

As the global industry rushes headlong into a minefield of new compliance issues, **Donald Mango** discusses how re/insurers can best navigate enterprise risk management and provide the regulators and rating agencies with exactly what they are seeking.

In retrospect, 2006 may go down as the year that enterprise risk management (ERM) finally came into its own in the insurance industry. This is due to a timely convergence of several outside forces pushing insurers in the same direction: towards greater transparency, pro-activity and accountability. This article will outline the key aspects of ERM initiatives from regulatory bodies around the world, as well as rating agencies, and will then highlight some best practices in enterprise risk modelling.

REGULATORY INITIATIVES

UK

The UK Financial Services Authority (FSA) was one of the first (2003) to issue a regulatory ERM framework. It consists of two major components, the



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Individual Capital Adequacy Standards (ICAS) and the risk assessment framework.

Under ICAS, a firm is required to undertake regular assessments of the amount and quality of capital, which, in its view, is adequate for the size and nature of its business – its ICA. The objectives of the ICAS regime are to:

- give firms incentives to develop their risk measurement and risk management
- put the onus on the management of firms to develop their own view of their capital needs
- deliver capital that is appropriate to the risk in the individual firm's business.

Having reviewed a firm's assessment, and taking into account other information, the FSA forms a view of the capital that is adequate for the firm's risk profile and gives individual capital guidance (ICG). For the latest on the ICAS, see *Insurance Sector Briefing: ICAS – one year on*.¹

The risk assessment framework, dubbed ARROW for Advanced Risk-Responsive Operating Framework, is a comprehensive system for evaluating the major organisational and environmental elements of risk management. As highlighted in The FSA's risk-assessment framework²:

“We have... made a conscious decision to be a risk-▷

based regulator. We regularly review the amount of risk we are prepared to accept and focus our resources on the risks that matter most. By doing so, we believe we can make the greatest overall difference in the UK financial services market, without stifling competitiveness” (Section 2.8).

EU'S SOLVENCY II

The new Solvency II framework for non-life, life and reinsurance entities within the EU is one of the most significant regulatory developments affecting the insurance industry in recent history. In broad terms, the new system will have a three-pillar structure, conceptually comparable to the Basel II framework for the banking industry. The three pillars will govern:

- quantitative requirements for measuring financial position and capital adequacy
- the supervisory review process, including review of risk management practices
- increased transparency through greater disclosure and reporting requirements.

The key quantitative challenges of Solvency II for the industry are the valuation of assets and liabilities, with emphasis on technical provisions, and the calculation of the Solvency Capital Requirement (SCR) and Minimum Capital Requirement (MCR). Solvency II capital adequacy assessments will use both a standard formula and (optionally) an insurer's



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internal model. The SCR will most likely be calibrated to a Tail Value at Risk (TVaR) at a 99% level of prudence (one-in-100-year return period) over a 12-month period.

From a qualitative perspective, the stated risk measurement and management objectives of Solvency II are aiming to ensure that insurance companies will implement a robust risk

management discipline. Risk management in this context is not limited to an accurately managed and documented underwriting process; it seeks to encompass the entire risk inventory of an insurance company.

ASIA-PACIFIC REGION

Countries in the Asia-Pacific region are taking similar approaches to risk-based regulation and solvency capital requirements. Some form of Risk-Based Capital (RBC) requirement exists in Singapore, Taiwan, China, Japan and Malaysia. The capital formulas are variations on other regulatory factor-based models, with capital charges for different financial categories.

The Australian Prudential Regulation Authority (APRA) is among the leaders in ERM integration in the region. It has detailed capital adequacy requirements, which include the ability for firms to use their own internal models. However, per APRA guidelines³, in order to use an internal model for capital setting, an insurer must be able to demonstrate that its internal model:

- operates within a risk management environment that is conceptually sound and supported by adequate resources
- is based on a set of quantitative parameters specified in this Guidance Note, including a required probability of default and a

modelling time horizon over which that probability is to be measured. These parameters will be set at a level that ensures insurers achieve and maintain a minimum level of financial soundness

- addresses all material risks to which the insurer could be reasonably expected to be exposed and is commensurate with the relative importance of those risks, based on the company's business mix
- is closely integrated into the day-to-day risk management process of the insurer
- is supported by appropriate audit and compliance procedures (Section 3).

Regarding risk assessment, APRA guidance states⁴:

“A system of effective risk management and control is critical to the safety and soundness of the operations of insurers. The Board and senior management of an insurer must develop, implement and maintain a sound and prudent Risk Management Strategy that identifies the insurer's policies and procedures, processes and controls that comprise the insurer's risk management and control systems. These systems should be appropriate to the size, business mix and complexity of the insurer's operations and address all material risks, financial and non-financial, likely to be faced by the insurer (Section 35).”

This is consistent with similar standards in the UK and the EU.

RATING AGENCIES

In 2006, the rating agencies all substantially increased their focus on ERM.

Standard & Poor's (S&P) will evaluate several aspects of the company's ERM programme and form separate views on each part of the programme. Its breakdown of the major components of ERM include:

- Risk Management Culture – risk awareness and its integration into decision-making processes, as well as communication and staffing
- Risk Control Processes – the ability to identify, monitor, set and enforce standards and limits, enforce risk limits and learn
- Emerging Risks Management – identification of emerging risks (risks that do not currently exist but that might emerge at some point due to changes in the environment), an assessment of their significance and the definition of appropriate responses
- Risk and Economic Capital Models – detailed model, risk measurement and time horizons, along with integration of model output into decision-making
- Strategic Risk Management (SRM) – a risk-reward framework with economic capital budgeting and a value added decision process.

AM Best took a close look at ERM in 2006 and will make ERM an integral part of the rating analysis and discussions with all secure

companies. It also encourages companies that use economic capital models to share the results. AM Best is looking for management to answer questions such as:

- To what extent does your company engage in risk management?
- Are risks evaluated in an integrated framework?
- What is your company's risk appetite?
- What are your company's five largest risk scenarios? How are these risks monitored?
- How does the company handle risk in its infrastructure and systems?
- How are geographic, regulatory, legislative and judicial risks handled?

Fitch introduced a new capital assessment methodology for the insurance industry. The most important development is Prism – a robust, global, stochastic model for evaluating the capital adequacy of insurers. Prism represents a significant step forward from existing regulatory and rating agency methodologies. Among its unique features:

- Global – Prism supports French, German, UK, and US regions representing more than 55% of the industry
- Integrated – risks are modelled simultaneously to capture both diversification and compounding effects
- Foundation – Prism is based on an advanced economic scenario generator



- Stochastic – it can help understand ‘tail’ events, and is in line with best practice development in Solvency II and Variable Annuities regulation.

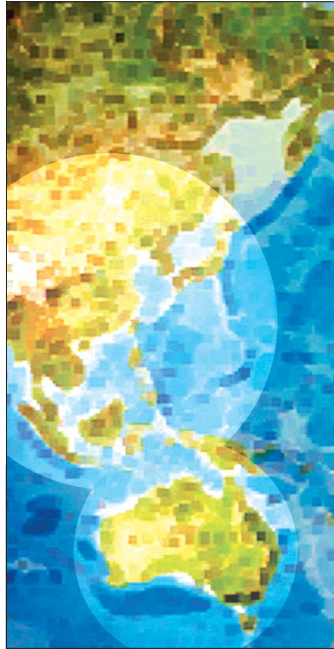
These tools will form an important part of Fitch’s review of insurers’ ERM.

Moody’s believes the rating process already includes top-level business risk assessment. Its focus instead is on detailed risk management assessments (RMAs), which enrich the information set and enhance its core analysis capabilities. Moody’s four pillars of RMA are risk governance, risk management, risk analysis and quantification, and risk infrastructure and intellig-ence. Some of the key themes include:

- Culture and infrastructure
- Identification of hidden and potential ‘iceberg’ risks – structured, complex or off-balance sheet deals, model risks, and gaps in operations
- Compliance policies and procedures
- Systems integration and data integrity
- Practical implementation of operational risk tools – scorecards, control self-assessments and audits.

USE OF COMPANIES' OWN CAPITAL MODELS

Each of the four major rating agencies has now acknowledged the merits of incorporating, at some level,



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the results of companies’ own capital models. To ‘give credit’ for a company’s own capital model, the rating agencies expect the models to pass the following tests:

- Quality Test – the model is disclosure-ready, transparent, and the model and its results can be explained by management. The model must be sufficiently sophisticated and have all major risks incorporated. The data and model must be checked, validated and controlled. The model should have predicted actual results well
- Assumption Test – assumptions and related stress testing must be deemed appropriate by the rating agency. One important area is the comparison of model assumptions with the company’s peers
- Use Test – the model and its results must be well integrated into a company’s day-to-day risk management process. Management must rely on the model results to make decisions. If the model indicates that a company is over-exposed to certain risks, management should be able to show that it took action to mitigate those risks

ERM BEST PRACTICES

Many insurers are investing heavily in the development of enterprise risk models. Befitting this exciting evolutionary phase, uniformity of best practice has

not yet emerged. However, most well-built insurer risk models are pointing towards eventually having:

- ...for the liability portfolio:
 - Both prospective (underwriting) and retrospective (reserves)
 - Both gross and net of reinsurance
 - Both discounted and undiscounted
 - Catastrophe modelling
- ...for the enterprise:
 - Economic scenarios, including yield curves, credit spreads, equity indices and major economic time series, such as GDP, inflation and unemployment
 - Insurance market cycle scenarios integrated with the economic scenarios
 - Insurance product cost scenarios integrated with economic variables
 - Discounting using scenario-level yield curves.

Most firms are only part way along this aspirational path. However, it is important that today's development efforts contemplate future needs. Model scalability and compatibility, including the ability to import scenarios generated in other specialised software (for example, asset risk) are critical.

Beyond just the technical aspects, firms must prepare the organisation to absorb and integrate the internal risk model into core decision making processes. To achieve such

integration, firms must answer essential design questions in four major areas:

- Staffing and scope – proper reporting relationships; multi-function make up of modelling team; full time commitment to the modelling effort; clear role and responsibility definition; manageable initial scope (for example prospective underwriting period only)
- Model development – software choice befitting staff capabilities; inclusive and controlled input parameter development process; extensive, iterative testing and validation
- Implementation and rollout – priority set and maintained from the top of the organisation; communication and education coordinated with rollout; pilot testing in sync with critical decision-making process (for example, planning)
- Integration and maintenance updating coordinated with other major cycles (for example, planning, reinsurance purchasing); inputs and outputs centrally owned and controlled.

THE ROAD AHEAD

These changes are generally good for the industry, but will take many years to absorb and integrate. The understanding of the aggregate risk profile of insurers will undoubtedly improve, but it will take time for company management and key stakeholders to learn a new

language and gain comfort with new tools and metrics.

While the ERM requirements may initially feel like regulatory burdens, there is every reason to expect that, as ERM comfort levels and skills increase, firms will move from measuring and reacting to planning and exploiting.

Times have changed and companies must face and embrace the inevitability of ERM. Those that understand the new rules, seek the best guidance and arm themselves with the right procedures, tools and solutions, will find new ways to succeed.

Additional contributor: Frank Achtert.

FOOTNOTES

1. Available online at www.fsa.gov.uk/pubs/other/isb_icas.pdf <http://www.fsa.gov.uk/pubs/other/isb_icas.pdf> .
2. Available online at www.fsa.gov.uk/pubs/policy/bnr_firm-framework.pdf <http://www.fsa.gov.uk/pubs/policy/bnr_firm-framework.pdf> .
3. APRA Guidance Note 110.2, "Internal Model Based Method," available online at www.apra.gov.au/Policy/loader.cfm?url=/commonspot/security/getfile.cfm&PageID=3826 <<http://www.apra.gov.au/Policy/loader.cfm?url=/commonspot/security/getfile.cfm&PageID=3826>> .
4. APRA Prudential Standard GPS 220, "Risk Management for General Insurers," available online at www.apra.gov.au/Policy/loader.cfm?url=/commonspot/security/getfile.cfm&PageID=3833 <<http://www.apra.gov.au/Policy/loader.cfm?url=/commonspot/security/getfile.cfm&PageID=3833>> .