

Financial Stability and Insurance Supervision: The Future of Prudential Supervision

by Terri M. Vaughan*

1. Introduction

Recent years have seen an increased interest in the insurance sector and its role in financial stability, including from those outside insurance and insurance supervision. Early attention focused on the issues of credit risk transfer from the banking sector to the insurance sector, after it became apparent that the industry's exposure to banking risks was increasing. Concerns were raised about the lack of transparency in the insurance sector, potentially naïve risk-taking, particularly in the credit risk area, and possible linkages with the payment system through assumption of banking sector risks. More recently interest has focused on the potential systemic implications of reinsurance concentration and operational risk transfer from banks to insurers.¹

In many respects, this increased scrutiny from those outside insurance supervision has been a healthy development. Senior policymakers – central bankers and finance ministers – are more likely today, particularly post-9/11, to recognize the critical role that insurance plays in economic activity. Banking supervisors are more likely to recognize some of the unique characteristics of the insurance sector.² Increased attention from those with a broader interest in global financial stability, and with a sometimes different supervisory perspective, has encouraged a critical analysis by insurance supervisors on what works well in insurance supervision and what can be done better. Insurance supervisors have been attempting to answer some very fundamental questions: what is the role of the insurance sector in financial stability; what are the significant issues that supervisors face today; and what should they do to continue improving regulatory processes in response to the changing environment?

The result has been a flurry of activity around the world, as insurance supervisors reengineer their supervisory systems to respond to the new demands. Major reforms are underway in the United Kingdom, the European Union, Australia, and The Netherlands, among others. Incremental reforms are underway in Canada and the United States. This paper examines current issues facing insurance supervisors and possible future directions for insurance supervision.

* Iowa Insurance Commissioner, Past President of the National Association of Insurance Commissioners (NAIC). This paper reflects the views of the author and not of the National Association of Insurance Commissioners or U.S. insurance regulators, and is based on a speech given at the 19th PROGRES International Seminar of The Geneva Association in September 2003.

¹ See e.g. Crockett (2002, 2003); International Monetary Fund (2002, 2003); Large (2003).

² For an excellent description of differences in risk profiles and regulatory capital approaches in the banking, insurance and securities sectors, see Joint Forum (2001).

2. The current state of the industry

It is important not to interpret efforts to improve insurance supervision as suggesting the current system has failed. In fact, there is plenty of evidence that current supervisory tools have functioned reasonably well under challenging circumstances.

We have recently emerged from potentially the most dramatic economic environment since the Great Depression of the 1930s. Many have referred to this as the perfect storm: soaring credit defaults, nearly-record low interest rates, dramatic declines in equity values, and, of course, the unprecedented losses of 11 September 2001. In the United States, we can add that to the re-emergence and expansion of the asbestos litigation problem and the emerging problems with toxic mold. All of this hit at a time when the property/casualty industry balance sheets were weakened by the lingering effects of under priced business written in prior years. Surplus in the non-life sector had been falling relatively steadily for several years, even prior to 2001. (The years 1997 to 2001 were particularly bad accident years.) Together, these converging developments have subjected the industry to what, in its entirety, is an extreme tail event.

Consider the effects of this extreme tail event on the U.S. insurance industry, using two objective measures: the number of insolvencies and measures of regulatory capital adequacy.³

Figure 1 shows the number of insolvencies across the entire market for the past ten years. In 2002, the number of insolvencies was 30.⁴ That reflects all elements of the industry – life, property/casualty, and health – and represents an insolvency rate of less than 0.75 per cent. While that number is higher than the 15 insolvencies in 2001, it is still well below the experience of the late 1980s and early 1990s. The number of insolvencies in the United States peaked in 1989 at 94 firms. Between 1988 and 1992, the United States averaged 80 insolvencies per year. Even at 80 insolvencies, it is worth noting that it is an extremely small percentage of the thousands of U.S. licensed insurance companies.

In short, there has been no noticeable impact of this extreme tail event on the number of insolvencies in the United States. Also interestingly, 23 (or nearly 80 per cent) of the 2002 U.S. insolvencies were in the property-liability insurance sector, and these relate almost exclusively to two particular problem areas – the workers' compensation market in California and the national medical malpractice market. Note that these insolvencies do not stem from 9/11 losses, excessive credit losses, or a major reinsurance failure, that is, the areas that have been getting the most attention from those outside insurance supervision.⁵

Second, consider the effects of this extreme tail event on the number of companies

³ Detailed information is available on the U.S. industry, as a result of significant statutory reporting and a detailed risk-based capital system. This may not be directly relevant to all countries. In Europe, for example, there has been some additional exposure to equity risk, and Japan has significant issues caused by its low interest rate environment. It is worth noting that the U.S. market is the largest in the world, and it was particularly affected by some of the major events of 2001 and 2002.

⁴ Insolvency data were provided by the National Association of Insurance Commissioners.

⁵ For 2003, there were 20 insolvencies as of 1 October 2003. This equates to an annual rate of slightly below the 30 insolvencies in 2002. Again, the bulk of the insolvencies (90 per cent) were in property/casualty insurance.

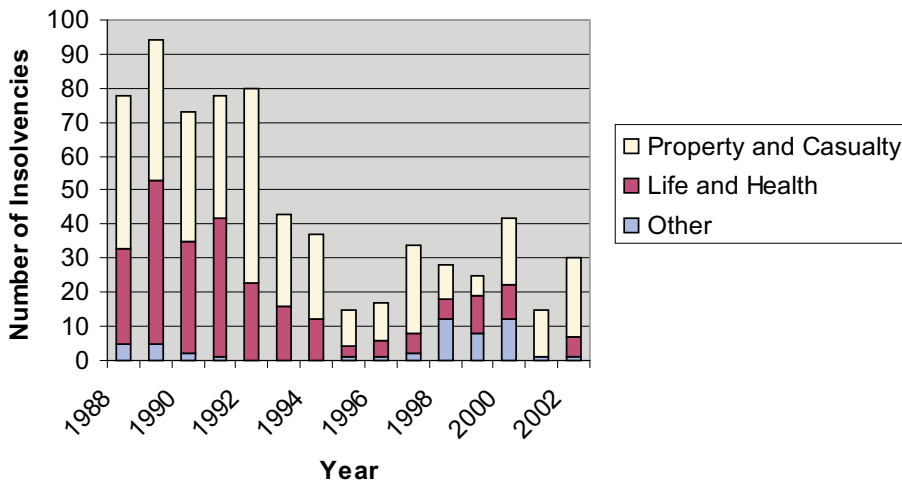


Figure 1: Trends in insurer insolvencies

triggering various risk-based capital threshold levels.⁶ The trends in the percentage of U.S. companies triggering action based on risk-based capital levels are shown in Figure 2. Interestingly, the percentage of companies that triggered the Company Action Level at the end of 2002 was actually *below* the percentage that triggered Company Action Level at the end of 2000 (5 per cent vs. 5.7 per cent). Again, it is interesting to note where the problems are (Figure 3). At the end of 2002, the Company Action Level was triggered by 2.6 per cent of life companies, 4.3 per cent of property-casualty companies, and 12.2 per cent of health insurers.

None of this is conclusive of course. Regulators are well aware of the limitations of current tools in perfectly identifying potentially troubled companies. Financial statement engineering could be a factor.⁷ Risk-based capital could be missing major areas of risk that are growing, and it almost certainly is. Finally, there could be other reasons for a lag between the troublesome economic conditions and the occurrence of insolvencies. Still, the bottom line is this: the U.S. industry has faced an extreme tail event and weathered it. Default rates have come down, interest rates are up, the stock market is up, and the industry is better managing its underwriting exposures, including terrorism risk. Non-life insurance rates have risen dramatically. We saw major reserve strengthening in 2002 and 2003. European insurers that

⁶ U.S. insurance regulators use a detailed, complex risk-based capital system to assist in identifying potentially troubled insurance companies. The risk-based capital formulae were introduced during the 1990s (life formula in 1993, property-casualty in 1994, and health in 1998) and are currently accreditation standards for U.S. insurance regulation. At the first RBC trigger level, termed the “Company Action Level”, the management of the insurer is required to develop a plan to respond to the RBC deficiency. At lower RBC levels, regulatory action is required. The Company Action Level threshold is set at 200 per cent of the Authorized Regulatory Control Level.

⁷ It has been suggested, for example, that financial reinsurance is sometimes abused to mask a deteriorating financial condition. The inherently subjective nature of loss reserving, particularly for long-tail liability lines of insurance, also presents an opportunity for mischief in financial reporting. For a case study, see HIIH Royal Commission (2003).

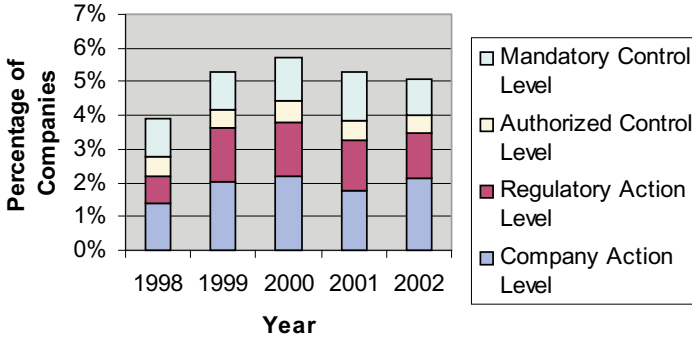


Figure 2: Companies triggering RBC Action Levels: 1998–2002

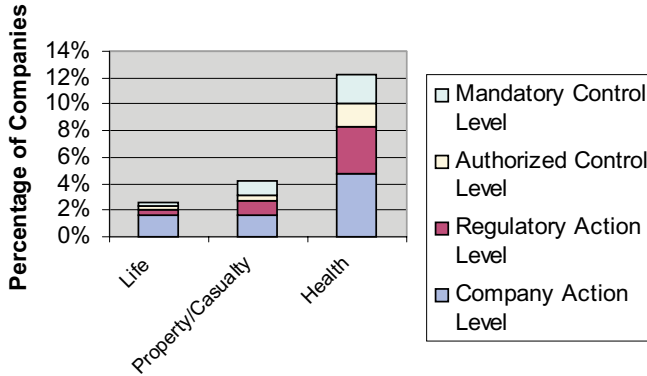


Figure 3: Companies triggering RBC Action: 2002

were heavily invested in the equities market are better diversified today. A number of companies have gone into the market to replenish their capital. Finally, after years of steady declines, the U.S. property/casualty industry saw its surplus increase in the second quarter of 2003.

In a number of respects, the industry is financially stronger today than it was at the end of 2002. It has survived a period of nearly unprecedented economic turmoil. This speaks relatively well to the industry’s risk management practices and to current supervisory systems.

While the industry’s resilience in recent years is noteworthy, that is not a reason for complacency. Insurance markets and insurance company operations are not static. Supervisory approaches must continue to evolve as new challenges emerge and as new regulatory tools become possible.

3. Systemic risk and the challenges of insurance supervisors

Recent years have seen increased discussion of the possibility that activities of the insurance sector might present systemic risk to the world economy. Specific concerns have surrounded the industry's acceptance of risk from the banking sector (including credit risk and operational risk) and concentration in the reinsurance sector. Other areas in which concerns have been expressed relate to the effects on the general economy in the case of an insurance market failure. Examples that are cited include the 2001 collapse of HIH Insurance Group in Australia and its impact on the construction industry, and the effect of the industry's post-9/11 withdrawal of terrorism insurance coverage on the construction and real estate industries. It is increasingly recognized that insurance plays a key role in greasing the wheels of commerce, and senior policymakers have begun to ask how serious the threat of insurance market failure is, and what the systemic risk implications are.⁸

The term *systemic risk* is frequently used with a lack of precision. Kaufman (1994, 1996, 2000) identifies three general ways in which the term is used. First, the term is sometimes used to refer to a large shock that has simultaneous effects on most or all of the system. Terrorism losses from 9/11 are a good example in insurance, as is the effect of declining interest rates on life insurers, particularly given the various guarantees embedded in their products.

The two other uses of the term *systemic risk* focus on potential spillover effects, i.e. where the event initially impacts a single or small group of firms, but that effect then spreads to other firms. This can occur (1) because of interconnectedness between firms, or (2) because, in a world of imperfect information, the losses experienced by a single firm create uncertainty about the values of other firms potentially exposed to the same shock. The former case is sometimes termed *knock-on* or *chain reaction systemic risk*, and in insurance would be exemplified by the interconnectedness created by reinsurance arrangements. The latter case may be called *common shock contagion*, and the reaction of market participants can be rational (i.e., punishing only the guilty firms) or irrational (punishing guilty and innocent firms). An example of common shock contagion in insurance might involve asbestos, where significant reserve strengthening by a single major insurer frequently generates speculation about the adequacy of loss reserves in other insurers exposed to asbestos risk.⁹

There is little evidence to suggest that knock-on systemic risk is a problem in the insurance sector. Historical evidence and U.S. data on insurer interconnectedness tend to suggest this is not a significant issue in the insurance sector, even when it comes to reinsurance. In the United States, regulators are able to identify the extent to which insurers diversify their reinsurance credit risk, and regularly conduct scenario analyses around the failure of a large

⁸ There is a certain amount of confusion in these discussions, with some tendency to treat widespread withdrawal of a particular coverage by insurers as a failure of the insurance mechanism and a source of systemic risk. In many cases, however (e.g. terrorism, environment), the industry ceases offering coverage because the nature of a particular risk has changed, and it is no longer insurable. In other words, the fundamental problem lies outside the industry, and the industry is merely reflecting a new reality. A similar argument could be made in the case of HIH. HIH was the only significant Australian insurer still offering coverage in certain third-party liability lines. Others had ceased offering coverage, reportedly because of the difficulties created by a changing tort environment and possibly from naïve underpriced competition from HIH. The failure of HIH did not create the market failure. It existed long before HIH failed.

⁹ Kaufman has frequently argued that the perception of systemic risk is greater than the reality. In short, he suggests that historical evidence from the banking sector does not support the existence of direct causation or chain reaction systemic risk. Furthermore, he argues that, while common shock contagion occurs, it is primarily rational. Innocent firms are affected only temporarily during a sorting-out period and rarely to the point of insolvency.

reinsurer. NAIC analysis shows that ceding companies typically diversify their reinsurance credit risk, and while the failure of a major reinsurer is certainly not a desirable thing, it would not result in widespread failures in the primary sector.¹⁰ Furthermore, as Kaufman so clearly explains, the chain reaction requires that intermediate firms have inadequate capital to survive the event. A single well-capitalized firm will break the chain.

Knock-on systemic risk has also been raised in connection with the insurance industry's assumption of credit risk from the banking sector, with the concern that a chain reaction could spread to the banking sector. Here again, NAIC quarterly financial statement data provides some evidence of the U.S. industry's exposure to credit derivatives.¹¹ U.S. insurer investments in credit risk transfer products at year-end 2002 amounted to a mere 1.6 per cent of Schedule D bonds in the life sector and 0.3 per cent in the property-casualty sector. Thus, it appears that overall insurer investment in credit derivatives is relatively small.¹² Of course, the credit risk transfer activity is concentrated in a subset of the industry. NAIC data, anecdotal reports, and several surveys indicate the major players are the financial guarantee firms and globally active reinsurers. The insurance industry has tended to assume the higher quality tranches, and the primary motivation for the transactions is differing risk appetites across the sectors, rather than regulatory arbitrage. While insurers' increased involvement in this market warrants the attention of supervisors and increased transparency is desirable, there is no evidence of systemic risk implications from insurer activities. These conclusions are supported by several studies.¹³

Similarly, there is no evidence that irrational common shock contagion has been a problem in the insurance industry. Brewer and Jackson (2002), examining life insurers and commercial banks, found strong evidence of both intra-industry and inter-industry contagion. However, they also found that these effects could be explained to a large degree by firm-specific variables, and, interestingly, that contagion in the life insurance sector was more

¹⁰ NAIC statutory financial statements contain detailed information on reinsurance arrangements, by counterparty. This permits an analysis of the diversification of reinsurance credit risk by ceding company, and, at least for U.S. licensed reinsurers, an analysis of risk concentration at the level of the reinsurer. See also Swiss Re (2003).

¹¹ Unfortunately, similar detail is not available in most other countries.

¹² This amounted to U.S.\$ 26.5 billion in CDOs, CBOs, and CLOs in the life sector and U.S.\$ 1.8 billion in the property-casualty sector, on a fair value basis. (Some NAIC provisionally exempt securities may not be included in these figures.) In addition, the life industry had roughly U.S.\$ 2.3 billion in replication transactions at year-end 2002, while the property-casualty industry had U.S.\$ 161,000 in replication transactions, most of which involve credit derivatives. Second and third quarter 2003 reports indicate a modest decline (5 per cent) in insurer investments in CDOs, CBOs, and CLOs, while replication transactions nearly doubled. Note that these figures constitute the investments of U.S. licensed insurers only. They do not include any investments by non-US insurers or by non-insurer affiliates.

¹³ Much has been written about the insurance industry's involvement in the growth of cross-sectoral credit risk transfer. Most researchers have concluded that the broader spreading of credit risk is positive, but that enhanced transparency is desirable and that supervisors should focus on ensuring firms have strong risk management systems. The IAIS (2003a) concluded "There is insufficient evidence to suggest any substantial implications for financial stability – there seem to be more issues for supervisors." Fitch (2003) found that 80 per cent of the exposures held by insurers and reinsurers rated A or higher. For financial guaranty firms, 95 per cent rated A or higher. Rule (2001) suggests the "scale of the resulting inter-sectoral risk transfer probably remains small in relation to the balance sheets of the banking and insurance industries. Most insurers still have much larger exposure to credit and market risk from their traditional bond and equity investments." The U.K. Financial Services Authority (2002a) concluded that regulatory arbitrage was not a main driver for these transactions. Differences in risk appetites across the sectors were a more likely explanation: see also CGFS (2003). This issue has also increased awareness of the differing treatment of credit risk in insurance regulatory capital schemes, depending on whether it is acquired through investment or insurance/surety operations.

likely to be explained by firm-specific characteristics than contagion in the commercial banking sector.¹⁴ In short, while contagion generally seems to be information-based, life insurance contagion is even more likely to be rational and information-based than banking sector contagion.

The view of systemic risk that has clear relevance to the insurance industry is the common shock view, including the rational, information-based contagion that results. The common shock refers to a general condition that affects the industry as a whole, potentially causing a cluster of insolvencies. Insurance supervisors recognize that insurance insolvencies tend to occur in clusters. In the United States, for example, fully half of the insolvencies in 2002 related to problems in the California workers compensation market, and at least two state guaranty funds are under severe stress as a result.

Examples of common shocks include changes in asset prices and interest rates, as well as loss cost trends. Changes in loss costs trends are a particular problem in the property/casualty insurance sector, where policies may generate claims many years after they are written. Changes in social attitudes, tort law, technology, medical costs, or repair costs in intervening years can easily generate losses on a book of business that appeared profitable when first written.¹⁵ This problem tends to get worse as the speed of change increases.

In the property-liability sector, a spike in insolvencies occurred in the late 1980s and early 1990s. While a number of causes can be cited, a major systemic issue involved a significant increase in the trend for third-party liability claims, caused by expansions in tort law and the increased propensity of courts to find coverage for asbestos and other environmental risks (e.g. “triple trigger”).¹⁶ Reserves proved to be inadequate. Similarly, the life insurance sector experienced an increase in insolvencies in the late 1980s and early 1990s, primarily driven by investment-related issues (e.g. decreases in the value of real estate and high-yield bonds).

As indicated earlier, the insolvency rate for property-liability insurers has again increased in recent years. There are a number of parallels to the late 1980s. On the property-casualty side, the asbestos litigation problem looms large, and there are legitimate concerns about the adequacy of the industry’s casualty reserves, especially asbestos reserves.¹⁷ In response, the NAIC has recently taken a position in support of asbestos reform in the U.S. Congress.

On the life insurance side, recent low interest rates and equity prices have increased awareness of the systemic risk implications of various guarantees in life and annuity products. While the industry has long offered guaranteed minimum non-forfeiture benefits, the variety of guarantees embedded in life and annuity contracts has virtually exploded in the last five to ten years, including guaranteed minimum death benefits, guaranteed minimum withdrawal benefits, and guaranteed minimum income benefits on variable products. In 2002, several life companies reported significant losses on these benefits as interest rates and equity returns plummeted, triggering the guarantees. There is a reasonable question as to whether life companies have adequately quantified, priced for, and managed this risk. Regulators in

¹⁴ Fenn and Cole (1994) also found that life insurer stock price declines during 1989–1991 were concentrated among firms with problem assets.

¹⁵ For a detailed discussion of systemic risk and expanding legal liability, see Faure and Hartlief (2003).

¹⁶ Danzon and Harrington (1994) found evidence that shifts in the loss distribution produced large industrywide forecast errors, one explanation for the underpricing in the mid-1980s.

¹⁷ For a recent debate over the culpability of the actuarial profession in reserve inaccuracies, see Wojcik (2003) and American Academy of Actuaries (2003b).

several countries are responding with new supervisory tools to address this phenomenon, including amendments to their risk-based capital systems and examination systems.

A major challenge for insurance supervisors is the increased complexity of the firms they supervise. Innovations in investment, investment strategies, reinsurance arrangements, alternative risk transfer, and product design seem to occur at a breakneck speed. This makes it increasingly difficult for supervisors to understand the risk profile of individual firms and the industry overall. This increased complexity is the key driver of current efforts to improve the supervisory system.

The fundamental problem today, as always, is this: how can we create systems that enable regulators and the public to identify those companies that are poorly managed and to act before the problem becomes irreversible and consumers are harmed?

4. The future of insurance supervision

The search for a better way to supervise this increased complexity is at the heart of efforts to improve the system, both in insurance and banking. It is this challenge that motivated the basic structure of Basel II, the new regulatory capital system for banking that has been under development by the Basle Committee for several years.¹⁸ Basle's proposed new capital regime includes three pillars: minimum capital to provide some fundamental level of protection, supervisory oversight to look in more depth at overall risk profile and firm risk management practices, and a focus on market discipline, to enable the market to support everyone's objective of protecting consumers. A number of countries have publicly embraced the Basle II construct and said they are going to build Basle II-type systems for insurance supervision.¹⁹

The details, of course, are likely to be different for insurance: the specific capital requirements, the areas that the regulators focus on in supervisory oversight, and the types of disclosures made to the market.²⁰ Still, the basic framework does conveniently capture a wide variety of activities that are found in fully developed insurance supervisory systems. It will be used here as a framework for discussing the changes that are likely to occur in our system of regulation in the future.

4.1 Regulatory capital

Regulatory capital is an area receiving much attention from insurance supervisors around the world. The IAIS is working on a capital framework, and the European Commission

¹⁸ See Basle Committee on Banking Supervision (2003).

¹⁹ See e.g. European Commission (2003), which describes the general framework for Solvency II.

²⁰ There has been some suggestion that capital requirements for the banking and insurance sectors should be the same, to reduce opportunities for regulatory arbitrage. There are reasons to believe this could be suboptimal, however: see Harrington (2003). To the extent regulatory capital rules are imperfect approximations, they are likely to be wrong for any individual firm. This creates a Type I/Type II error problem, where the degree of conservatism affects the likelihood of improperly categorizing firms. A Type I error occurs when an adequately capitalized firm is incorrectly treated as undercapitalized; Type II error refers to the failure to recognize a weak firm as undercapitalized. To the extent the banking sector and insurance sector differ in their systemic risk implications and level of market discipline, the relative acceptability of Type I and Type II errors will likely differ. While financial convergence is much discussed, in truth there remain significant differences between banking and insurance (particularly property-casualty insurance).

is developing new capital standards in its Solvency II project, as are the U.K. FSA, the Australian regulators, and others.²¹ The United States constantly revisits its risk-based capital system, but in the last couple of years has undertaken an extensive review. There is currently a proposal to increase by 50 per cent the amount of capital required at the authorized regulatory control level, strongly opposed by industry, with mixed opinions among the regulators. The NAIC is also attempting to address some risks that are not well captured in RBC right now, for example, the guarantees embedded in life and annuity products. In 2000, the NAIC introduced its C-3 Phase I capital charge for certain interest sensitive products. It is near finalizing the C-3 Phase II charge for variable product guarantees.²² This is a complex problem, given the long-term contracts and the variety of guarantees: death benefits, withdrawal benefits, income benefits, ratchets and high water mark features, and so forth. It is also a problem that several countries are working on. Canada, in particular, introduced a similar capital charge, which was effective in 2002.²³

Given the increased complexity of the industry's activities, it is reasonable to expect that RBC calculations will become more complex. Adequate attention must be paid to both the asset and the liability sides of the balance sheet. This trend is clearly evident in recent efforts around the globe. Of necessity we will have to rely on greater use of internal models in these calculations, given the growing complexity. The only way to assess the market risk in life and annuity product guarantees, for example, is through firm-specific modeling. The same holds true for understanding an insurer's weather-related catastrophe risk. Of course, there are also challenges to the use of internal models (e.g. verifying their integrity).²⁴ In the U.S. and in other countries, actuaries are likely to play an increasingly important role in the supervisory process.²⁵ Finally, while there has been some talk about trying to develop a global capital standard for insurance, similar to what currently exists in banking, the prospects of that

²¹ See e.g. Financial Services Authority (2002b, 2003a, 2003b); Australian Prudential Regulatory Authority (2002); Pensioen & Verzekeringskamer (2003); European Commission (2003).

²² Phase I, implemented in December 2000, dealt with interest rate risk for annuities and single premium life products. Annuities were defined broadly to include structured settlements and GICs, including synthetic GICs and funding agreements. Equity-based products were not included in Phase I. Phase I required scenario testing to establish the capital charge. However, many companies were exempted from the scenario testing based on significance and stress testing of C-3 risk. The proposed C-3 Phase II takes a similar scenario testing approach to establishing the capital charge. However, it would cover both equity and interest rate risk and apply to variable annuities, group annuities containing death benefit or living benefit guarantees for their equity funds, and insurance contracts that provide death benefit floors for equity fund performance. For more detail on C-3 Phase II, see American Academy of Actuaries (2003a).

²³ For a description of the approach used in Canada, see Canadian Institute of Actuaries (2002).

²⁴ In October 2003, the International Association of Insurance Supervisors adopted a guidance paper on the use of stress testing by insurers, which discusses some of the considerations surrounding model validation and documentation: see International Association of Insurance Supervisors (2003c).

²⁵ In October 2003, the International Association of Supervisors adopted a Guidance Paper on the Use of Actuaries as Part of a Supervisory Model. Among other things, the paper offers guidance on the design of an "appointed actuary" or "supervisory actuary" system, in which an insurer's actuary has certain responsibilities to both the insurer and supervisor. This has become an increasingly common model: see International Association of Insurance Supervisors (2003b).

happening in the near term are quite low, given the global differences in accounting and insurance markets.²⁶

Minimum capital standards are not the entire answer to the regulatory challenge, of course. First, there are risks that are not well-covered by regulatory capital standards, and regulatory capital will never perfectly capture economic capital. In the United States, for example, the risk-based capital system does not perfectly address catastrophe risk. The challenges with options embedded in life insurance and annuity contracts have already been mentioned. While there are charges for pricing and reserving risk, it is not clear how well they work. It is still too easy for a company to underprice its business, under reserve, and dig itself into a big hole before the regulator becomes aware of the situation. Clearly, minimum regulatory capital is only part of a well-developed supervisory system.

Interestingly, the academic literature is split on whether regulatory capital standards are positive, in the sense of contributing to stability. It has been suggested, for example, that regulatory capital requirements might be pro-cyclical, or that they have the potential to amplify systemic risk by, in effect, creating a regulatory-induced herding behavior.²⁷ Furthermore, there is plenty of evidence that companies, faced with imperfect minimum regulatory capital requirements, will simply take on more risk in areas not captured or imperfectly captured by the regulatory capital requirements, that is, the companies will engage in regulatory arbitrage.²⁸

Nonetheless, having recognized these problems, it is also true that regulatory capital requirements are motivated by certain imperfections in the insurance and banking markets, moral hazard caused by deposit insurance and guaranty funds, and information asymmetries. Given the limitations, regulators need a healthy skepticism when relying on regulatory capital. However, it is also likely to be a useful tool, if only because it provides an explicit, objective trigger for regulatory intervention.²⁹

While regulatory capital is a necessary part of an insurance regulator's toolbox, it is clearly not the whole toolbox (and probably not even the most important part of the regulator's toolbox).

²⁶ It is clear that a precursor to global capital standards in insurance is a more uniform accounting system globally. Optimists anticipate that the efforts of the International Accounting Standards Board (IASB) to develop a global accounting system will succeed in the short term, and a global capital standard in insurance will follow shortly. However, the IASB effort to apply fair value accounting to the insurance industry has been the subject of fierce opposition from many in the industry. Recently, the IASB agreed to revise the timetable for completion of the project (originally scheduled for 2007), and to consult with the industry more. It is not yet clear when this project will be completed, or how widespread its adoption will be. Development of a global capital standard is likely to be at least as challenging.

²⁷ Much has been written about the possible conflict between microeconomic objectives aimed at the solvency of an individual firm, and macroeconomic objectives of economic stability: see, for example, Borio (2003). For an explanation of regulatory-induced herding behavior, see Persaud (2000).

²⁸ One of the primary motivations for the development of Basle II was the explosion of transactions entered into by banks that were structured to manage their regulatory capital requirements under Basle I. It is well-known that insurers were often counterparties on those transactions, leading to concern that they were motivated by cross-sectoral regulatory arbitrage. More recently explanations have focused on differing risk appetites across sectors: see Note 14 above.

²⁹ For an overview of the rationale for risk-based capital requirements, particularly as applied to the property-liability insurance sector, see Cummins *et al.* (1993).

4.2 *Supervisory review*

The second element of a strong supervisory system goes well beyond regulatory capital to require that companies and supervisors understand the company, its risks, and the effectiveness of its risk management systems. Insurers should have effective processes in place to identify, assess, and manage the risks they face. Likewise supervisors need to understand and be comfortable that the company's risk management systems are effective.

In truth, supervisors have always done that to some extent – attempted to understand their companies and the businesses they were engaged in, and to assess whether management of the company was effective. That was the only way they could allocate their limited resources to those areas that most needed our attention.

But here again, with increased complexity in insurer activities comes a need for a more systematic approach to supervisory review of the company. Part of this effort involves having a clearly defined taxonomy for risk, so supervisors can communicate with each other and with the company. A number of countries have identified their risk categorization schemes and indicated they would be using these as a basis for assessing the risk profiles of their insurers. While there may be minor variations in these taxonomies, they are essentially the same, typically capturing at least market, credit, liquidity, and insurance risk (which the U.S. has subdivided into underwriting and reserving risk), as well as legal risk, reputational risk, strategic risk, and operational risk.³⁰

Having identified the possible universe of risks, supervisors can then attempt, in a systematic way, to evaluate the risks involved in various business segments and other insurer activities, to consider the effectiveness of the related risk management systems, and to arrive at an evaluation of the risk remaining. That is, they have a systematic approach to understanding and documenting the risk profile of the insurers and the effectiveness of its risk management systems. Ongoing supervision can then be targeted to those areas that involve the greatest risk.

A number of countries are currently developing similar systems. In December 2003, the NAIC released for comment its framework for a U.S. system of risk-assessment focused supervision.³¹ The implementation of this system in the U.S. is likely to be aided by the requirements of Sarbanes-Oxley that companies document and test their internal controls. U.S. regulators expect that the efforts undertaken by the companies to comply with Sarbanes-Oxley will create a certain level of documentation to facilitate their assessment of risk management practices.

One of the greatest challenges for insurance supervisors in implementing a risk-assessment focused system is achieving and maintaining an adequate level of expertise in supervisory staff. To do an effective job of supervising this increasingly complicated industry, the expertise of examiners and supervisors must be upgraded constantly. Unfortunately, regulators have traditionally been a couple of steps behind industry, and that distance increases with the speed of change. So training is important, and the use of outside experts is likely to increase.

In addition, the importance of a group-wide approach to supervision is heightened by the

³⁰ See IAA (2002) for a description of various risk classification schemes.

³¹ See NAIC (2003).

increasingly complex corporate structures and global activities in this industry.³² This raises the need for good communication and co-ordination by supervisors around the world. It also raises challenges from legal barriers to information-sharing, confidentiality rules, and cultural differences in the way countries approach supervision.³³

4.3 Market discipline

The third pillar of Basle II is market discipline, which serves to support the regulatory capital and supervisory review pillars. It is widely agreed that market discipline can support regulatory objectives,³⁴ and the need for stricter regulatory rules diminishes with effective market discipline. To encourage effective market discipline, Basle II establishes a set of public disclosure requirements aimed at enabling market participants to better understand the financial condition and risk profile of the firm.

There are theoretical and empirical reasons to believe that market discipline currently influences insurer behavior. Furthermore, Harrington (forthcoming) argues that market discipline is stronger in insurance than in banking, particularly for reinsurance and property-liability insurance. He attributes this to the smaller effects of insurance guaranty funds as compared to bank deposit insurance and implicit federal guarantees, and to possibly higher franchise values for insurers as compared to banks. Harrington cites other positive factors influencing the degree of market discipline in insurance, including the widespread use of intermediaries (and, in the case of business insurance, professional risk managers) who help consumers avoid unhealthy companies, a highly developed private system for rating insurer claims-paying ability, and the widespread use of subordinated debt by insurance holding companies. In short, many of the elements of an effective system of market discipline are present in the insurance industry.³⁵

Nonetheless, the insurance sector is widely criticized for a lack of transparency. To some extent, this is probably inevitable, given the inherent difficulty in measuring certain critical accounting information, such as loss reserves on long-tail lines of insurance. The long-term nature of the liabilities, and the amount of subjectivity that of necessity goes into evaluating the liabilities, certainly creates a challenge. And while companies can do a better job of explaining their assumptions, it is unclear whether we can ever completely solve the problem.

The challenge, of course, is to encourage the right level of disclosure, that is, disclosure that supports the risk assessment activities of market participants without being excessive. Disclosure is excessive when its costs outweigh the benefits. The proper balance can be

³² The NAIC recently introduced a group-wide approach for supervising insurance groups with companies domiciled in multiple states. This involves the identification of a lead regulator who is responsible for scheduling coordinated examinations, monitoring the holding company, and maintaining effective communication among all states involved.

³³ See IAIS (1999)

³⁴ See e.g. Greenspan (2001).

³⁵ For empirical evidence to support market discipline in insurance, see Epermanis and Harrington (2001), who found that non-life insurers that were downgraded tended to experience a reduction in revenue relative to the rest of the market. This stands in contrast to downgraded banks, which experienced an increase in their insured deposits: Billet *et al.* (1997). As previously discussed, Brewer and Jackson (2002) found that contagion in the life insurance sector was more likely to be explained by firm-specific characteristics than contagion in the commercial banking sector.

difficult to find, as the difficulties experienced recently by the Basle Committee demonstrate.³⁶

It is not easy to determine the proper level of disclosure. However, in the U.S. insurers make public extensive financial data, and this may be a good place to begin when considering enhanced disclosure globally in insurance.³⁷ Information publicly available on U.S. insurers, through the NAIC's database, is likely the most detailed of any financial sector in the world. Literally thousands of data elements for each company are reported every quarter, including detailed information on reinsurance ceded and assumed, premiums and losses by line and by state, investment activity, and loss reserve development. Furthermore, this information is used extensively by rating agencies, stock analysts, and others to make assessments of the risk profile and financial viability of insurers. To the extent this information is already disclosed and widely used, it provides a case study of how such information might be used by market participants globally.

Recently, international attention on transparency in insurance has been focused particularly on the reinsurance sector. Schedule F of the NAIC's Annual Statement contains a detailed listing of reinsurance ceded and assumed, by counterparty. U.S. regulators found this information quite valuable following 9/11, as they attempted to track the concentration of insured losses to the reinsurers. Unfortunately, similar information was not available once those losses went offshore (via alien reinsurance). Given the global nature of the reinsurance market, including the key role played by European reinsurers, U.S. regulators have encouraged other countries to adopt disclosures similar to Schedule F (so far without success).

5. Summary and conclusions

This paper has considered possible future directions in insurance supervision in light of emerging challenges. First, it argues that the industry is remarkably healthy given the very significant events it has endured over the past two years. This is evidence that the industry's risk management systems and current supervisory systems are reasonably good.

Second, it suggests that to the extent there are challenges they relate to traditional insurance supervisory challenges, particularly the problems of pricing and managing risk on long-term contracts, amplified by the increased complexity and an increased pace of change. They tend not to relate to the "headline" issues that are getting attention from non-insurance supervisors, issues such as credit-risk transfer and reinsurance concentration. There is little evidence that knock-on or irrational contagion systemic risk is prevalent in the insurance sector.

Finally, current developments in insurance supervision are driven by the increasingly complicated nature of the industry's risks, both on the investment side and the underwriting side. Supervisors are attempting to be more systematic in the way they assess that risk and an insurer's risk management systems, how they document an insurer's risk profile, and how they allocate resources to ongoing supervision of potentially troubled companies. Effectively

³⁶ In its April 2003 Consultative Document on Basle II, the Basle Committee significantly scaled back their proposed disclosure requirements, in part to avoid "potentially flooding the market with information that would be hard to interpret or to use in understanding a bank's actual risk profile".

³⁷ The IAIS is currently working on standards for public disclosure by insurers, following the completion of a guidance paper on public disclosure in 2002: IAIS (2002).

implementing such a risk-focused system will require continued efforts to enhance the expertise of the supervisors.

Risk-based capital systems will continue to evolve and become more complicated. However, risk-based capital is only part of the answer, and it is never a sufficient substitute for effective supervisory review. Finally, there is evidence that market discipline currently motivates insurer behavior, and there are some reasons to believe market discipline may be more effective in insurance than in banking. Achieving full transparency in the insurance industry is a challenge, but there are improvements that can be made, and the disclosures currently available under U.S. statutory accounting are a good place to start as we look to possible improvements globally.

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