Enterprise Risk Management: Theory, Practice and Actuaries

Authors: Young Goh and Michael Madani

Abstract

The topic of Enterprise Risk Management (ERM) has been growing in prominence of late despite having a 20 or so year history, it continues to draw sharp divisions of opinion as to its importance and its effectiveness in enabling financial (and other) institutions to sustain themselves over the years.

With the GFC lingering in the background and the looming threat of a meltdown in Europe, Risk and Risk Management has been somewhat elevated in the public eye. The collapse of Lehman Brothers, the evaporation of the credit markets, the expansion of CRO's and an increased focus on governance failures help magnify this in the business world. Adding to that, risk, capital and deleveraging is becoming more common in the lexicon of boards and management. What will this look like in practice?

In considering how we as actuaries could improve our contribution to the current and ongoing discussion on the role of ERM, this paper attempts to look at drawing on case studies on a select set of companies (a bank, a life and a general insurer) to examine some actual cases of ERM in action and provide considered reflection on the gap between theory and real world practice. We will also be looking at the role of actuaries within these processes.

We feel this is worthwhile because of the wide doors of opportunity within the growing field of risk management opening for actuaries. This is in line with the Institute's strategic vision that as actuaries we need to look beyond our traditional fields – life, health and general insurance and superannuation – to embrace the opportunities that are crying out for the skills we can bring in the broader domain. There have been numerous papers written on ERM, many of which have sought to contribute on some technical aspect of ERM. This paper takes a broader approach and focuses on 'the big picture' with the twin themes of our identity (i.e. why actuaries) and our opportunity (i.e. why ERM) in focus.

Acknowledgements

This paper would not have been possible without the generous support of many individuals who gave of their time and expertise. We also wish to thank our employers for allowing us to pursue this during the course of our work.

Finally, on a more personal note, we wish to respectively acknowledge our wives who have stood by us during the long hours over weekends and weeknights that went into this paper. Your contribution is recognized here also.

1. Introduction

1.1 Background

Nothing sharpens the attention of the world to risk as much as turmoil and volatility in the financial markets. With current global debt levels around the world – whether private or public – at amongst the highest historical levels ever seen and the leverage this has on volatility, financial markets of the world are in a reasonably precarious place.

Apart from the steady and unhalting rise of global debt levels, the continuing technological revolution that is increasing the interconnected-ness of the fates and financial affairs of nations and corporations is resulting in a dramatic increase in the number of risks almost every company is now exposed to.

In short, the big picture may be summarised as follows: unprecedented global levels of indebtedness, market complexity and interdependence resulting in unprecedented levels of risk.

Against this backdrop and in moves that appear well-timed to meet this rapidly growing need, actuaries worldwide are seeking to meet the challenge with the Certified Enterprise Risk Actuary (CERA) training and accreditation program.

1.2 Focus of Our Paper

The question we wanted to ask and answer in writing this paper was to take a reflective look at ERM in theory and ERM in practice in a number of real-world Australian settings. Because of time limitations, we were only able to conduct three case studies. In order to provide some variety, we chose to speak to a life insurer, a general insurer and a bank.

In our discussion with key risk personnel within these organisations, we were constantly asking ourselves questions such as: What is the gap here between theory and practice? What factors are making the implementation of an effective ERM framework difficult? Within these organisations and within the risk management frameworks of these organisations, what roles are actuaries actually playing? Are we (actuaries) making a difference? Are we making a difference because of our actuarial (and/or CERA) training?

We have written this paper assuming that some of our readers know only a little about ERM, i.e. they may have heard something about ERM but they are not necessarily practitioners within ERM. In order to allow these readers to follow our paper, some background on the key concepts is provided in Appendix A, including how ERM is differentiated from traditional risk management. Entire textbooks could be written on ERM and so our paper will be necessarily brief as we do not wish to repeat ground which is already covered well elsewhere.

Our research methodology was fairly simple: we reviewed the current ERM syllabus, scanned other literature outside the syllabus/reading list and conducted interviews. Since organisational culture[1] is such an integral aspect of effective ERM, we felt that engaging in dialogue with "real-world" individuals in our case-study companies (and beyond) would be a powerful way of truly entering into the risk management conversation.

The rest of this paper is structured as three case studies, starting with the life insurer, then the general insurer and finally the bank. We then draw some common themes that emerge before asking why actuaries and exploring the opportunities and challenges before us.

The strongest three take-away points we wish to make are:

- Actuarial education and training provides an excellent foundational skill-set for the growing field of risk management – we have a part to play and a real contribution to make.

- The field of risk management has the potential to provide a wonderful "passport" for actuaries in two ways – as a stepping stone to other/management roles within financial services, and also to other industries as well.

- Understanding that there is still work to do: the need to focus aspects of our training and professional development on areas of leadership and influential management is growing.

1.3 Does ERM really make a difference?

An ERM strategy, properly designed and executed, should make a difference; the trouble with human nature is that, like health, risk is all too easily taken for granted until something happens and it's too late. However, when properly understood, it should result in more risk intelligent decision-making, and therefore result in better usage of and return on capital.

Furthermore, corporate collapses such as HIH should serve as ready reminders of what can go wrong without an effective risk management framework in place.

We would argue that every company needs to consider the risks to which it is exposed to but the size of the company and the complexity of its operations will influence how this is implemented. For a small business, ERM may never be formalized into written frameworks and strategies but may still be effectively implemented. In contrast, it would be impossible for a large corporation or conglomerate to operate without a unifying strategy.

The need for ERM is proportional to the complexity of the business and its operating environment. The success of ERM and risk management in general is arguably about culture and leadership.

2. The Case Studies

2.1Case Study 1 – the life insurer, TAL Life Limited

In their 2005 paper on ERM for insurance companies, Standard and Poor's identified the following five components of ERM: risk management culture, risk controls, extreme-event management, risk and capital models, and strategic[2] risk management.[3]

Our first case study was on TAL Life Limited, one of the largest life insurers in the Australian market with a presence in all major channels (i.e. retail, group and direct), with an annual premium of around $1.1b.

To provide some background, TAL is structured along the lines of its distribution channels (retail, group and direct) and risk decisions are delegated from the Board to the Managing Director, and from him to the CEOs of Retail, Group and Direct/Alliances, who report directly to him. TAL's risk management function[4] reports to the MD via the Head of Corporate Governance, working alongside the departments of internal audit, compliance, complaints and legal.

As in other life insurers, (the) Risk Management (department) plays an advisory role to the business (as opposed to the "gate-keeper" function in banks), assisting them with the identification and quantification of risks– in terms of impact and likelihood. These risks are then tracked in a risk register.

The Head of Risk Management[5]has coverage of all risks (operational, liquidity, reputation – the 'qualitative risks' – including the Enterprise Risk Management viewpoint) other than insurance and asset ('quantitative') risk – these are covered by the Appointed Actuary with whom fortnightly meetings are held. For an insurance company, this is critical since insurance is one of the most complex businesses around, because of its long-term nature and the complex interactions between product/underwriting/pricing/claims/reserving.

S&P's five areas seemed to be covered well. However, the picture that emerges is that this has been a journey for TAL[6]. This is hardly likely to be earth-shattering news to anyone but the journey to get everyone on the same page, including helping the Board think through what level of sophistication it was wanting of its risk reporting takes time (and the ability to communicate risk concepts and align thinking). Getting the Board on board (no pun intended) is such an important concept that we look at this further in Appendix A.

This was echoed in our discussion with Colonial First State[7], where having the business come to a shared view of the risks facing the organisation was an important part of setting the strategy for the business.

2.2 Case Study 2 – the general insurer, QBE

Our second case study was QBE.QBE Insurance Group is Australia's largest international general insurance and reinsurance group and one of the top 20 insurers and reinsurers worldwide as measured by net earned premium, with operations in all key insurance markets. QBE is an Australian listed company with a Group Head office based in Sydney, and has operations in 52 countries with over 17,000 employees worldwide.

Organized into roughly 400 business units, it is structured like TAL in that the Risk department serves in an advisory function with the business units responsible for managing the risk. Blair Nicholls, the Chief Actuary Officer and Head of Reinsurance[8], is responsible for reserving and actuarial, catastrophe exposure management, reinsurance placement and business planning , with other areas such as strategy, distribution, and claims being covered by other areas. Actuaries are involved in managing the risks in areas of their expertise – such as giving input to the asset liability matching process of QBE's investments and in reserving. Key to QBE's strategy in managing risk is culture and its focus on rewarding the right behaviours and achieving the right KPI's. QBE is a bottom line business that builds and rewards a high performance culture.

Critical to this is its ability to impose uniformity of reporting on the numerous (over 135) acquisitions it has made since 1982. No doubt this has set it apart from another Australian company Leighton Holdings which made the news recently where its growth globally has resulted in its becoming an organisation so complex that its Board is struggling to keep a handle on its operations.

It was good to speak to an actuary who spends his time talking to his Board about risk management. Blair's view (which I share) is that business people have a very good understanding of risk. They will probably not speak in terms of distributions, technical terms but they understand what the level of loss they would be willing to tolerate from a single event and over the course of the year. And, when presented with the cost of containing those losses, they are able to decide how much they are prepared to pay. Of course, behind these simple statements lie the probability distributions. But the language at the Board table needs to be plain-speak.

QBE uses a Solvency II style framework in its risk framework. Risk behaviours are measured (and optimized) through metrics of return on capital.

Blair points out that in his view (which he is aware may be the minority view), actuaries shouldn't get involved in the assessment and comment on areas of risk they have little understanding. An example may be for some actuaries operational risk or performance management systems. Even though we do not agree with this view, we understand it particularly in an insurance context. The CRO or Head of Risk is an important voice in a business; especially in areas where actuaries do not have defined roles in senior management (Banking comes to mind) we feel that actuarial skills will continue to be important.

2.3 Case study 3 – the bank, Macquarie Bank

The subject of our last case study tends to be known for being a little different than "regular" banks. Macquarie Bank is the largest investment bank in Australia, but over recent years has moved further into traditional banking areas.

It is structured at first glance in quite a siloed fashion (as shown in the diagram below[9]), however moves away from this segmentation in regards to a few specialised areas. Most interestingly for this paper is the overlaying of the Risk Management and Legal Framework over all of the businesses.

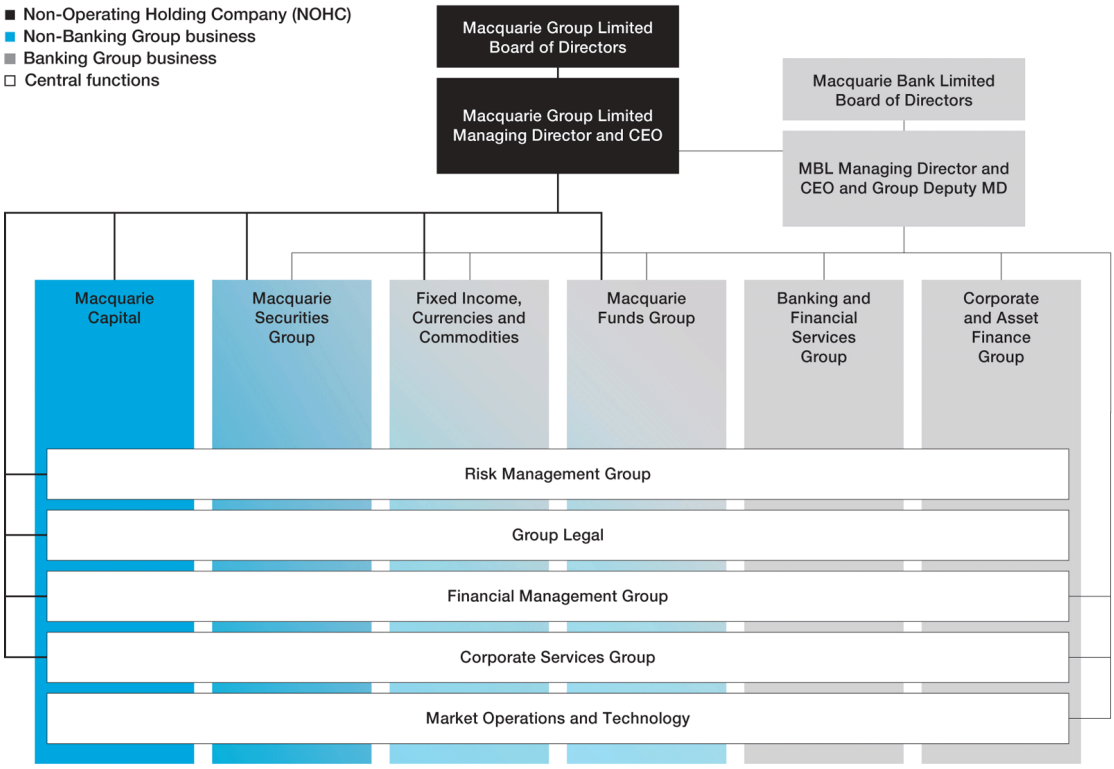


Figure 1: Macquarie Bank Organizational Structure

One of the differentiating aspects making Macquarie an interesting study for this paper is the overriding management philosophy: Freedom within boundaries[10]. In short, they like to be innovative, take risks, not stifle entrepreneurial endeavours within staff... be different. This of course comes with a whole range of risk management implications, so a strong risk and prudential management framework is only the beginning.

Revisiting the S&P Paper, Macquarie addresses the five keys aspects of ERM internally in the silos, and holistically through its "Risk Management Group" (RMG). This is mostly done through a supervisory, audit and active engagement process. As with most forms of compliance, there can be a fine line between business empowerment and that of policing. Controls over the business (particularly on new endeavours) follow a collaborative process and all businesses need to be able to provide reliable data on performance and risk regularly to central management.

To help the business areas cope with regulations, modelling, capital and other complex issues RMG have specialised teams that are capable of providing highly specialised skills throughout the bank. Actuaries often do not specifically have defined roles within this framework, however they definitely feature prominently. Already the actuarial mind and skill set is being leveraged however it appears to be mostly at the junior level of management in the bank.

Looking at the wider organisation, Macquarie Bank emphasises a code of conduct and "Macquarie Values"[11],continually reinforcing their desired culture. Macquarie's values are: Integrity, Client Commitment, Strive for Profitability, Fulfilment for our People, Teamwork and Highest Standards. These are reinforced in training, employee appraisals and senior management, which encourage the entrepreneurial spirit, yet staying "within Boundaries".

3. Thoughts and Observations

So what did we learn from the companies we looked at? Are there common themes emerging? Three companies are a small number and time permitting we would have liked to expand the scope of our study. Nonetheless, we did feel that there were a few general themes emerging that might warrant further investigation. This section discusses these.

3.1 Culture

We feel that perhaps the number one theme we see emerging from our conversations is the central importance of culture[12]. The importance of buy-in from all employees in an organisation for the effective implementation of a risk management framework cannot be over stressed[13]. Effective communication, leadership, expectations and training are all aspects of it... but this is an area that cannot be changed or taught quickly. And the old adage "your actions are shouting so loudly I can't hear what you're saying" is especially relevant here. How leaders behave and what they reward is crucial.

One of the outcomes of ERM which is truly effective ought to be that risk considerations are part of 'the way things are done around here' and where behaviours are driven by intrinsic rather than extrinsic motivation. Leaders who are capable of transforming their organisations this deeply exhibit a much more valuable skill and are surely further down the path of greatness than those who achieve results without this. Actuaries who aspire down this path may find they need to supplement their traditional skill set with a much deeper skills in effecting organisational, cultural change.

Tony Coleman emphasised that "not shooting the messenger", or the bearer of bad news, is crucial to a mature ERM framework. If employees are fearful or reprisal for admitting or finding mistakes then they will not report them. What was once a small risk now could snowball into something much worse.

3.2 Upside not just downside

The second observation we would make is that the general association with risk is still too negative: it is generally only associated with downside risk. This association has probably formed because of where most risk departments are structurally placed within organisations, under Corporate Governance/Compliance.

However, we believe it is critically important to understand that Risk is not just downside. Risk is both the ups and downs, the challenges but also the opportunities that individuals and companies come across all the time. The challenge here is that politics can come into play here. Upside risk is the same as a business opportunity, which is the domain of the business executive. It can also be hard for risk management to claim ownership of the opportunity when they need the business to carry this out.

This continues to remain a fundamental aspect of ERM which is not understood very clearly[14], that the Risk function is not just a defensive process that causes pain to innovation.

3.3 Structure

Is there a right structure for risk management? We don't think structure per-se is the issue; the key question is if the structure adopted facilitates timely (i.e. relevant) risk information to be gathered at the enterprise level and distilled in order to inform and improve decision-making. The three organisations we interviewed had a separate central risk function (this is important) with access to the Board (again, important).

Amongst interesting observation to emerge from a study conducted by the Macquarie Applied Finance Centre[15]exploring the relationship between CEO and CRO remuneration and the level effectiveness of risk management within that organisation was that a very clear inverse relationship existed, IE the lower the ratio of pay, the higher the implied volatility of the underlying stock.[16]So whilst structure as such isn't important, it is insofar as it reflects the real power given to the Risk Management function, ultimately represented by the CRO. Adding to this, the relationship between the CRO and Board has also been seen to correlate positively with business performance during the GFC[17].

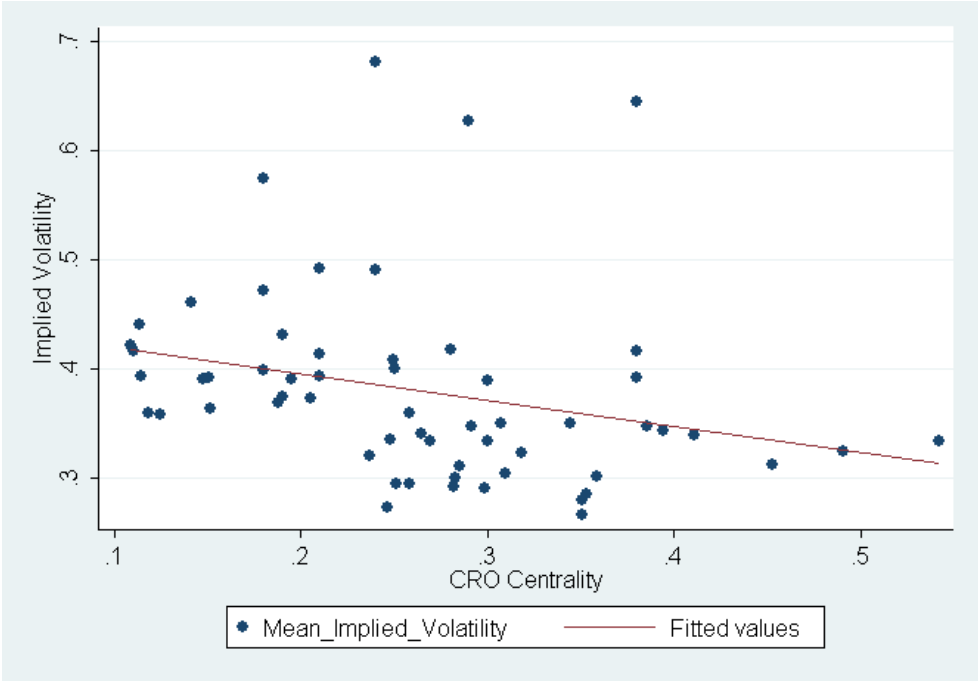


Figure 2: Bank Risk-Taking and Chief Risk Officer Compensation Note: CRO centrality is defined as the average compensation of the CRO relative to the CEO compensation during the period 2003 to 2006. The implied volatility of the stock price is inferred from put option prices in 2007 and 2008 for each bank.

In the end, what risk management is really about is improving decision outcomes. Using TAL as an example, how does the structure help or hinder effective collaboration and better decision making at the enterprise level?

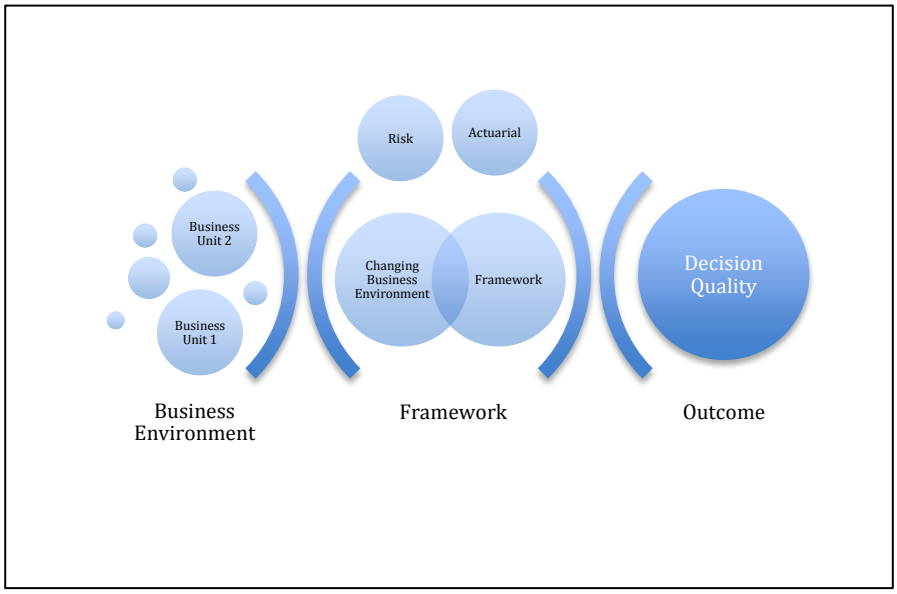


Figure 3: Organizational Structure & Decision Making: A key issue is collaboration and timely information sharing to enable better decision-making in the real-world, in real-time, a concept the above diagram tries to capture. The competitive landscape of business which is

the pressurized environment that decisions need to be made provide the challenge. The Risk and Actuarial functions work with the business units within the established framework with the goal of improved, timely decision-making.

In this area, the challenge actuaries face is timeliness. Often with an orientation to detail and with a desire to be precise, being able to provide timely advice with incomplete information and incomplete analyses will be more of a challenge for actuaries than the reverse.

3.4 Business and Strategic Risk

Our fourth theme of interest concerns business and strategic risk. Strategic risk is so well recognized that most organisations have departments whose function is to support the CEO and business units in a strategic planning. Of course, it is entirely possible to understand the strategic risks but still fail to execute in an effective manner, with loss of market share and a reallocation of capital away the consequence. In the context of business risk, another risk that is often missed is the risk of doing nothing[18]. This is especially relevant in an era such as ours when technological advances are happening so quickly, sometimes with severely disruptive impacts. The failure of Kodak, missed opportunities by Nokia to dominate the smart phone market and the SEC failing to act on tips about Bernie Madoff's scam are examples that come to mind. "Doing nothing seems easy. It's often an invisible mistake - a sin of omission rather than commission. To act requires courage. To innovate requires even more courage."

From an actuarial perspective, strategic risk is probably even more under-represented by the profession. As can sometimes be the case, the peculiar skillsets and strengths actuaries have often result in their being deployed in the areas of their relative strength (i.e. we have more people who can think strategically; so can the actuary but we need him/her more in the technical space since we have fewer resources there – this results in actuaries missing out on being in areas that influence strategy.)

3.5 Complexity

The world we are living in is becoming more and more complex each day. With this, the risk exposures faced by businesses will continue to evolve. The need for ERM and its emphasis on breaking down silos and connecting the dots will continue to grow. From an actuarial perspective, this growing complexity plays to our strengths[19]. As actuaries we are familiar with projecting possible distributions for the future, but as the markets and regulators evolve, the rigour that is applied to models and their forecasting power will continue to progress.

This traditionally is an area that actuaries have excelled in; we don't imagine that this would change anytime soon. But as the need for greater complexity (hopefully providing deeper understanding) spreads from the financial sectors to other areas of business, the roles of actuaries in non-traditional areas may not be non-traditional for long.

3.6 Ambiguity

Extending on the theme of complexity, we wish to highlight the related theme of ambiguity[20], which we believe is well expressed by the following quote:

"Uncertainty is when you've defined the variable but don't know its value. Like when you roll a die and you don't know if it will be a 1, 2, 3, 4, 5, or 6. But ambiguity is when you're not even sure what the variables are. You don't know how many dice are even being rolled or how many sides they have or which dice actually count for anything." Businesses that focus on uncertainty, says Patnaik, "actually delude themselves into thinking that they have a handle on things. Ah, ambiguity; it can be such a bitch. (Sic)"[21]

3.7 Events vs. Scenarios

The journey to risk management maturity for many organisations is a phased one. One such marker of maturity that we looked at was the evidence of scenario modellings as opposed to just monitoring events.

Here, we observed that our case study companies were reasonably good at identifying risks facing the organisation, both at the business unit and even enterprise level. However both insurers in our case study were not currently using scenario based forecasting. Stress/Scenario[22] testing is something that is being reinforced by APRA and is an important aspect of risk management, but was not something that penetrated into business units as fully as we would have expected. Banks (particularly those under the advanced capital approach) have this as part of standard practice.

3.8 The Role of the Regulator

Finally, we felt it worthwhile exploring views on the role of the regulator within the ERM framework - this came through in some interviews. On the positive side, some felt that regulatory pressure by encouraging businesses to be smarter and more complex would open up further opportunities for actuaries in the future. The potential negative flip-side is that regulation can sometimes produce a box-ticking “compliance” mentality.

As always, whenever ‘law’ has been imposed, there is a need to understand the ‘spirit’ behind it. Sticking to the letter whilst ignoring the spirit can often be a recipe for disaster. We believe this thinking to be relevant when understanding the role of and the challenges facing any regulator.

In summary, these were some of the themes that we found interesting. We now turn to the unique contribution we believe actuaries can and should be making in the field of risk management.

4. The Unique Contribution of Actuaries – Some Personal Perspectives

One of the main (big picture) questions we sought to answer in the writing of this paper was: Can actuaries make a difference in the field of risk management in general and ERM in particular? And can we, speaking and writing as actuaries, do this particularly because of our training and/or any other aspects of our profession? Through our research, observations,

conversations and subsequent reflection during the course of writing this paper, the answer to this question for both of us is a resounding yes for a number of reasons which we shall look at in turn.

An 'aha' moment for me (Young) came fairly late in the piece after Michael and I had a fascinating conversation with a far-sighted individual[23] who has had a long and successful actuarial career and is looking ahead still, seeking to open doors for the profession in the years ahead.

There are certainly signs this movement is gaining traction both here and internationally. A joint paper produced by the Faculty and Institute of Actuaries and the Institution of Civil Engineers [24] (interesting combination!) is a recent addition to the growing body of literature/papers written by actuaries who are seeing the unique contribution we bring to the field.

There is a particular vocational sense about the profession which, to my mind, has never been talked about as explicitly as it should, but nevertheless I(and no doubt others) has been picked up as we have travelled in our careers. That vocational sense has sometimes been expressed in other ways but which I would like to call stewardship.

From the very origins of our profession, when the less well off in society banded together to pool risk, and those who were more able took on looking after the needs and interests of those less able to, we were exercising a guardianship or stewardship role. Of course in the days of the mutual societies, this led to actuaries being stewards of the policyholders.

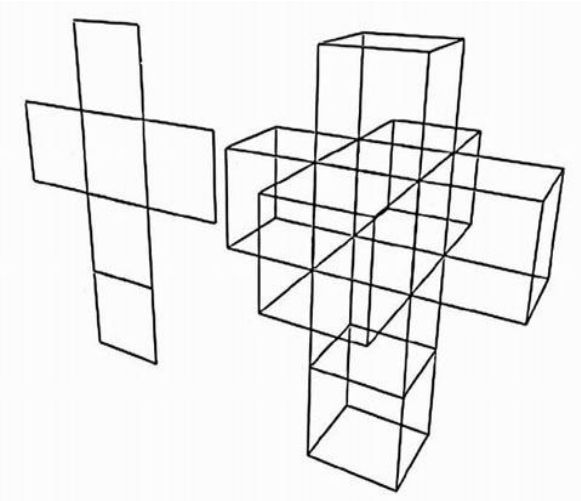
The world has changed dramatically since then, however an old ditty I came across in my youth springs to mind: "Methods are many, principles are few; methods may change, principles never do."

I (Michael) have had a very different experience in coming into Enterprise Risk Management. I have seen the importance of credit risk (through credit card and mortgage analytics) and have been able to see firsthand how actuarial skills are naturally transferable.

My passion for ERM has not specifically come from training, but more seeing a cultural shift in the way risk is talked about. The world I feel is a different place from even a few years ago, the importance that "Risk" takes on Boards and the skills required for Board members has changed. There is now, a greater importance of realistic and direct communication of the risks facing businesses, a better understanding of controls and regulations from Basel III, an elevation of the role of CRO (in the past few years). The fact that junior management all talk about capital is not a fad that will pass.

The skills, techniques and most importantly "mindset of the actuary" for me makes this not just a natural area for actuaries, but a springboard into areas where I have always felt we are underrepresented. We huddle in the insurance industry where we own a monopoly of opportunity (for good reason) but limit our personal growth in business. Climbing to the top of the actuarial ladder hasn't always meant having influence and the power to change

business for the better. ERM for me is a more obvious path that both uses our skills and allows us to grow beyond those skills and not be defined by them.



To make a point using a somewhat mathematical analogy, moving from our traditional actuarial domains of policyholder liability valuations and extending our attention 360° to encompass the entire risks facing the organisation is like moving from dealing with a single plane to n-plane geometry. That's one dimension of the change needed.

The other dimension is to go beyond turning the handle of the model that spits out the answer to being the one that brings this understanding to life in front of Boards and in the minds of senior executives, i.e. the CFO and CEO.

The vision for the actuary of the future will be more expansive than just being the backroom quant. This vision is of being the risk expert within organisations, the executive who has a seat at the management table, bringing risk expertise and helping by his/her leadership, to bring a "risk intelligence" to the organisation.

In other words, it's a leadership role, which therefore involves the four essential dimensions of leadership: being a vision caster, a direction setter, a change agent and a coach.

The vision that needs to be cast is that risk intelligence alerts us to both upside and downside risk; it is about creating a sustainable competitive advantage as much as it is about stewardship. In many organisations, this will require setting the direction but also being a change agent (at the organisational level) and a coach (at the personal level).

We are convinced this is the raison d'être of the actuary – we were only playing (generally speaking) in one plane – we need to play on all *n*. Somehow through the passage of time, the 'voice of the actuary' at the heart of insurance companies has devolved into narrower, more technical siloed roles i.e. valuation, solvency, capital and pricing. In other areas such as banking, actuaries are often thought at as back-office technical experts.

5. Are we the only ones qualified to do this? Or "Why actuaries?"

In terms of training, it's a very natural fit. When one thinks of accountants, one thinks of financial statements; when one thinks of lawyers, it's contracts; probability (outside academia),uncertainty and projecting the future (i.e. risk and risk management) is the domain of the actuary.

In terms of the technical skills needed for ERM, we cover most of the bases. This includes financial acumen, modelling and projection techniques, distributional analysis, statistical understanding, and much more. Even before the CERA qualification these were areas in which we as actuaries were highly qualified. By honing our skills more specifically to understand the needs of business, will only strengthen the case for our involvement. (Ironically, one area that was mentioned a few times in the interviews was that actuaries have come late to the party on Market Risk.)

Other professions are also seeking to make a contribution in this space. However, we would argue that actuaries are among the better placed to bring the mathematics required by the job to hand. We may need to strengthen our ability to talk qualitatively to risk, but we've got the quantitative side covered. Soft and managerial skills are growing in importance in how we can influence the business in the future; a positive sign being that younger actuaries are already moving in this direction.

All this being said, actuaries should not and cannot be a one size fits all in risk management. Something we touched on in our interview with Rob Daly[25] was that for Actuaries to be effective in risk management (both for the company and personal business ambition) we cannot assume that we have all of the answers. With only a couple thousand actuaries in Australia, this wouldn't be realistic! This would mean somewhat moving away from the "Actuarial Team" concept and becoming more integrated into the business as a whole; we feel this is another step in the right direction!

6. Looking to the Future – Thinking Big!

We feel that actuaries are well placed to capitalise on this focus on risk and uncertainty in business. However, ERM is probably not needed for every entity – some simpler organisations would probably not be complex enough to warrant it. Having a more obvious path and contribution to the roles of CEO, CRO and the Board are all steps in the right direction. We certainly see a place for ERM (and actuaries) in banks (private and central), insurers and certainly large conglomerates, and throughout all levels of risk management from analyst to executive.

Beyond this, actuaries should be aspiring to have influence in regulatory bodies, governments and international bodies such as the IMF. Having a greater involvement in organisations who are concerned at the systemic[26] level is only a few steps away.

Expanding our view of the Actuarial profession is something that will not be done quickly. We both feel that our skills, mindset, intelligence and established respect in combination with the commitment of individual actuaries will help this shift in how our profession is viewed in the community.

7. The Challenge Ahead (for Actuaries)

We'd like to highlight three:

Firstly, we need to remember and re-interpret our story. The social need that gave rise to our profession remains, but it has probably widened – we need to stay true and step up.

Secondly, we need to broaden our perspective and diversify[27]our experience. We need a wider perspective on how our business' run, not just from a quantitative basis, but a human perspective. Our ability to connect with other business people and business leaders on their terms will be critical to our success in this field.

Finally, we need new tools and skills. What new tools do we need? Given our relative strengths in our quantitative skills and abstract thinking ability, the area that probably needs more work is in our ability to lead and influence. We need to continue to refresh and widen our tool-kit for the challenges and tasks at hand today, understanding that technical skills are only a small part of this. As a profession, a greater focus on "soft skills" such as management, communication, project management, are areas that will allow us to utilise our actuarial skills and unique thinking in more areas than before.

8. Conclusion

The actuarial profession may have arisen from the set of 'quants' who specialized in the derivation and application of mortality and other probability tables in the insurance sector. However over time, their business acumen (and the risks involved) within insurance has led to actuaries being recognized as leading risk experts within the sector.

Can actuaries now make the leap to be recognised as leading risk experts outside insurance? We believe the answer is yes, but those actuaries who want to make the transition need to find ways to deepen their knowledge of those other industries to a similar level as their understanding of insurance. This ability needs to be recognised by business leaders in other sectors, just as it is within insurance.

"Change is inevitable, all you can do is ensure it happens in your favour"[28]. The world has and will continue to change. The question for actuaries as a profession is whether this is an opportunity we should seize, or something that we can let slide away. We both say Carpe Diem! Seize the day and let us rise to this new challenge.

Appendix A– Enterprise Risk Management (ERM): Some Key Concepts and Definitions

Definition of ERM

Firstly, whilst there is no single, precise, universally agreed definition of ERM, there is enough general agreement about what the concept is. For the avoidance of doubt amongst our readers we will be using the following definition from Simple Tools and Techniques for Enterprise Risk Management:

"Enterprise risk management is defined as a comprehensive and integrated framework for managing companywide risk in order to maximise a company's value."[29]

An alternate definition presented by Essentials of Enterprise Risk Management is:

"Enterprise risk management is the process of identifying major risks that confront an organization, forecasting the significance of those risks in business processes, addressing the risks in a systematic and coordinated plan, implementing the plan, and holding key individuals responsible for managing critical risks within the scope of their responsibilities."[30]

In essence, these definitions both touch on the defining aspect of ERM. That is being able to assess, respond and review all risks holistically rather than only specifically. Being able to look at all the risks at once means that diversification, synergies, concentrations between business silos can be properly understood and hence managed.

Corporate Governance

If ERM is to have any real consequence within an organisation, it needs the imprimatur of leadership. This needs to be set from the very top and consist of the values exemplified by its leadership (starting from the Board of Directors and CEO). It's not what leaders say they'll do but what they actually do that sets the culture, therein lies the challenge of the CRO (and any actuaries aspiring to the role.)

The Role of Boards

No serious discussion about risk management in the new world post-GFC can over stress the importance of proper Governance. Shareholders, Regulators, Employees and the Public in general have higher expectations of Boards and Senior Management alike, and rightly so. The is very little leniency on Boards claiming lack of Risk Management skill or understanding; the reality is if and when something does go wrong, they will be held accountable.

In part due to this personal accountability, the discussion of risk management is slowly becoming as important as business strategy and shareholder protection. They are considered the guardians and at times the rubber stamp of approval on the Risk Appetite. With this in mind, ERM posits that it is very important that Risk Culture be demonstrated and reinforced from the top.

This doesn't stray from the traditional Risk Sub-committees and development of Codes of Conduct, but it does place a more profound meaning upon them. If a business, your business, wants to engrain a supportive risk culture that can allow an ERM system to flourish it all starts at the top. Clear frameworks, responsibilities, encouragement and consequences are not possible without understanding the consequences of a company's Risk Appetite.

Moving further into the theory of ERM, there are traditionally 3 main areas of Risk that the literature refers to; these being Credit, Market and Operational Risks for businesses. This is by no means is the only way to split risks or exhaustive. We will take a closer look at these 3 areas, the role of ERM and any implications for actuaries.

Credit Risk

Credit Risk is by far the most widely understood and often the most important of all risks for most businesses[31]. It represents the losses suffered from the failure of borrowers or counterparties to pay back outstanding balances in full or in a timely manner.

Examples range from the small payments missed on a credit card all the way to the insolvency and default of a business trading partner.

This area of Risk has obvious implications for actuaries. There are libraries of books and journals dedicated to Quantitative Methods that help in understanding all aspects of Credit Risk. This is the area of statisticians, analysts, mathematicians and from our interviews... quantum physicists seem to thrive. It is the business and financial acumen of Actuaries that allow us to stand out from the crowd.

Market Risk

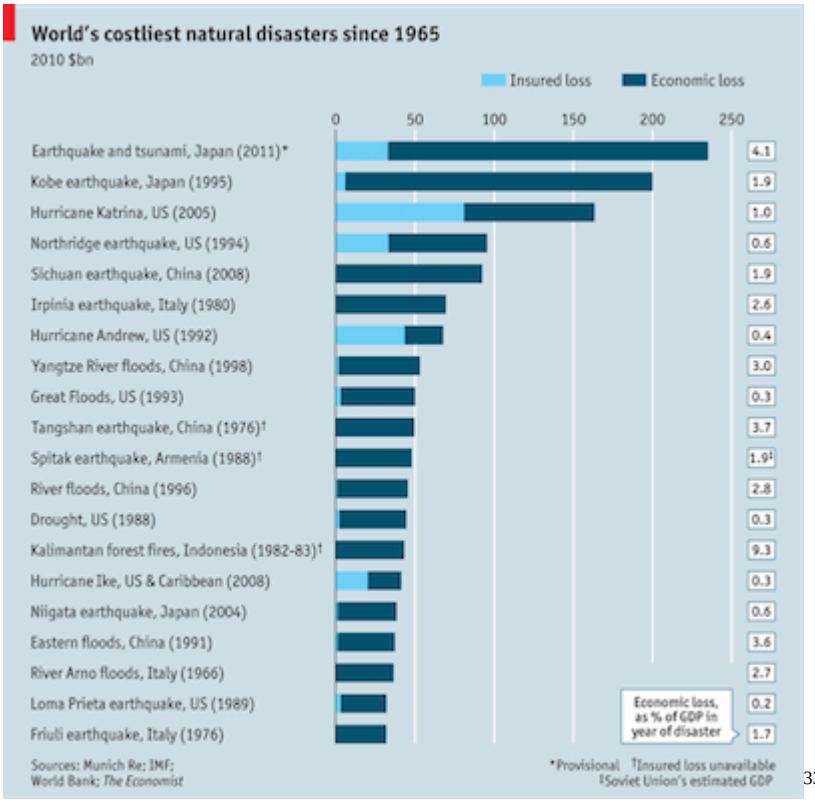
Market Risk deals with changes in the underlying value of assets. This could be due to changes in share prices, interest or currency rate changes among others. These represent both upside and downside risk.

An understanding of market risk involves going back to investment theory, robust understanding comes from the risk management practices around this theory. Things like arbitrage spotting, replicating portfolio creation and dynamic hedging strategies all make up separate and important aspects controlling market risk in an organisation.

Proactive management is an incredibly important aspect for controlling and understanding market risk. Setting limits on trading exposures and concentrations and timely reporting are the first steps in managing these risks. More complex mitigation strategy starts with hedging with derivatives and strategic diversification.

Operational Risk

Operational Risk[32] is defined as the risk of loss from inadequate or failed internal processes, people and systems or external events.



[33]

These are obviously extreme events that have rocked the business world as well as the world as a whole. Smaller businesses cannot possibly be expected to understand this sort of risk, but as financial institutions become "to big to fail" these risks cannot be ignored.

Appendix B– Glossary of Terms and Abbreviations

CRO: Chief Risk Officer[34]

Credit Risk: The economic loss suffered when a borrower or counterparty fails to fulfil payments under a current agreement. Also can be described as the risk that a portfolio changes value based on unexpected changes to the credit quality of the underlying assets.

Market Risk: The risk that investment assets may move in a way that changes the value of a business portfolio. It is important to note that this often has upside and downside aspects.

Operational Risk: The risk of loss resulting from inadequate or failed internal processes, people or systems.

Risk Appetite: The type, scale and time horizon of all risks that a company is willing to retain on an ongoing basis.

Risk Culture: How individuals approach Risk and Risk Management throughout the business.

Appendix C– Nudge and the actuarial persona

In the book "Nudge[35]: Improving Decisions about Health, Wealth, and Happiness" it touches on what we view is the mindset of an actuary.

The book talks about the difference between Human's and Econs and how they make decisions. Namely, Humans are well… human; Emotional, at times irrational and possessing infinite motivations. And Econs are not. But make efficient and rational choices and decisions.

In this context, actuaries seemingly are not human but Econs! Our view (and that of all the people we interviewed) was that our profession can be viewed as "overly rational". This is both a weakness and strength that needs to be kept at front of mind when talking about our future as actuaries.

References and Comments

---

[1] "Quantifying and Managing a Risk Culture", David Goodsall, Jules Gribbles, Chris O'Hehir, April 2009.

[2] Discussed in "Strategic Risk Management: Mapping the commanding heights and hazards", Anthony Asher and Andrew Gale, Sep 2007.

[3] Evaluating the Enterprise Risk Management Practices of Insurance Companies, Standard and Poor's, 2005. Page 4.

[4] It was difficult to pinpoint exactly when risk management departments arose within life insurers. Some felt it was tied to when banks starting taking over life insurers and introduced risk departments, as banks would have.

[5] Interview with Bruce Christie, Head of Risk Management, TAL Life Limited. (TAL has no CRO).

[6] For a good treatment of AMP's risk management journey, refer to "AMP's Risk Management Journey – the story so far", Wayne Brazel, June 2009. Interestingly, the following year the following paper was presented by Mike Thornton who became the CRO of the merged (AMP/AXA) entity. "The role of the CRO - Challenges and opportunities", Mike Thornton, Group Chief Actuary and Chief Risk Officer, AXA Asia Pacific, September 2010

[7] Interview with Nicolette Rubinstein, General Manager, Strategy, Colonial First State and Director at Association of Superannuation Funds of Australia (ASFA)

[8] Blair Nicholls, the Chief Actuary Officer and Head of Reinsurance

[9] Macquarie Org Structure http://www.macquarie.com/mgl/com/profile/organisation-structure

[10] Macquarie Leadershiphttp://www.macquarie.com/mgl/com/profile/leadership

[11] Macquarie Goals and Valueshttp://www.macquarie.com.au/mgl/au/about-macquarie-group/careers/working/goalsandvalues

[12] We were privileged to have a helpful conversation with Tony Coleman, who for many years was the Chief Actuary and Chief Risk Officer at the IAG. We talked about how bad news travels slowly and how unless the culture was created where it was safe/encouraged to bring such concerns up, what would potentially only have been a small issue if it had been nipped in the bud could become big. They developed a risk culture survey which was so effective it became used as a lead indicator for trouble spots within the company. "If the culture is such that the business calls out for risk management to assist, then you know you've got the right culture."

[13] For more on this, refer to"Quantifying and Managing a Risk Culture", David Goodsall, Jules Gribble & Chris O'Hehir, April 2009, Biennial Convention (Go for Gold)

[14] Discussed in "ERM – Capturing the upside", Brett Riley, April 2009

[15] "Remuneration and Risk-taking in Financial Institutions", Elizabeth Sheedy, PhD,Macquarie Applied Finance Centre, September 2011

[16] Lessons from the Financial Crisis for Risk Management, Anil K Kashyap, February 2010

[17] Risk Management, Corporate Governance, andBank Performance in the Financial Crisis, Vincent Aebia, Gabriele Sabatob, and Markus Schmid, January 2011

[18] Courage in the C-Suite, Rosabeth Moss Kanter, HBR, December 2011, p38

[19] Survey results from"Actuaries: A Narrow Profession? A Survey of the Preferred Learning Styles of Australian Actuaries", John Shepherd, presented to the Biennial Convention, May 2003, show that most actuaries excel in the area of abstract thinking, which lends itself to complexity.

[20] Anthony Brien, Manager, Life Insurance Risk, Supervisory Support Division in his presentation to the Life Discussion Group on "The Risks of Life Insurance – What we know we don't know" presented some useful wisdom garnered from his experience from the life industry essentially about how the long term liability of insurance can result in the accumulation over time of hidden risks into the portfolio that may not become apparent for years to come. To the extent that these are hidden, they are a good example of ambiguous risks.

[21] This is Generation Flux: Meet the Pioneers of the New (and Chaotic) Frontier of Business, Robert Safian, Fast Company Magazine 2012

[22] This was explored in the ERM 2010 seminar by Anthony Bice – "Risk Wargaming Panel Discussion", September 2010.

[23] Interview with Fred Rowley, Principal, PFS Consulting, President, CERA

[24] Handling Uncertainty – the key to truly effective Enterprise Risk Management, joint paper by the Institute and Faculty of Actuaries and the Institution of Civil Engineers, June 2011. pp. 12-13 contained a helpful chart describing common, good and best practice for ERM. We suspect many Australian companies would find themselves in the common to good range with few at recommended best practice. That being said, most of the Banks would fare a little better.

[25] Interview with Rob Daly, Chief Actuary, TAL Life Limited

[26] For more information on the implications of systemic risks for insurers, look at " Systemic risk management: implications for insurers", Anthony Bice and Jacob Hook, May 2010.

[27] There is a good discussion of the strengths/weakness of the actuarial DNA in "A cycle through the Risk Management countryside", Mark Baxter, Actuary Australia, December 2009. At the time, Mark was CRO, Wealth Management at the Commonwealth Bank of Australia.

One of the challenges called out by Mark facing actuaries is a lack of diversity in their professional experience.

[28] As far as we can tell, this quote is attributed to "Tzeentch", the Changer of the Ways, is one of the four Great Powers of Chaos and represents the vitality and volatility of change, a fictional 'god' in the game Warhammer.

[29] Enterprise Risk Management: From Incentive to Controls, James Lam, Wiley 2003, p xx

[30] Fundamentals of Enterprise Risk Management: How Top Companies Assess Risk, John J. Hampton, Manage Exposure, and Seize Opportunity, Amacom, 2009, p xx

[31] The article in reference 13 has a good diagram that shows credit risk counting for approximately 75% of economic capital across a diversified conglomerate.

[32] For a good discussion on Operational Risk, refer to "Operational risks in banks: An analysis of empirical data from an Australian bank", Associate Professor John Evans, Australian School of Business, UNSW, Sept 2007. The topic of operational risk in superannuation funds is looked at in "Risk Management for Super Funds: Is it time to focus on operational risk?", Dr David Knox, Mercer, Nov 2006 and also "Operational risk in superannuation – An accident waiting to happen?", Peter Beck, CEO, Pillar Administration, Nov 2008. For more on the quantification of operational risks, refer to "A practitioner's guide to the Advanced Measurement Approach to operational risk under Basel II", Tim Jenkins, Jason Slade and Arthur Street, May 2005.

[33] http://www.economist.com/blogs/dailychart/2011/03/natural_disasters

[34] "The evolving role of the CRO – a report from the Economist Intelligence Unit", May 2005

[35] Nudge: Improving Decisions About Health, Wealth and Happiness, Richard H. Thaler and Cass R. Sunstein, Penguin (2009)