

## **Institute of Actuaries of Australia Biennial Convention, April 19-22, 2009**

Every two years, the Institute of Actuaries of Australia holds a convention for all its practice areas. This year, the convention was held in Sydney on April 19-22. Below is a summary of selected papers and presentations from the convention, as reported by Louise Francis, VP-Research & Development. Papers and presentations, plus more information can be found at

<http://www.actuaries.asn.au/Events/seminarProgram.aspx?eventID=1605>

The convention featured presentations from all practice areas, including health, life, pension and general insurance. One major topic discussed was the global financial crisis, referred to in Australia as the GFC. In addition, there were many presentations on ERM. Some of those noted that the GFC provided many ERM lessons. Climate change issues also figured prominently at the convention, reflecting the fact that regulations are being implemented in Australia to reduce carbon emissions.

### **[Learning From the Meltdown: Improving Portfolio Construction by Understanding the Causes of Portfolio Destruction](#)**

Robert Jaeger

According to Robert Jaeger, there are three types of markets: efficient, inefficient and deficient. The efficient market paradigm (rational investors, no frictional costs, no arbitrage opportunities, and typically normal distribution) that underlies much of modern finance theory as well as practice is largely viewed as unrealistic. Behavioral finance has given us the model of inefficient markets (behavioral biases driven by fear and greed, trends and asymmetric distributions). Deficient markets, a new structure that is particularly relevant to current conditions, is characterized by all fear, all momentum, vicious spirals and is highly asymmetrical.

Jaeger pointed out a few classical economic truisms that still apply: While there are no free lunches, no risk free returns, there are plenty of return-free risks.

The need for liquidity was emphasized, even for long term investors. The need for “safety assets” was pointed out. “In a crisis the correlation of *risky assets*” is 1, but the correlation between risky assets and safety assets goes to -1. Many allegedly “low risk” assets, such as money market funds, were in fact very risky. There is a need to keep some assets in cash, where cash is a bank savings account or CD, not a money market, or auction rate securities, etc... Extreme risks were attributed to negative asymmetry: high probability of a small gain versus a small probability of a very large loss.

Jaeger opined that the hedge fund business will continue, though the hedge fund mania is probably over.

## **[At the Coal Face: Global Insurers and the Future](#)**

Steve Taylor-Goodby

Taylor-Goodby described what went wrong to cause the GFC and how it has affected Global Insurers. He suggested that an unusual and prolonged period of low interest rates and low inflation fueled a self reinforcing cycle, where more people could afford to pay more for houses fueling higher prices and ultimate the entry of speculators into the market. At the same time, attitudes changed (belief that business cycle no longer existed, new paradigm, leverage is good). At first only specialist insurers such as MBIA seemed to be affected. However the second wave of that brought falling equity values along with corporate bond values affected most insurers, especially the Life insurers. Taylor-Goodby sees parallels to both the Japanese crisis but believes we can avoid some of the mistakes that caused the Great Depression. He sees the possibility of both a benign outcome where central banks and governments prevent a deflationary trap and asset prices stabilize, as well as a bad outcome of continued falling asset prices, insurance insolvencies and hyperinflation. Regulatory changes are likely and one that seems likely is counter-cyclical capital requirements and Solvency II regulations will likely be toughened.

## **[How to Destabilize a National Banking System: A Beginners Guide](#)**

Shauna Ferris, Actuarial Studies Department, Macquarie University

Because the global financial crisis (GFC) affects all of us, and because it offers a number ERM related lessons, there has been a growth in literature by actuaries about the GFC. For instance, in Fall 2008, the Joint Risk Management Section sponsored a call for essays on the financial crisis, and published the results, 39 essays, in an eBook. At the recent Institute of Actuaries of Australia Biennial Conference, the GFC figured prominently in the program. One of the most widely acclaimed papers was “How to Destabilize a Financial System” by Shauna Ferris.

In this paper, Professor Ferris used the case study approach to draw conclusions about what causes banks, as well as financial systems to fail. The case study approach is one that is employed frequently in business schools to draw insights by studying one business in depth. The object of the paper’s case study was one small bank, Penn Square that failed in 1982 and caused a domino effect that brought down many other banks throughout the US. Within six short years Penn Square grew from a bank with a portfolio of \$30 million to over \$1.5 billion. It bet heavily on the energy industry, just as that industry was crashing.

An objective of the paper is to show that the same factors causing a banking crisis in the US in the 1980s also were responsible for the global financial crisis. The author believes regulators should have learned from past mistakes and observes that:

“Subprime lending seems to be an insoluble problem in the United States. Regulatory authorities are only too well aware that the lending policies described above are likely to lead to disaster. They have probably seen it all before... An examination of the banks that failed over the last two years (e.g., IndyMac) reveals the same pattern of rapid growth, concentration of risk, over-lending, unreliable valuation of collateral, inadequate documentation and poor information systems.”

The paper provides a list of about 15 lessons learned about behaviors by financial institutions and regulators that can destabilize a financial system. The list gives appropriate credit to the familiar “originate to distribute” model, as well as to naïve investors vulnerable to mis-selling. The final lesson is “As time goes by, the lessons of past failures are forgotten - and then we have must learn them “

### **[Some Further Thoughts on Systemic Risk and How to Control It?](#)**

Mike Barker

Mike Barker points out that Systemic Risk nearly brought down the world banking system in the fall of 2008. He suggests that future crises could be prevented with 1) a Systemic Risk regulator; 2) dynamic (i.e., counter cyclical) capital; and 3) improved regulation from central banks and Treasury. He suggests that the Systemic Risk Regulator would need to monitor leverage ratios, money supply, asset market levels and volatility, corporate profits and incentive payments and financial innovation.

### **[Quantifying and Managing a Culture of Risk](#)**

Goodsall, Gribble and O’Hehir

This paper points out that meaningful execution of an ERM program requires a culture committed to its successful implementation. With that in mind, the objective of the authors’ paper is to demonstrate how to measure the level of ERM commitment in corporations. The instrument used to perform the measure is a survey. The survey described in the paper is multifaceted: It breaks the ERM culture into a number of key parts and develops survey questions for each part. The survey can then be used to establish a baseline level, assess progress, provide milestones and address problems uncovered. The survey approach is based on the choice modeling literature.

A key area addressed by the surveys is operational risk. The paper uses the Basel II definition of “risk of loss resulting from failed people, processes or systems”. Adverse external events, legal risks, reputational, strategic and systemic risks were not a focus of the paper. Strategy, resources and culture have been identified as the three key pieces of an ERM program.

The sections of the survey are:

- Background – Information about the respondents, demographic information, etc.
- General risk issues - used to identify the general attitudes of respondents for later grouping. Examples are the stars (experienced with ERM, enthusiastic proponents) and the passing timers (hanging in until retirement)
- Alternative scenarios – identifies relationships between actions available to managers and reactions of respondents. Management may determine the actions it need to take to run an ERM program and then run pilot tests to assess them.

While it does not supply a specific example of a survey, an appendix, the paper supplies lists with considerable guidance including examples of the type of questions to ask.

### [Walking Through Moral Hazard Minefields](#)

Brent Walker

It is widely agreed that a key driver of the financial crisis was *moral hazard*. Moral hazard exists when a party's behavior increases the risk to others because the party is shielded from the consequences of the risk taking. These parties do not enter the transaction in good faith. In the banking and financial sectors, those who originated, sold and rated the mortgages and other toxic assets (i.e., secondary and tertiary securities composed of mortgages) did not perform genuine underwriting as they passed the risk to other parties.

Comparisons of the insurance industry to the banking industry are used throughout the paper. The author believes that the difference between *uberrima fides* and *caveat emptor* is partly responsible for an insurance industry that is less affected (i.e., particularly in Australia<sup>1</sup>) by the global meltdown than the banking industry. *Uberrima fides* means utmost good faith and is the guiding principle behind much insurance regulation. *Caveat emptor*, let the buyer beware, has been the principle underlying much banking and financial market regulation as well as much corporate behavior in this sector. Laws in the banking sector allow regulatory arbitrage and hiding of risk. Walker believes that changes to banking and investment laws to support the principle of *uberrima fides* could greatly reduce the moral hazard that supplied the environment in which the financial crisis occurred.

The author points out that one of the reasons that credit markets froze in 2008 is that prices paid for credit products (typically involving subprime mortgages) were wrong – were way above their “true” value, and as a consequence, nearly all credit products are now viewed with suspicion. Moral hazard minefields represent numerous ways in which either a buyer or a purchaser could take advantage of (cheat) a counterparty because the interests of the two are not aligned. “Moral risk in many fields is like an unexploded mine”.

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<sup>1</sup> Of course, this ignores AIG, where a banking subsidiary caused collapse.

An applicant for insurance is expected to disclose considerable information about their expected risk exposure. The insurer, in turn is expected to reveal the exact nature of the risks covered by the insurance policy. In contrast, a purchaser of credit is a “caveat emptor” purchaser. Aside from a credit rating, the purchaser may know little about the debtor’s risk exposure.

Moral hazard can be reduced by imposing terms that cause the alignment of interests. In insurance co-payments and deductibles that require the insured to keep part of the risk reduce moral hazard that could induce the insured to take on additional risk because of the insurance policy. As the moral hazard mines that affect the banking and investment systems are already in place or have already exploded, the author feels little can be done to mitigate them now. However, insurance companies continue to face moral hazard minefields which actuaries can anticipate and remove them. In addition, there are lessons to be learned about moral hazard that have implications for new regulation of the banking industry.

For example, even though each policy is underwritten, due to inadequate information at the time that the insurance policy is issued to a policyholder who can commit fraud by understating exposures. Companies use premium audits to attenuate this risk. Fraud can also occur at the time a claim is made and special investigation units are one tool used to manage this risk. Seeing an analogous risk in the financial crisis, the authors ask “How easy was it to perpetuate wholesale fraud on the ultimate underwriters of credit given that they were principally unsophisticated investors? To what extent did deliberate untruths play a part?”

- The author suggests that there are two principal remedies to moral hazard:
- Adequate disclosure (of information relevant to the risk exposure)
  - Alignment of the interests of the parties to the transaction (i.e., one or more of the parties cannot pass all the risks to another party)

Both regulation and management are involved in implementing the remedies. The author suggests changes to the regulations to:

- Require a “key features” statements that explain in plain language the key credit information of the credit product
- Require participation of originators and intermediaries in the securitized credit products
- Address regulatory arbitrage.

### **[ERM Practices: A Comparison of Approaches](#)**

Kapel, Carter, and McConnell

The paper reviewed two surveys of insurance company ERM practices with an eye towards making recommendations to Australian insurers as to how they could

improve their ERM practices. It is interesting to note that the paper quoted the CAS definition of ERM: “ERM is the process by which organizations in all industries assess, control, exploit, finance, and monitor risks from all sources for the purpose of increasing the organization’s short and long term value to its stakeholders.”

The authors break ERM into three key categories: 1) risk management culture and governance, 2) risk appetite and risk management strategy and 3) risk control.

The surveys were 1) an Australian survey, conducted by Macquarie University and IAA and 2) an international survey conducted by Towers Perrin.

The authors found that overall ERM practices are relatively similar across different regions of the world. However, they concluded that Australia lagged behind other regions in risk culture and strategy. The study cited a low proportion of Australian insurers who had a risk appetite statement that was aligned with their corporate strategy. The authors note that internationally, there is an emphasis on calculation of economic capital, largely driven by rating agency requirements.

While focused on a comparison of Australian Insurers to the rest of the world, the paper contains interesting and useful results from the survey as they apply to North America and Europe, also. The survey results indicate where the industry has already focused its efforts and where more effort, in some cases much more effort is needed.

### **[ERM: Capturing the Upside](#)**

Brett Riley

The author of this paper defines risk as “the failure to meet objectives”. He sees two components to ERM: better information flows and better management. The components are further subdivided into six key areas. 1) Risk culture, 2) Management oversight, 3) risk appetite, 4) corporate strategy, 5) better use of planning and 6) better reporting and information.

Riley offers a number of suggestions for improving risk culture, with a focus towards financial incentives and the level of corporate influence of those involved in ERM supporting and aligning with the importance of the function.

### **Climate Change Papers/Presentations**

A number of the papers at the convention addressed climate change.

## **[Australian Climate Change Policy: Constructing a Corporate Response](#)**

Martijn Wilder

This presentation addresses how Australian companies should deal with climate change legislation that either has already been implemented or has been introduced. The legislation includes reporting regulations, energy efficiency tax incentives and cap and trade. The response will be influenced by international markets to address similar legislation world wide.

Beginning July 2008, companies in Australia must comply with National Greenhouse Energy and Reporting Act and report greenhouse emissions. Other acts such as the Carbon Pollution Reduction Scheme are part of an effort to reduce emissions and may impose liabilities on significant emitters.

The presentation for this session contains links to a green paper and a subsequent white paper that provide more detailed information on the topic.

## **[Carbon Pollution Reduction Schemes](#)**

Peter Eben

Australia's goal is to reduce its carbon emissions by 55GT annually by 2050 which is more than 110% of California's emissions. Companies are investing in technologies to reduce emissions and a market for trading carbon credits is now emerging. However, the transition will need to be managed. CPRS (Carbon Pollution Reduction Scheme) legislation arising out of the Kyoto protocols requires companies to calculate their annual emissions and to pay for emissions that exceed certain targets. Energy, Utilities and Materials & Transport are expected to be the industries most affected. However, Financial Services companies are likely to be impacted via physical asset exposure and via exposure through investments made and products sold to exposed companies. Eben believes that actuarial skills are relevant to carbon reduction initiative. Actuarial risk management skills, as well as reserving and ratemaking skills can be utilized in responding to the carbon reduction initiatives.

## **Other Papers and Presentations**

### **[Simple Way to Reduce Driving Related Harms and Increase Fairness](#)**

Colin Priest

This paper discusses "Pay-as-you-drive" insurance as a tool the insurance industry can use to improve the "fairness" of motor vehicle use. The author lists a number of negative externalities generated by high mileage drivers:

- Pollution
- Oil dependency
- Infrastructure wear and tear
- Car accidents

The costs born by drivers, such as gasoline costs paid at the pump and automobile insurance typically do not fully reflect the costs imposed by high mileage users. In automobile insurance, driver mileage is frequently reflected into insurance premium only in a few very broad usage categories. Auto insurance is paid as a fixed fee at the beginning of the policy period (typically a year). Thus, there is no penalty during the year for increased driving. The author performs an econometric analysis of the cost of driving. He then argues that this cost is sensitive to how much of it is bourn by the driver. When drivers are charged by the mile, car usage declines. The author also discusses “pay-when-and-where-you-drive.”

### [Dependency Working Party](#)

Piet DeJong

It is widely believed that one of the contributing factors to the financial crisis was the flawed procedures used to model dependencies between different financial assets. The CAS and IAAust are jointly sponsoring a Dependency Working Party to research modeling liability dependencies (between companies and lines of business). Professor DeJong presented preliminary results from his initial modeling. His method relies heavily on a principal components approach to dependencies.

### [Going for the Research Gold](#)

Latham, Taylor, Tickle, Musulin

In 2008, the IAAust performed an extensive review of its research programs resulting in significant changes in how research will be done going forward. This session presented the vision for funding and doing research. A key component of the research policy is to develop closer relations between academics and practitioners and to foster collaborations between industry and academe. Another goal is to increase the amount of research being done. Another goal is to develop a research culture. One of the presenters at this session was Greg Taylor, who has presented many times at CAS conferences and has had some of his research funded by the CAS.

From the IAAust’s new brochure that describes their research initiatives:  
 “Research is a primary vehicle for achieving this intellectual renewal.... Actuaries risk becoming a less dynamic and relevant profession unless they play some part in pushing the boundaries of thinking.”