

Insurance

InsuranceDigest

Sharing insights on key industry issues*

Americas edition • November 2007



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The Americas Insurance digest is published twice a year to address the key issues driving the insurance industry. If you would like to discuss any of the issues raised in more detail, please contact the individual authors, or the Editor-in-chief, whose details are listed at the end of each article.

We also welcome your feedback and comments on the Insurance digest, and as such, we enclose a Feedback Fax Reply form. Your feedback will help us to ensure our publications are addressing the issues that concern you.

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Editor's Comment

JOHN S. SCHEID: CHAIRMAN, AMERICAS INSURANCE GROUP



With 2007 coming to a close, the year may go down in the record books more for credit disturbances and liquidity challenges than insurance risk events.

Most insurers faced limited growth during the year. Many personal lines insurers and standard commercial carriers faced lower renewals and declining new business pricing. Reinsurers' premium volume was more limited due to the higher retentions held by ceding companies. Property and casualty insurers describe the market as increasingly competitive with prices trending down in nearly all lines of business. Catastrophe reinsurance pricing was beginning to see declines from very high levels.

Generally insurers have seen a relatively benign weather year. Wild fires have spread incredible damage across California and parts of the West recently. Some believe that industry loss costs ultimately will show these fires to be the most expensive in the history of the personal lines industry. However, putting aside these fire damages, margins have been excellent due to favourable claims frequency in commercial accounts. Accident years 2006 and 2007 seem to be shaping up to be very strong for insurers.

The financial markets were certainly disrupted this year with credit disturbances arising in the subprime sector. In February, some mortgage companies became concerned about sharply rising delinquencies. As the real estate industry turned south and more lenders and mortgage insurers reported problems, all subprime mortgage debt became suspect. Since the market for mortgage-backed securities had become so complex, it became difficult for many to discern which mortgages were sound and which were not. Escalating panic caused the market for virtually all loans to freeze up for

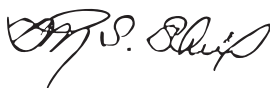
a time and the demand for US Treasuries to soar. While the short-term risks to the US economy have increased due to current financial volatility, many believe that the economy will continue to grow at a moderate pace. An extended credit crunch could alter this view, resulting in a slowing of global growth and increasing the probability of the US growth rates falling to recessionary levels.

Through the end of this third quarter, the financial sector has been hit hard by the subprime mortgage crisis. However, there is evidence that the markets have generally weathered the credit crisis reasonably well albeit with central bank help.

Looking ahead, many see positive signs. Understanding risk and helping others manage risk continues to be a fundamental value proposition of the insurance industry. In this issue of Americas Insurance digest, we offer a few perspectives on recognizing the value of risk, enterprise risk management, economic capital, catastrophic loss estimation and insurance risk transfer from a tax perspective.

I hope you find the articles to be of interest. As in the past, please continue to provide us with your ideas for future articles. You may also be interested in the Asia-Pacific and European editions of Insurance digest, which can be found on our website at www.pwc.com/insurance.

Sincerely,



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Economic capital: Recognizing the value of risk

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The benefits of economic capital are just starting to be seen by the insurance industry. With the potential to revolutionize how insurers quantify risks and determine the capital needed to cover potential losses, economic capital also identifies excess capital and has the potential to enhance competitiveness.

ECONOMIC CAPITAL: RECOGNIZING THE VALUE OF RISK

A disciplined approach to risk and strategy

One of the most notable shifts in the strategic and performance management of global insurance companies during the past two years has been the acceptance, measurement and use of economic capital: that portion of the insurer's net economic value held for the risks assumed. Although economic capital has been adopted by banks as a central component of risk-based capital management for several years (principally driven by the anticipated requirements of the Basel II regulatory framework), it has become recognized as a key strategic tool in the insurance industry only recently. In spite of its novelty for many insurers, the use of economic capital has the potential to revolutionize how insurers and reinsurers strategically deploy capital and effectively compete in the future.

Economic capital is defined as the amount of capital required to protect a company against significant losses over a period of time and with a certain degree of confidence, given a company's firm-wide risk distribution. Viewed in the context of a market-consistent balance sheet, economic capital provides a measure of capital utilized relative to 'available' capital. Unlike regulatory or rating agency risk-based capital, which is principally

based upon industry averages and may not reflect all types of risks, economic capital attempts to capture the most significant risks to which an entity is exposed, and is based upon the specific risk profile of an individual insurer. Used as part of an Enterprise Risk Management (ERM) framework, economic capital provides an expression of management's view of risk, reflects an organization's ability to actively mitigate and diversify risk, and once allocated to business units, classes or products, supports disciplined, strategic risk taking. Shared with external stakeholders, economic capital provides the risk transparency so actively sought by regulators, rating agencies, and the investing public.

Drivers of economic capital's adoption

Global insurers and reinsurers are leading the adoption of economic capital in the insurance industry, particularly those financial conglomerates that have witnessed its strategic value within the banking sector. These organizations quickly recognized, however, that while the benefit of using economic capital at the core of risk management and strategic decision-making would be consistent between the banking and insurance sectors, the measurement of economic capital for insurers would need to

be distinctly different. Insurers, stakeholders and interested parties have worked diligently to identify appropriate approaches to the measurement of insurance economic capital, and the ideas regarding what constitutes best practice have begun to converge.

This convergence has been aided by the recent introduction of several risk-focused regulatory regimes (such as within Switzerland and the UK) but more significantly, the motivation provided by the impending requirements of the Solvency II regulatory framework for European insurers (including European subsidiaries of non-European insurers), with full implementation anticipated by 2012. Like Basel II, Solvency II includes a three-pillar approach to solvency regulation:

- Pillar I reflects the quantitative requirements for determining solvency capital,
- Pillar II involves the insurance supervisor's regulatory review around internal controls and sound risk management practices, and
- Pillar III focuses on disclosure requirements and market discipline.

The burden is placed heavily upon individual insurers to satisfy the insurance supervisors that



Risk management and strategic decision-making would be consistent between the banking and insurance sectors

sufficient capital supports the risks the insurer has assumed. European regulators will require insurers to demonstrate effective ERM practices, and as a central element of these programs, strongly encourage companies to develop and rely upon individual economic capital models. To the extent an insurer is too small to invest in the development of an internal model, that insurer's solvency capital requirement will be based, in part, upon an industry calibrated standard model applied to a market-consistent balance sheet. Companies using internal models will need to satisfy regulatory supervisors that standards of statistical quality, calibration, validity, and documentation have been met, and will need to satisfy a 'use test' – that the model plays a significant role within an insurer's 'risk-management decision-making processes' as well as within its 'economic and solvency assessment and allocation processes.'

In response to the importance of economic capital at the core of a sound ERM framework and the use of internal models as an essential tool in the solvency assessment of insurers, the International Association of Insurance Supervisors has drafted guidance papers on enterprise risk management and on the use of internal models, and expects to develop standards for internal models during 2008. In the U.S., the National Association of Insurance Commissioners has been an active participant in the review process of these guidance papers, and depending upon the final products produced, may recommend adoption.

Most rating agencies have introduced the assessment of an insurer's ERM program into their review processes, albeit not yet as an explicit factor in the financial strength ratings. Standard and Poor's, which developed ERM management assessment criteria and initial ratings for many insurers and reinsurers in the categories of 'excellent', 'strong', 'adequate' and 'weak', is seeking evidence of the measurement and use of economic capital as a key element of ERM. Insurers who continue to practice traditional risk management and fail to quantify and integrate economic capital into the decision-making process will continue to receive a rating of 'adequate'. A.M. Best, Moody's and Fitch have also begun to stress the importance of effective ERM management programs, with the attendant focus on the importance of risk quantification and its use.

Increasingly, investment analysts and the investing public are seeking greater understanding of the risk-reward decisions made by insurers. While standards for the external disclosure of insurance economic capital currently do not exist, successes in the standardization of disclosures around embedded values as well as the continuing convergence of consistent modeling and measurement practices may serve as a catalyst for the development of broader disclosure standards in the insurance industry. Several companies have already begun to disclose high-level risk information in public documents, and it is widely anticipated this trend will continue.

Internal economic capital models

In response to these dramatic global influences, many insurers are actively developing or enhancing existing internal economic capital models. While recent ERM surveys suggest that upwards of 70% of insurers claim reliance upon economic capital models, for many insurers these models were simply modified regulatory or rating agency or factor-based tools. As a result, these models failed to reflect the insurers' own valuations of economic capital and are often a poor substitute for models that truly reflect company-specific risk characteristics. Recent improvements in the consistency around modeling frameworks and definitions, developments in the supporting technology, and a vastly improved understanding of the value of these models, have motivated insurers to increase their commitment to the development of these powerful tools.

While diverse approaches to individual risk modeling continue to exist, the focus of regulators and rating agencies has had a startling impact on the global dialogue surrounding insurance capital models, and has increased the consistency in overall modeling approach used by many insurers. Within the past few years, insurers have developed increased confidence that solutions to current methodological challenges, such as consistent methods to measure the economic capital benefit awarded a well-diversified organization, will continue to emerge. These insurers

understand the benefits attained by those that develop and use these models, and learn from the process, will be significant.

Advancements in technology have supported the requirements of these internal models, including the development of a variety of software and hardware solutions that offer the ability to process and store the vast amount of required model input and output in a consistent and efficient manner. Internal models will need to evolve over time as companies integrate economic capital more deeply within their organizations and respond to the continual emergence of enhancements to methodology; acknowledging this reality and planning for model evolution will help eliminate wasted resources and save considerable time. Most internal models will include a combination of highly detailed and specialized components as well as higher level, less granular individual risk models. Companies that recognize the iterative nature of the phases of model development and enhancement – namely design, build, integrate, and validate – and the need for model efficiency – the ability to provide meaningful results within a financial reporting cycle or in response to a strategic opportunity – will certainly be ahead of the curve.

As companies continue to integrate economic capital within the management process, the strategic benefits to the measurement of economic capital will become clear: from supporting traditional risk management with its focus on measuring 'tail' or extreme



events and managing solvency to enabling the optimal deployment of capital in pursuit of value producing returns. Well-developed and validated internal models provide the essential information required to support management's evolution from functionally-focused and tactical to enterprise-focused and strategic.

For those companies that are in the early stages of realizing the value of economic capital through the use of internal models, there are three distinguishing keys to success:

1. Early stage internal models should be practical and transparent, focused on providing the output sought by management in a timely manner but also responsive to the requirements of external stakeholders. Model soundness and validity are essential; added granularity will emerge

as management's confidence in the results and broader internal demand increases. Avoiding unnecessary model complexity will be critical to meaningful acceptance within the organization.

2. The economic capital values produced by internal models are in fact expressions of an organization's view of the risks assumed – in effect management's 'best estimate' of the capital required to produce anticipated returns for investors and stakeholders. Given that internal models are often compilations of highly sophisticated individual risk models and less granular components, management's collective agreement on and comfort with the economic capital output will require time and use. Developing a program of internal training and opportunities for frequent feedback will be essential.

3. Internal models need to be flexible and able to evolve over time. Recent years have brought rapid changes to modeling standards and best practices, and there are many more developments to come. Regulatory and rating agency requirements are beginning to crystallize, but will continue to evolve. Standards for risk disclosures and external reporting of risk are expected to increase. Companies will need to be deeply familiar with these changes and their internal models will need to respond.

While remarkable progress has been made towards attaining an industry-consistent framework for measuring economic capital, significant work continues. Through the efforts of those insurers who have begun to realize the value of economic capital combined with the motivating demands of rating organizations and regulators around the world, the insurance industry is likely to witness extraordinary advancements in the measurement, acceptance, and use of economic capital at the core of strategic decisions over the next several years. □

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ERM: No longer a nice-to-have

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Now that clear expectations and standards for ERM are emerging and rating agencies' evaluation of a firm's ERM framework is becoming one of the factors that impacts the cost of capital, companies need to take action to avoid being bracketed as a weaker manager of risk. The challenge of integrating enterprise risk management into the running of the business needs to be met. Insurers have already made real progress, but there are important steps, leading to smarter decisions, that many have not yet taken.

ERM: NO LONGER A NICE-TO-HAVE

ERM is not a new idea, but until relatively recently, it has been viewed as an optional extra by many insurers and reinsurers – as a management process which is nice to have but is by no means essential. That is no longer the case. In the European Union, the Solvency II overhaul of prudential supervision will see national regulators begin to set capital requirements that are driven by in-house economic capital models – a shift which began earlier in the banking industry and has long since cemented ERM's status among banks as an indispensable discipline.

However, regulators are not the only industry stakeholders with the power to shape attitudes to risk management. Last year, two of the main rating agencies – Standard & Poor's and Fitch Ratings – announced plans to incorporate a specific assessment of ERM and a quantitative analysis of economic capital and allocation into the ratings process. This transition is still in its early stages, but certain conclusions are already unavoidable.

First, the quality of a firm's ERM framework will become one of the factors which impacts the cost of capital. Apart from the past financial performance of a

company and the relatively generic remarks contained in annual reports, the capital markets have had little insight into the quality of risk management at an insurer. There is currently no good way for analysts and investors to differentiate one firm from another in terms of their ability to protect themselves from future downturns in the economy, souring business conditions, volatile markets or investment losses. When the agencies begin to reflect insurer ERM practices in their ratings, that will change. Suddenly, the market will have an objective, standardized assessment of the relative risk management capabilities of different insurers. Those companies which are awarded low ratings – in absolute terms or relative to their peer group – should be seen as a riskier investment and can be expected to pay a tangible cost. Those who score highly should be rewarded in the form of a lower perception of risk and commensurately cheaper capital.

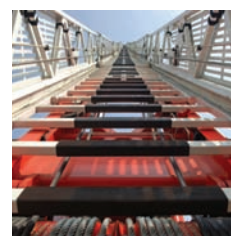
Second, the industry is witnessing the emergence of a clear set of expectations and standards for ERM. Previously, ERM meant different things to different people. Even the most common structural components

of an ERM framework—the creation of a centralized risk function headed by a Chief Risk Officer—often masked a host of differences in scope, culture and objectives. The rating agency focus on ERM should help to motivate the establishment of agreed standards, and the agencies have already begun to set out their expectations.

Finally, the clock is ticking. The agencies have so far subjected insurers to a relatively cursory examination of their ERM capabilities and are not trying to differentiate between them too finely. That will change quite rapidly. Companies who want to avoid being bracketed as a weaker manager of risk will need to take action quickly.

Attitudes are changing

Considerations like these are playing a significant part in transforming the way that the insurance industry approaches ERM. Three years ago, PricewaterhouseCoopers conducted a ground-breaking survey¹ of 44 leading insurers worldwide – nearly half of which had a turnover in excess of \$10 billion. The aim was to provide a detailed picture of industry attitudes to ERM, while also examining the progress being



Those who score highly should be rewarded in the form of a lower perception of risk and commensurately cheaper capital

¹ Enterprise-wide Risk Management for the Insurance Industry, Global Study, 2004.

made from one institution to the next. We are currently working on an updated version of the survey and some of the findings are likely to be quite different: three years ago, only 16% of respondents strongly agreed with the statement that ERM was an important part of their interactions with regulators, rating agencies and investors.

The survey also painted a picture of an industry for which ERM was a fairly distant aspiration – there was widespread agreement that ERM was important, but few respondents were able to report significant progress. For example, while 77% of insurers strongly agreed that risk management was a board or senior management priority (and the rest of the respondents slightly agreed), actual attainment levels were far lower. Only 19% of insurers strongly agreed they had clearly defined standards for risk-taking activities, while 8% strongly agreed that their risk systems produced information that supported their risk management objectives.

One of the central aims of any ERM framework is to enable a company to anticipate and mitigate risks before losses are suffered. At the time the survey was conducted, just 2% of respondents felt that they were able to manage risk in a proactive way – but fully 61% of insurers hoped, within five years, to be able to say the same.

There is already some anecdotal evidence to suggest the industry is now starting to make concrete progress towards these goals. The boards and management teams of most insurers have begun to assess their ERM practices and frameworks. Most companies will find they can leverage many existing risk management processes and components, but defining the objectives of the ERM program and how to integrate ERM into running the business, and achieve that leverage, can prove challenging.

Meeting the challenge

It's a challenge that needs to be met – in part because of the growing imperative to do so from regulators and rating agencies, but fundamentally because it makes good business sense and offers a raft of value-creating opportunities that go beyond compliance.

However, everyone needs to start somewhere, and meeting regulatory and rating agency expectations is a good way to establish minimum attainment levels. In the same way that insurers and reinsurers manage their balance sheet in line with target credit ratings, so they should begin setting target ratings for their ERM capabilities. Aiming for the highest rating won't be necessary for every company. Instead, insurers are likely to be judged against their peers. A smaller company with a

high rating will stand out from the crowd – and so will a well-known, high-profile insurer with a low rating.

An effective ERM framework can also add value by enabling a company to better understand the aggregate level of its risk – for example, by identifying the fact that the company has significant claims exposure to one company which is piled on top of investment exposure to the same company. In the case of Enron, WorldCom and others, many insurers were hit by a double-whammy of Directors and Officers claims and investment losses. A good ERM program would have identified this risk in advance, enabling insurers to take the risk with their eyes open, or to mitigate the exposure.

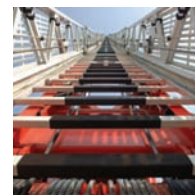
Insurers have already made real progress in tackling aggregate exposures within single lines of business – the hurricanes of the early 1990s resulted in greatly increased modeling sophistication in the property business, for example. Our ERM survey found that 82% of insurers were looking at concentrations of property exposure by geography and 45% were looking at industry concentrations. Now the challenge is to extend these principles to cover other lines of business and the inter-relationships of risk that exist between multiple lines of business.

The ability of insurers to model aggregate property exposures for expected catastrophe losses –

which many believed to be a fairly mature process – continues to improve even today. The four events that occurred in 2004 put pressure on companies to test their risk controls assuming multiple large events within a calendar year, while the degree to which un-modeled factors contributed to the loss estimates for Hurricane Katrina in 2005 raised the issue of uncertainty within the models themselves. The uncertainty inherent in modeling an unpredictable process, such as catastrophe risk, must also be represented in an insurer's risk management framework.

The hurricanes in 2004 and 2005 taught the insurance industry four valuable lessons:

1. Even the most sophisticated and mature catastrophe models are still only tools – and these tools are really no substitute for a disciplined underwriting approach that includes responsible risk taking.
2. Perhaps as important, high data-quality standards must be achieved in order to effectuate reliable, effective and credible catastrophe modeled results.
3. Models are only as good as the data and the assumptions being used and insurance companies should require that a formal model and data validation process is performed on a regular/periodic basis.



ERM: NO LONGER A NICE-TO-HAVE continued

4. Ratings agencies such as S&P expect the industry to monitor their annual aggregate distributions and model multiple event scenarios (e.g. hurricanes and earthquakes).

Understanding the level of risk in each business – and also in the aggregate – means that companies can balance the need to maintain solvency with the imperative to deploy capital to the benefit of shareholders. Smarter decisions can be taken at both the tactical level, on issues like pricing, as well as the strategic level, on acquisitions and disposals, on expanding into new business lines and markets.

This isn't the end of the story. One benefit not often associated with ERM is its potential to offer relief from the burdens imposed by overlapping regulatory demands. A rapidly accreting layer of regulation has built up over recent years – much of it, like Sarbanes-Oxley (SOX), relating, in part, to internal controls. In the scramble to comply, institutions have often tackled new regulations on a project-by-project basis, leading to the creation of a series of risk and compliance 'silos'. These silos use similar processes and

procedures, and are often based on the same underlying data. Most firms will probably find that they have more than enough data to satisfy regulatory requirements – but they are also duplicating their compliance efforts, tying up time and resources which could be better-deployed elsewhere.

The implementation of an ERM framework requires firms to map and measure their risks and the corresponding internal controls so that the information they generate can be used to support a range of risk management goals. Simultaneously, companies should aim to rationalize the compliance silos that surround these controls. For example, there is no need for the operational risk function in an IT department to be reviewing and monitoring controls governing systems changes and to then send in a SOX compliance team to replicate the task.

The regulatory and rating agency imperative is already propelling ERM further up the insurance industry agenda – but it shouldn't be seen as just another compliance exercise. With ERM, the sky is the limit and very few companies have yet to realize its full potential. □



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A road map for surviving the credit crunch

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While the current focus may be around subprime mortgages in securitized investments, this article highlights key issues that management should be focusing on to avert or mitigate credit and liquidity risks.

A ROAD MAP FOR SURVIVING THE CREDIT CRUNCH

The credit crunch

Nearly 20 years ago, a credit crunch caused by valuation pressures on high-yield bonds, marquee real estate properties and commercial mortgage loans helped cause the insolvency of some of the nation's largest insurance companies, including Mutual Benefit Life and Executive Life. Years later, the collapse of hedge fund Long-Term Capital Management sent financial markets tumbling and risk premiums ballooning to levels far above average.

Today, another credit crunch is underway, caused by the realization that subprime mortgages in some securitized investments were overvalued and the emergence of similar concerns about other debt instruments. These overvaluations arose from poor-quality and no-documentation mortgage loans securitized and sold several times in the financial markets. As insurance company directors and managers strive to protect their companies, their shareholders and their policyholders, lessons from history can guide their efforts.

Short-term funding and debt agreements

The impacts of tight credit and limited liquidity fall into two categories: Direct impacts, such as those affecting the insurance

company, its subsidiaries and joint ventures, limited partnerships and conduits; and indirect impacts, such as those affecting a company's producers, broker-dealers, business partners and employees.

The direct impacts that are among the most common include those stemming from a reliance on short-term funding of longer-term assets. For example, there have been several reported instances of companies in the asset-securitization business, issuers of collateralized commercial paper or sponsors of structured investment vehicles (SIVs) and conduits suffering large cash calls or failing to have their financing renewed. In several cases, sponsors of off-balance sheet SIVs and conduits have stepped in with capital to avoid reputational damage, but this may not always be the case.

Short-term funding also may be difficult to obtain, especially in the commercial paper market. This could adversely affect operations in sectors that rely heavily on credit, such as real estate development, equipment leasing, SIVs and asset securitization.

With the plentiful liquidity of recent years, little attention has been paid to issues surrounding debt agreements. Yet debt covenant violations, including

defaults due to rating changes, cross-defaults, remarketing requirements and collateral requirements ('cash calls') all present potential sources of risk. It is prudent for managers to revisit debt agreements, determine what events could cause a default and take action to prevent them wherever possible.

Changes in asset/liability management

Asset/liability management programs, which measure liquidity risk, should be updated to reflect current market valuations and conditions. For example, the decline in home sales has slowed down prepayment speeds on mortgage-backed securities, including low-risk Ginnie Mae and Fannie Mae securities, and other assets are generating cash more slowly. Some policyholders will be tapping their policies for cash. Newer products with features such as Guaranteed Minimum Death Benefits and dollar-for-dollar surrender features have not been tested in these market conditions. Management also should re-evaluate its ability to renew expiring credit facilities, and the sooner they do so, the better.

For example, if there are major catastrophic events such as the hurricanes in 2004 and 2005, or



As company directors and managers strive to protect their companies, their shareholders and their policyholders, lessons from the past can guide efforts

Indirect impacts of tight credit and limited liquidity include the effects on companies with which an insurer does business

earthquakes or fires, property and casualty insurers and reinsurers may not be able to replenish their capital as quickly as they did in late 2005. They may not have the liquidity to pay claims in a timely fashion, meet any regulatory capital requirements or protect their agency ratings. While sidecars and other new, standby capital vehicles have been created to provide liquidity in these situations, they have not really been stress-tested and their performance is uncertain. Some of them are funded, but how are the value and liquidity of the assets holding up? Some have not been funded, and what has happened to the credit-worthiness of those who would get capital calls?

Holding company impacts

The credit crunch also may have impacts on the financial condition of an insurance group's holding company. For example, in holding company structures it is not always easy to upstream cash from the insurance subsidiaries, and today this could become more difficult. There could be a drop in insurance subsidiaries' surplus from declines in the value of investments, or reduced investment income, or, of course, from catastrophic losses. Any of these could seriously reduce the amount of dividends the holding company can expect.

Potential holding company outflows and cash needs also could change, affected by factors such as debt repayments; ratcheting interest rates; share buy-back programs; capital infusions to insurance subsidiaries; or guarantees or letters of support provided to subsidiaries.

It is not uncommon for a holding company's cash needs to be fixed while its cash sources require specific action, e.g., regulator approval of a subsidiary dividend, debt refinancing, completion of a reinsurance agreement, etc. During a credit crunch, it is very important that financial management plan ahead for the unexpected and have fall-back plans in place. Examples include halting a share buy-back program, drawing down a line of credit or curing an event of default before it triggers a cross-default somewhere else in the group. Directors may want to see the month-by-month forecast of holding company cash flows for at least one year into the future and be satisfied that contingencies have been addressed.

Business partner impacts

Indirect impacts of tight credit and limited liquidity include the effects on companies with which an insurer does business. These have been less anticipated by managers than internal risks, but could pose equally serious problems. If a business partner develops a liquidity problem, an insurer could become its unwitting banker: Managing general agents caused serious problems in the past by slowing cash transfers and using the float, under-pricing new business or filing false claims.

The risk of fraud is also greater in times such as the present. Individuals – either an insurer's own employees or those working for clients or business partners – may be in financial distress because of high debt, resetting mortgages or margin calls on investments. Many of the so-

called subprime mortgages were issued to well-heeled individuals buying a second or third home as an investment. As interest rates reset, or bullet mortgages come due in a down housing market, these individuals may encounter serious financial distress.

Nor is the risk limited to MGAs and individuals. Other business partners, such as producers, investment managers or broker-dealers, may be tempted to engage in fraud to escape or delay financial problems. Or, they could go into bankruptcy or receivership owing large amounts to an insurer.

Increased investment risk

Insurance company investments are another area of potential problems. Among the more common areas of performance concern are mortgage-backed securities, collateralized-debt obligations, asset-backed commercial paper conduits and other derivative products, including embedded derivatives in insurance contracts.

Although most companies already have undertaken reviews of their portfolios to identify potential or existing problems in their direct investments, they also need to look at indirect investments – those made through opaque limited partnerships and joint ventures, such as hedge funds, and SIVs. In addition, insurers need to have some idea of the exposure to significant receivables from their customers, reinsurers and other business partners.



Difficulties in valuing assets

Finally, valuation of investments is a significant and growing concern. Accurate valuation of liquid assets is especially difficult in today's markets. Frequently, illiquid assets are volatile and have limited transactions. Third-party valuations may be unreliable, particularly for more-complex products. The liquidity risk assumptions and other observable market inputs that affect modeled valuations may be outdated or insupportable.

Valuation challenges have been compounded by the uncertainty stemming from implementation of the new fair value accounting rules (FAS157 and FAS159) issued by the Financial Accounting Standards Board, which introduce new requirements for valuing assets.

Conclusion

Insurers, of all businesspeople, understand the importance of controlling risk and uncertainty. While some disasters may always

be surprises, that possibility can be reduced by a proactive, continuing and collaborative review process. The right questions need to be asked, corrective measures taken, due diligence performed and documented and all disclosures made in a timely fashion.

Ultimately, the support of boards of directors and C-suite executives is essential if insurers and reinsurers are to pass through this storm safely. Understanding the risks and

challenges identified above is imperative, and will give company leadership the information it needs to address weaknesses and make the right decisions in a timely fashion. □

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Catastrophe loss estimation: Overview of current practice

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Since the devastation left behind by hurricanes Katrina, Rita and Wilma in 2005, insurance industry leaders have placed catastrophe losses high on their agenda. This article focuses on catastrophe reserving best practices with particular attention given to catastrophe models, data quality and key considerations surrounding the catastrophe reserving process.

CATASTROPHE LOSS ESTIMATION: OVERVIEW OF CURRENT PRACTICE

Post-Katrina, a new emphasis on preparing for catastrophes

Since the series of Atlantic and Gulf Coast hurricanes culminating with Katrina, Rita and Wilma in 2005, insurance industry leaders have placed the risk of catastrophic property and casualty losses high on their agenda. For example, the National Association of Insurance Commissioners Fall 2007 national meeting featured several catastrophe-related sessions, including a public hearing on state regulation of firms which create near-term models of catastrophic events to assist in risk forecasting, product pricing and reserving.

As a result of overall industry adverse loss reserve development for these 2004 and 2005 storms, catastrophe reserving has been receiving greater attention. Historically, reserving for catastrophic events has been a relatively subjective process with few proven procedures available to guide reserving estimates. Advances in computing technology, progress in catastrophe estimation models and improvements in underwriting systems have combined to make the development and testing of these accruals more objective and more process-driven. A number of proprietary and non-proprietary models have evolved to forecast potential losses, and insurers can make effective use of them.

Current catastrophic loss estimation models

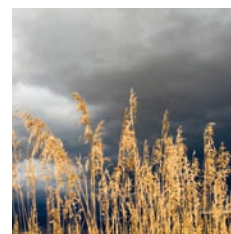
Five of the most common methods to estimate catastrophe reserves currently in use are: reliance on catastrophe modeling; ground-up exposure analysis; market share analysis; multiple of previous event; and the loss development method.

Catastrophe modeling is an umbrella term that covers an array of products which have evolved to price catastrophe-related insurance exposures. The models generate representations of projected hazards based on historical weather data and climatological models (in the case of hurricanes). The models then evaluate an event's effect on a portfolio of risks and, using a database of the coverage in place, translate financial impact into projected losses. Models exist for most types of property lines of business and have even been expanded to include worker's compensation catastrophe coverage and, post- 9/11, terrorism events.

However, catastrophe models have not always been accurate, failing to forecast the full impact of many of the 2004-2005 hurricanes. Factors such as demand surge or incomplete or inaccurate policyholder or cedant data, have been significant contributors to differences

between actual and modeled estimates. The models, which generate results for thousands of simulated years, are not intended to project results for a specific year or event and users need to remember this; similar limitations have affected other industries which rely on sophisticated quantitative analysis for decision-making, such as hedge funds engaging in statistical arbitrage. As a result catastrophe model vendors have worked to incorporate previously un-modeled features into their models, such as demand surge, since the 2004-05 hurricanes. Model development, improvement and refinement is an ongoing process as technology advances, the underlying science evolves and more catastrophe loss data becomes available for analysis.

Insurers, which use *ground-up exposure* analysis, attempt to identify losses to each of their exposed policies and contracts, often making use of underwriter knowledge of the business written. Because of the potentially vast pool of potential risk events, the insurers often use a catastrophe model for initial screening of policies before conducting more detailed exposure analysis. Algorithms can be used to estimate the losses for those policies that are not subjected to exposure analysis.



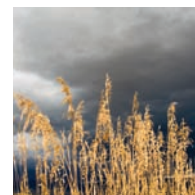
Proprietary and non-proprietary models have evolved to forecast potential losses



Because ground-up exposure analysis uses actual, insured exposures and data gathered as part of routine claims handling and underwriting, it generates the most accurate reflection of insured loss exposure. However, the method has its limits: Data is often delayed because of the long lag time between an event and an examination of each individual risk. This is particularly important for exposures which have a time element, such as business interruption, which can generate claims that far exceed those caused by physical damage. Because this method is effectively a case by case analysis, overall trends in losses may be difficult to identify using this method.

Through *market share analysis*, insurers determine their exposure to catastrophic events by evaluating their market share (using publicly available data) and an industry loss estimate (produced by Property Claims Services or other similar sources). Typically market share is assessed in terms of premiums written.

Market share analysis is a relatively quick and direct approach that is frequently used to calculate initial loss estimates for primary insurers. This makes it a useful method for insurers to provide initial loss estimates quickly to third parties after an event. However, it may be less accurate for larger losses because primary carriers' market share typically decreases, and reinsurers' share increases, as the amount of the loss grows. This approach is



CATASTROPHE LOSS ESTIMATION: OVERVIEW OF CURRENT PRACTICE continued

also fairly high level in nature, so differences in exposures at lower levels of detail e.g. by county or zip code, may result in greater (or smaller) levels of losses than implied by exposures at the macro level. Historically, industry loss estimates have tended to grow from initial estimates, so larger losses can be distorted.

When a company uses the *Multiple of Previous Event approach*, it calculates its estimate of losses for a particular event by using its own experience with previous events thought to be similar as a basis for comparison. Ideally, those events should share relevant characteristics with the event to be estimated. Using professional judgment, the analyst then applies a multiple to generate a loss estimate.

Although this method uses a company's actual experience with a prior event, its effectiveness can be undercut by the fact that history rarely repeats itself, and relatively minor changes in event characteristics, taken together, can radically skew the results. Differences in the geography of an event and the lines of business or layers of coverage impacted by the two events are examples of factors that may skew the comparison. Moreover, data used to generate the multiple, such as inflation, may not be readily translatable.

The *Loss Development Method*, a traditional actuarial reserving method, develops the ultimate loss using the reported loss to

date divided by the estimated percentage of the ultimate reported – in essence, using an approach that applies the experience of prior catastrophes or losses. This method tends to stabilize a few quarters after an event occurs and can therefore be a reliable benchmark.

Although this method provides a direct actuarial framework consistent with non-catastrophe reserves, the reported-to-ultimate ratios may be very small soon after the event, making the results quite volatile. The timing of an event within a quarter may also drastically affect the results of this method event in subsequent quarters.

Best practices for insurers

The single most important step an insurer can take to improve loss estimation quality is to review the results from these various methods. Employing two or more methods of assessing catastrophe exposure or reserve requirements is likely to provide more robust results than using only one, providing that the insurer understands why the results of the various methodologies differ – for instance, the difference between detailed and aggregate methods. The more sophisticated insurers can also track the performance of various methods to better relate estimates to actual losses.

In reviewing the results of the various methods, insurers should also ensure that they pass

reasonability tests. One example: If a contract with an expected loss ratio of 25 percent is indicated as having a loss, then a similar contract with an expected loss ratio of 40 percent also would be expected to have an indicated loss.

Since un-modeled exposures contribute significantly to the ultimate losses, insurers should use their professional judgment to guide them in evaluating the impacts of effects such as demand surge; time element coverage claims; potential regulatory, judicial and legislative actions; and coverage dispute outcomes (for untested policy wordings, alleged breach of contract, etc.). Loss estimates should also reflect the impact of factors that potentially reduce direct exposure, such as reinsurance and the Florida Hurricane Catastrophe Fund. Insurers' judgment should be complemented by the historical record of losses from other, similar modeled storms.

Conclusion

With the 2004-05 hurricane seasons fresh in their memory and the possibility that climate change could increase the frequency and severity of storms, droughts and other weather-related events, insurers and reinsurers are more concerned than ever that catastrophic insured losses could become even more significant.

Reserve estimates are still subject to significant variability because of the uncertainty of losses associated with severe events. However, this uncertainty can be reduced through careful testing of the adequacy of catastrophe-related accrual that complements current reserve auditing procedures. Companies need to ensure that they are following industry best practices for estimation to protect themselves, their shareholders and their policyholders. □

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Insurance risk transfer: Tax red flags to watch for

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With the IRS' heightened focus on insurance risk and risk transfer in insurance and reinsurance transactions contained in recent rulings, this article outlines the leading practices in the industry and highlights key concerns to be aware of while looking at contracts that transfer risk.

INSURANCE RISK TRANSFER: TAX RED FLAGS TO WATCH FOR

Risk transfer for tax purposes

This article provides a general background on how the definition of what constitutes 'insurance or 'reinsurance' for federal income tax purposes has evolved over the last several decades and discusses a significant new IRS pronouncement. Practitioners and industry experts have relied on case law, IRS rulings and particularly accounting pronouncements in determining whether the risk transfer requirement has been met for tax purposes. This article examines the implications of a Field Service Advice (FAA 20072502F) recently issued by the Internal Revenue Service ('Service') on June 22, 2007 dealing with a retroactive reinsurance arrangement where the Service introduced new criteria in analyzing whether an arrangement constitutes reinsurance for tax purposes. The Service also indicated for the first time that NAIC risk transfer rules are not controlling for tax.

Background

Insurance is a means by which a policyholder shifts its economic risk of loss to an insurance company. Reinsurance is a form of insurance between insurance companies and is a means by which an insurance company shifts its own risk of economic loss to another insurance

company. Insurance contracts must transfer insurance risk for tax purposes to be treated as a valid insurance or reinsurance transaction. Whether an arrangement qualifies as 'insurance' or 'reinsurance' for federal income tax purposes is important because insurance/reinsurance transactions generally are accorded favorable tax treatment to the parties.

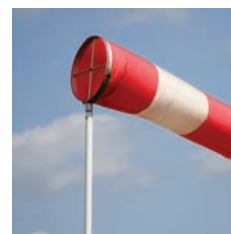
The Internal Revenue Code and Treasury Regulations do not define the terms insurance/reinsurance or 'insurance contract'. The lack of statutory definition has led to frequent disputes between the Internal Revenue Service ('Service') and taxpayers over whether a contract constitutes insurance for tax purposes. As a result, the definition of insurance has evolved in the courts and through rulings issued over the years by the Service. While no universally acceptable definition of insurance exists, fundamental concepts have emerged providing a framework in determining whether insurance exists for tax purposes.

Precedent

As part of this analysis, risk transfer is a critical element in determining whether a contract will be accorded reinsurance treatment for federal income tax

purposes. What constitutes risk transfer, however, has created frequent disputes between the Service and taxpayers. The leading case in this area is *Helvering v. Le Gierse*. *Le Gierse* is an early Supreme Court case decided in 1941 which is cited over one thousand times in primary and secondary sources. In *Le Gierse* the Court ruled that an arrangement must involve 'risk shifting' and 'risk distribution' to qualify as insurance for federal income tax purposes. Risk shifting occurs when the insured shifts the potential risk of economic loss to the insurance company. Risk distribution incorporates the law of large numbers and allows an insurance company to spread one policyholder's risk among a group of policyholders.

In *Le Gierse*, the insured was an eighty year old woman who purchased two contracts from an insurance company one month before her death. One contract was an annuity contract which entitled her to receive annual payments as long as she lived. The second contract was a life insurance policy which upon her death provided for a \$25,000 lump sum payment to the insured's daughter. The premium paid for the annuity was \$4,179 and \$22,496 for the life insurance policy. The insurance company treated the two contracts as separate distinct transactions-



Insurance is a means by which a policyholder shifts its economic risk of loss to an insurance company



neither contract referred to the other, neither premium was computed with reference to the other and separate insurance reserves were maintained for each. However, the company would not have issued the life insurance contract without the annuity contract.

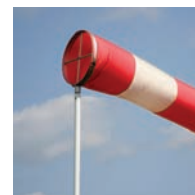
The Supreme Court held that the arrangement lacked the two essential elements of risk shifting and risk distribution and therefore

failed to qualify as insurance. The Court found that the combination of annuity and life insurance contracts neutralized the risk customarily inherent in insurance arrangements since when viewed together, the insurance company could not lose on the two contracts. The total amount paid by the insured exceeded the face value of the contracts and the only risk to the insurance company was investment risk that the premiums received would

yield a lower return on investment. This was an investment risk similar to the risk assumed by a bank but it was not an insurance risk.

In 1989 the Service issued Revenue Ruling 89-96 dealing with a retroactive insurance arrangement. In the ruling, a hotel incurred a large catastrophe loss estimated to exceed \$130 million. The hotel's existing liability coverage was only \$30 million and for a premium of \$50 million

they purchased excess of loss coverage of \$100 million over the \$30 million. The Service held that the transfer was of an investment risk not an insurance risk. The ruling stated that 'it was reasonable to expect' that the sum of the net premiums received by the insurance company, the tax savings to the company from the net loss recorded on the transaction in the first year, and the investment income it would earn on these amounts would



INSURANCE RISK TRANSFER: TAX RED FLAGS TO WATCH FOR continued

exceed the maximum anticipated liability under the insurance contract. Significantly, the Service took into consideration the first year tax benefits in determining whether risk has been transferred for tax purposes in an insurance arrangement.

Due to lack of statutory definition of insurance in the Code or Regulations, for a long period of time practitioners and the IRS have placed great weight on reinsurance risk transfer criteria contained in accounting pronouncements. For short duration contracts (generally property and casualty contracts), parallel risk transfer requirements are provided under statutory (SSAP 62) and GAAP (FASB 113) pronouncements requiring that the reinsurer assume significant insurance risk (timing and underwriting risks) and it must be reasonably possible that the reinsurer may realize a significant loss from the transaction.

New guidance

Based on the statutory and GAAP accounting guidance on risk transfer, many practitioners believed that as long as these two tests are met the arrangement should qualify as risk transfer for tax purposes. However, on May 8, 2007 the Service issued a Field Attorney Advice that refuted this position.

The advice analyzed whether risk transfer has been met in the context of a retroactive reinsurance arrangement. Using the principles of Rev. Rul. 89-96, the Service found that a taxpayer's retroactive reinsurance contract did not transfer insurance risk. The Service argued that in essence Rev. Rul. 89-96 equates the tax savings received, when booked as an underwriting loss, to an additional premium which the taxpayer can invest to cover expected claims. Therefore, to evaluate the economics of the transaction, the tax savings along with the actual premium is compared to the net present value of the anticipated losses. If the NPV of the anticipated losses do not materially exceed the premium and future investment income plus the tax savings, the transaction does not transfer insurance risk for federal income tax purposes. The Service for the first time applied the consideration of tax benefits in a reinsurance context stating: 'Although this revenue ruling (Rev. Rul. 89-96) was written in the context of an insurance transaction, its rationale is equally applicable to this reinsurance transaction.'

In the advice conclusion the Service states, 'While an arrangement that fails the risk transfer requirements of SSAP 62

is almost certain to fail the risk transfer requirements for federal income tax purpose, satisfying SSAP 62 is no guarantee of success for federal income tax purposes.' The FAA fails to consider future tax costs, such as tax on investment income and as a result their reasoning seems flawed. Secondly, the use of an after tax analysis provides a number of additional issues. For example what if one of the parties is not subject to tax or what if there is a tax detriment in the first year. While it is recognized that the question of risk transfer for tax purposes cannot be based solely on an accounting determination, significant weight should be accorded to the GAAP and NAIC's characterization of these contracts. It seems unwise for the IRS to develop their own testing methodology in an area where insurance and actuarial professionals have spent so much time and given great thought to the development of the accounting rules. No doubt we will see more developments in this area and potentially an increase in IRS challenges of risk transfer in reinsurance contracts. □

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