Attendees will gain a practical understanding of current views on market exposures and the approaches used to monitor, measure and manage these exposures.
- **Risk Management Section Breakfast (David Ingram)**
  In addition, the Risk Management Section will have a breakfast session open to all meeting attendees where we will discuss current section topics and activities. Attendees will need to register in advance.

b) Health Spring Meeting (June 23-24, Hollywood, Florida)

One risk management session will be offered at the Health Spring Meeting, co-sponsored with the Health Section:

- **Risk Management for Individual Health Products (Tom Corcoran)**
  This session will examine current risk management issues for individual health products and recent trends in the marketplace.

II) Annual Meeting Sessions

We will have a similar slate of sessions for the Annual Meeting to be held in October 2006 in Chicago. Please contact Tony Dardis (*Tony.Dardis@TowersPerrin.com*) if you are

Hubert B. Mueller, FSA, MAAA, is a principal with Towers Perrin in Weatogue, Conn. He can be reached at *Hubert.Mueller@towersperrin.com.*

interested in presenting on risk management topics.

III) ERM Symposium

The 4th Annual ERM Symposium will be held April 23-25 in Chicago in conjunction with the Bowles Symposium; SOA Seminar on Capital Efficiency will be held Sept. 19-20, 2006 GARP WS on ERM was held March 2.The Risk Management Section is co-sponsoring this symposium, and has been very active in helping put together an outstanding schedule of sessions. Also, several workshops will be held in advance of the symposium. For further details, please visit the symposium Web site (*www.ermsymposium.org*).

IV) Seminars

The Risk Management Section Council has also been active in developing several seminars that are co-sponsored with, or led by, other SOA sections and other organizations. These include:

- **A one-day workshop at the GARP Convention in New York**
  - A workshop on ERM held at the GARP Convention in New York (March 1-2, 2006)
- **SOA Seminar on Capital Efficiency**
  - A seminar will be held in September 2006 (in conjunction with the Valuation Actuary Symposium), focused on the use of (stochastic) embedded value, ERM and ALM for measuring, optimizing and communicating capital efficiency. This seminar is being co-sponsored by the Risk Management, Taxation and Financial Reporting Sections.
- **SOA Seminar on Management and Presentation Skills for Risk Management Professionals**
  - We are also developing a seminar that will focus on developing management and presentation skills for risk management professionals. The program would encompass the use of an outside consultant to teach techniques and another portion applying these techniques to a risk management case study. This seminar will be co-sponsored with the Management and Personal Development Section.

V) Webcasts

We are planning on offering at least one or two webcasts on ALM, ERM and/or related topics this year.

VI) CAS ERM Course

The CAS is offering an ERM course authored by Stephen D'Arcy. For further details, please visit the CAS Web site at *www.CASACT.org*.

VII) On-Line ERM Course

We are in the process of developing an on-line ERM training course, intended to train new entrants to the risk management field and refresh skills for those working in the field already. This course will be made up of existing ERM training materials, supplemented by the presentations and papers to be discussed at the upcoming ERM Symposium.

VIII) Local Risk Management Meetings

Finally, we are looking to set up regular local meetings of risk management section members, allowing for an exchange of ideas and networking among risk management professionals. These meetings will either be set up in selected metropolitan areas (like Boston, New York or Chicago), or held in conjunction with the meetings of local actuarial clubs.

Call for Additional Volunteers

We have recently expanded the list of people involved in planning ContEd activities of the Risk Management Section. Current volunteers include:

- Ed Betz
- Tony Dardis
- Todd Henderson
- David Ingram
- Hubert Mueller (Lead)
- Larry Rubin
- Frank Sabatini
- Robert Wolf
- SOA Liaison: Michel Rochette

With lots of activities planned this year, there is always room for additional volunteers. If you would like to help plan and coordinate some of these activities, or have other ideas or suggestions, please contact Huber Mueller at *Hubert.Mueller@TowersPerrin.com*.

We look forward to hearing from you!

Articles Needed for *Risk Management*

Your help and participation is needed and welcomed. All articles will include a byline to give you full credit for your effort. If you would like to submit an article, please contact Ken Seng Tan, editor, at *kstan@uwaterloo.ca* or Ron Harasym, co-editor, at ron.harasym@aegoncanada.com.

The next issue of *Risk Management* will be published:

Publication Date	*Submission Deadline*
July 2006	April 28, 2006

Preferred Format

In order to efficiently handle articles, please use the following format when submitting articles:

Please e-mail your articles as attachments in either MS Word (.doc) or Simple Text (.txt) files. We are able to convert most PC-compatible software packages. Headlines are typed upper and lower case. Please use a 10-point Times New Roman font for the body text. Carriage returns are put in only at the end of paragraphs. The right-hand margin is not justified.

If you must submit articles in another manner, please call Joe Adduci, (847) 706-3548, at the Society of Actuaries for help.

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Thank you for your help.

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