Enterprise Risk Management (ERM) Practice as applied to Health Insurers, Self-Insured Plans, and Health Finance Professionals

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Executive Summary

Enterprise risk management (ERM) is an evolving field. It has been implemented to various degrees at financial services firms such as banks and insurers as well as at companies that focus on manufacturing and services. While having an ERM process is not a guarantee of success, a solid risk culture and well-communicated process can provide a competitive advantage that helps firms make better decisions. This research project was undertaken to determine the current state of ERM at health insurance firms. Included in the report are a literature search and review of pertinent material, results from a survey of selected practitioners, a review of current and best ERM practices, and recommendations for future research projects and other related activities.

In late 2008 health insurance risks that had previously been considered unrelated, proved to be, in fact, strongly correlated. . Markets blew up, with balance sheet assets pummeled by liquidity, interest rate, and credit risks. At some publicly traded companies, stock prices dropped upwards of 50%. Furthermore, many of the companies that health insurers provided coverage for through insurance or servicing self funded plans significantly reduced staff, which, in turn, decreased the number of covered lives and shaved insurer profit margins. As these risks impacted health insurers at the same time, those with an ERM process in place that recognized the possible occurrence of a combination of emerging risks were better able to anticipate them and respond in a flexible manner.

Risk management has been practiced since the formation of the health insurance industry. The key risks tend to be unique to the industry and, as a result, risk managers at these organizations have tended to focus on issues related to pricing, operations, and strategy. Those who responded to the survey issued in conjunction with this project indicated that in many cases there are few actuaries participating in ERM implementation. However, some health actuaries hold the Chief Risk Officer title and over 30 have earned the CERA (Chartered Enterprise Risk Analyst) designation.

Financial services firms have always been subject to what have become known as Black Swans - events that rarely occur, yet have material impact to an entity. As an example, American International Group (AIG) required a federal bailout to avoid bankruptcy due to its credit default swap positions during the recent financial crisis. In addition to credit risk, regulatory risk and risk culture came into play in this situation. In another instance, Enron combined an aggressive risk culture with aggressive reporting to build product lines that were not based on economic fundamentals and eventually led to the company's demise.

Historically across all sectors, there has been little consistent implementation of either combinations of these fundamental risks, emerging risks, or other risks which had been dealt with using conservative policies in the past. Although some health insurers are moving to this approach now, according to survey respondents few have shown the

desire or ability to optimize the risk-return relationship across all risks. The survey, and follow-up discussions, showed that company culture has not allowed full program implementation. Truly best practice ERM merges results into incentive compensation. To date, according to respondents in the survey described in this report, that is not happening. This situation may change as existing ERM programs mature and fully implemented programs demonstrate success relative to their peers. While larger health insurers are creating a Chief Risk Officer position, many are adding the role and title to the responsibilities of current executives.

ERM has a place at all companies, and health insurers are no exception. With risks encompassing regulation, pricing, operations, strategy and assets, along with the interaction between risks and potential emerging risks, there is no lack of activity. No one profession can claim ownership of the ERM space. The need for general risk management knowledge, along with specific industry knowledge for a given company, makes it impossible to design an educational program that does it all. An effective ERM specialist will likely have a general background regarding risk along with specific expertise tied to the company's primary risks. Actuaries have a broad set of skills that make it appropriate for them to take a seat at the ERM table and be considered to head the team. Few others have exposure to assets, liabilities, pricing, underwriting and strategic planning. Especially if a company is optimizing the risk/return relationship versus undertaking a perfunctory checklist exercise of basic operational risks, the actuarial skill set can help a company meet its goals.

Considering that relatively few health insurers have implemented an ERM process, best practices at those exceptions that have done so are quite good. Risks at a few firms have been catalogued and attempts made to consider interactions and marginal impacts of decisions. Risk culture and board interaction remain an issue even at best practice companies, as is the case with firms in other industries. It remains challenging to have the message heard. An enterprise risk management (ERM) process is an iterative dynamic. The field is evolving as new issues and solutions arise. The recent financial crisis taught many practitioners that an overreliance on quantitative solutions can be problematic. Emerging risks such as global warming and technological advancements are hard to anticipate but cause a need for rapid adjustments. Many emerging risks have implications for health insurers. Some could reduce costs, such as a preventive vaccine for cancer. Others are expected to increase costs, such as an influenza pandemic. Many health insurers are performing the bare minimum ERM duties as they respond to rating agency requests and prioritize the multitude of tasks required in today's complex industry. ERM as practiced by rating agencies continues to evolve, but it clearly is an area to watch going forward as the recent financial crisis has focused rating agency interest on this topic. Communication to external stakeholders must also be improved. Each firm's culture will drive the level of commitment to ERM.

The primary findings of this research project are

1. Health insurers are still getting their hands around what enterprise risk management is. According to survey participants, they practice solid silo risk

management but often struggle to implement risk interactions and discuss how risk analysis can be used to make better decisions. Their responses indicate that this is sometimes driven by poorly written but well meaning governmental regulations.

2. Best practice enterprise risk management is a process, evolving iteratively, rather than a one time project. Health companies are at various stages on this continuum. Practices range from doing nothing beyond solid silo risk management to fully implemented plans that collect data used to make decisions. Few have a fully functioning risk culture that allows challenges of ideas coming from the top of the organizational structure. Better practices are often driven by company size. Larger firms have more resources and other processes are more likely to be relatively sophisticated (e.g., a company with extensive systems capabilities is more likely to practice strong ERM).
3. Most health insurers that have implemented best practice ERM have done so internally with minimal external help.
4. Consultants, in general, are not encouraging health insurers to develop and implement an ERM process. This seems to be based on a typical health practitioner's basic skill set which is strongly focused on pricing and financial reporting. While a few consultant respondents shared how ERM has added value for their clients, most did not understand the concept and how it could improve the results of their clients.

A recommendation for future work includes a series of articles in Health Watch discussing ERM as it applies to practitioners in the health insurance field. One such article has already been written. In terms of future efforts, research that explores correlations between risks, quantification of regulatory risk, and asset-liability management projects to better facilitate assets backing health liabilities and surplus would be valuable.

Background

This research report was sponsored by the Health Section of the Society of Actuaries. Its goal is to identify current and best ERM practices for health organizations, along with a literature search, and suggest future areas for articles or additional research. A survey was developed and made available to targeted and self selected health insurance experts. A total of 22 responses were received. The survey was not meant to be a random sample, but rather to elicit comments that served as the basis for follow-up discussions. The survey was categorized as follows:

1. Preliminary Questions – Current State of Practice
2. Section 1 – General
3. Section 2 – Operational Risks
4. Section 3 – Balance sheet risks
5. Section 4 – Pricing discipline
6. Section 5 – Asset risks
7. Section 6 – Learnings
8. Section 7 – Emerging risks
9. Section 8 – Follow up Questions

Each section was designed to capture specific pieces of information while also posing open-ended questions to generate further discussion. For example, in Section 1 specific questions relate to board involvement and risk management while other questions ask what information is provided to new board members and whether it is adequate.

What is Enterprise Risk Management?

Enterprise risk management covers a broad range of qualitative and quantitative techniques. The first line of defense is common sense. If something does not feel right then it probably is worth a closer look. Firms that encourage skepticism and contrarian thought rather than penalize them have a healthy risk culture and likely the benefit of a competitive advantage. Companies that develop key risk indicators to drive decision making understand the risks of their balance sheet and make decisions that optimize value added.

The recent financial downturn has given credibility to those who have struggled in the past to place concerns about topics like financial leverage and liquidity on their firm's strategic agenda. Many firms (and individuals) had no plan in place to address the recent financial crisis. As Nassim Taleb described in his book *The Black Swan*, a Black Swan is something that no one predicts in advance but everyone predicts and understands after the fact. In reality, very few were prepared for the extent of the crisis' impact on a wide range of financial instruments, but those who were leveraged with debt only minimally and had long-term disciplined asset allocation strategies have experienced relatively better results than others. Given the lessons of the crisis, it is clear that an effective risk manager prepares a firm to succeed across a variety of potential scenarios.

What is risk? In one common definition, there are two requirements to have risk. One is uncertainty. If you know a result in advance, no matter the outcome, there is no risk. Flying into space without oxygen is not a risk under this definition. You will surely die. There is no uncertainty. The other is exposure. You must be exposed to this uncertainty to call it a risk. Peter Bernstein was quoted in CFA Magazine (March/April 2004) as saying "Risk is not about uncertainty but about the unknown, the inescapable darkness of the future." As is apparent from these different perspectives, the definition of risk is somewhat relative to the situation under consideration.

What is risk management? For practical purposes, risk tends to be measured either by its volatility or by its downside exposure. Tools such as the Capital Asset Pricing Model

(CAPM) are driven by historical volatility. A publicly-held health insurance company focuses heavily on GAAP income volatility. An entity that sets goals faces the risk that it does not meet them with downside risk. This includes solvency risk for an insurance company and the risk that an individual can't retire when desired at a certain level of income. When specific risks have been identified and managed individually, without a holistic point of view, this is sometimes referred to as silo risk management.

What is enterprise risk management? This extension beyond silo risk management considers the aggregation of all risks taken. This incorporates risk combinations and the correlations among all risks. There are often benefits of diversification for entities taking a variety of risks which can be approximated with a correlation matrix. Some risk combinations do not have steady correlations, with less diversification in the tail of the distribution of results. When times are very good, as well as when times are very bad, many financial risks trend together in the same direction and their correlations increase.

The Society of Actuaries, in 2005, adopted this definition of enterprise risk management.

ERM is the discipline by which an organization in any industry assesses, controls, exploits, finances and monitors risks from all sources for the purpose of increasing the organization's short- and long-term value to its stakeholders.

This definition had been developed earlier by the Casualty Actuarial Society (CAS). Each word adds to the definition, but what makes it stand out from other risk management definitions is the word "exploit." When it is appropriate for more of a risk to be taken, the team or area responsible for ERM should note that and suggest options to add value. It moves beyond risk mitigation to strategic planning. The other differentiator is that both long and short-term value should be considered. Time horizons differ between projects, but a variety of directions the firm may take should be considered, providing consistent pricing discipline to all projects (internally generated business, acquisitions and divestitures).

Scenario planning encourages an entity, whether it is an individual, company or other type of organization, to consider alternative futures and what impact they will have. Many modelers prefer to use stochastic methods for analysis, but deterministic scenarios can help a modeler tell a story to senior management or a Board of Directors without overwhelming them with statistics and other data. Stochastic methods can help to identify scenarios to test, along with brainstorming. Some consistent scenarios from year to year help build credibility for the process, while a couple of scenarios developed around emerging risks can help focus attention on specific risks or opportunities. It is all about communications when dealing with the top levels of an organization. Both downside and upside scenarios should be included.

Examples of holistic risk management include analysis across geographic boundaries, product lines, and asset classes within a silo as well as assessing risks consistently across the enterprise. For example, since unemployment drives results for residential mortgages as well as disability claims, scenarios where unemployment rates vary should adjust both results.

Some risks are secondary to insurance companies, but no less important. These risks are significant to their customers and providers, so become important to the health insurer. While there are many health risks in this category, the environmental effect of second hand smoke is an excellent example.

Concentration risk comes in many forms. Its flipside is the benefit of diversification. Focused risks are commonly recognized in silo risk management. Geographic, product, sector, asset class, customer and agent concentration can all lead to higher risks than spreading out these exposures. Society also has concentration risks that impact health insurers. An example would be software used by a vast majority of businesses that could be hacked into, disabling many companies simultaneously.

Many ERM practitioners feel that stable economic periods are the time when many problems are initiated. During those periods, controls are not as strong as at other times. This is especially pronounced when the stable environment lasts for many years. The Ponzi scheme that was run by Bernard Madoff is an excellent example. Only when the financial markets struggled and investors needed to cash out to meet other obligations was the scheme discovered. A small fraud can sometimes be caught early, but a large one generally is successful because the tail event that would cause it to be unveiled does not occur for a long time.

ERM may be thought of as boring when times are good. But once something goes wrong it becomes clear who has a strong risk culture and who is swimming naked (Warren Buffett tells this story often – you don't know who is swimming naked until the tide goes out). AIG is another case where one division took risks that were not recognized for many years. At AIG it appears that there was consensus among line and risk managers about potential future scenarios. The lack of contrarian opinions caused the division that was trading credit default swaps to take large exposures in that market without considering the potential downside if the overall markets hit a tough spot.

In the Madoff case information was kept confidential so challenges were hard to make. At Enron the senior leaders of the firm were relying on accounting "rules", rather than the spirit of the standards, to make results look better than they really were. Challenges from audit staff were discouraged. Risk culture drives successful enterprise risk management. In each of these cases, the culture discouraged honest reflection of risks and the potential downside of specific scenarios. In a company with strong ERM practices the process may be very quietly efficient. No one writes headlines about problems that were avoided, yet this process adds untold value.

One of the frequent comments about ERM in a health insurance context is that the nature of ERM differs among various types of insurance companies. A primary concern of those who state this opinion seems to be that health insurers have little investment risk, and since that is a large risk for life insurance firms then ERM is different for health insurers. This is a definitional misunderstanding, and will be addressed early in this report. It is this researcher's belief that an ERM process or framework does not vary by type of entity. It is true that the risks of a health insurer differ from those of other financial services firms, but the process of identifying risks, developing a risk culture, and making better decisions is common to all firms. This is true for non-financial services firms as well.

When an entity identifies and prioritizes its risks, assigning ownership of each and considering combinations of risks, this is enterprise risk management. This is a specific subset of the broader risk management term. When a firm manages a specific silo risk such as vendor contracts or asset/liability management, this is risk management but not ERM.

How are risks identified, and what are reference sources for the process? Risk identification is a key component of ERM. Being consistent across a firm or industry can help to compare risk management between product lines and companies. In the survey issued in conjunction with this report, risks have been segregated into the following major categories: credit risk, equity risk, pricing (or insurance) risk, interest rate risk, operational risk and strategic risk. These categories were developed by starting with the risks associated with the Basel Framework for banks. The Framework's credit, equity, interest rate and operational risk splits were an excellent start but needed expansion. When a non-insurer thinks about insurance it is generally to buy a product to mitigate an operational risk. An insurer accepting this risk needs a separate category. The Basel developers were not able to reach consensus about capital requirements for strategic risk and so left it off their initial list.

A group working through the American Academy of Actuaries (AAA), including Professor Dave Babbel of The Wharton School of the University of Pennsylvania, produced a spreadsheet focusing on risks at life insurance companies. This spreadsheet has been used on the SOA syllabus. It provides an excellent starting point for insurers to identify and categorize their risks.

Prior to the existence of the CIA-CAS-SOA Joint Risk Management Section, there was a group called the Risk Management Task Force working within the SOA. As part of this group's mission, the Health Enterprise Risk Management Task Force produced a document dated June 2003, found at http://rmtf.soa.org/rmtf_hrm.html, under Mapping of Health Company Risks, which provides an extensive list of risks applicable to health insurers. After discussions with several of the authors, but primarily John Stark, this group was found to have worked from a clean slate and without knowledge of the Basel Framework. They identified these primary categories: Environmental risk, Financial risk, Operational risk, Pricing risk, Reputation risk and Strategic risk. It is amazing how close this list came to others developed independently. It should be noted that the specific risks identified do not change. This discussion will include only how to map the risks identified to categories that make it easier to work with them.

- Environmental risk can be mapped to operational risk. The Health ERM TF segmented operational risk between those caused by internal (operational) and external (environmental) causes. It is recommended here that, where this separation is desired, that it be done as sub-categories within the operational risk category.
- Financial risk combines investment risks and risks that interact between assets and liabilities. For example, Long Term Care business has a large component of interest rate risk due to cash flow mismatches (ALM risk). The Basel Framework has split out interest rate risk, credit risk and equity risk. Interestingly, especially given the recent financial crisis, liquidity does not have an obvious home in Basel but did within the Health ERM TF framework.
- Operational risk as defined by the Health ERM TF covered only those risks due to internal events (see Environmental risk).
- Pricing risk aligns well with the AAA spreadsheet, while Basel does not include it as banks do not accept insurance risk. Rather they pay insurers to mitigate those risks or self insure.
- Reputation risk has been placed with strategic risk in other frameworks, but could also be considered with operational risk.
- Strategic risk was left out of Basel because they could not agree on the proper capital requirements. It clearly deserves its own primary category.

Overall, the Health ERM TF did a great job while working with no preconceptions of what the answer should be. They gave several presentations at SOA meetings that are listed in the literature search section of this report and provide excellent introductions to this topic as authored by health practitioners. For the future, actuaries need to decide whether it will be advantageous to utilize this blank sheet of paper approach or to work within accepted standards while adapting where necessary. It will be easier to attach actuarial skills outside the traditional areas of practice if existing frameworks are at least considered.

Enterprise risk management is developing in all industries. Discontinuities such as the recent financial crisis help it to evolve in positive ways, and firms should understand that it is a process that will continue to evolve. At this point no one can be considered to be doing it correctly, and perhaps that is a state that is strived for but never achieved.

Another misconception is that someone working as an employee benefits advisor is automatically doing ERM because these benefits cover a wide range of employees. Employee benefits can be an important part of an ERM process, but it is not automatic. If employee benefits are developed in a silo, not considering all the other risks of the entity, then it is not ERM. If, for example, a firm is near bankruptcy and benefits are treated as a product line with interaction between other risks, then it becomes a key component of an ERM process. Pension practitioners have found this to be the case with recent examples in the auto industry where benefits such as defined benefit pensions and post retirement health benefits had become the largest liability of the firm.

In 2004 the Committee of Sponsoring Organizations of the Treadway Commission, or COSO, published a document titled Enterprise Risk Management – Integrated Framework. It was perceived that this was an attempt by the accounting profession to produce a definitive paper on ERM. It did not succeed, although it remains a useful reference today. The COSO paper focuses primarily on operational risk and provides good examples for risk mitigation of these risks. Financial risks are minimally covered and assume that hedging will reduce variation of results with no cost.

Only a broad based discussion that includes multiple perspectives of risk will produce the optimal answer. Enterprise risk management can not succeed if one group or profession is dominant. This is true at the regulatory level as well as within a firm. At health insurers key players will include the Chief Financial Officer, Chief Actuary, Chief Investment Officer, Chief Underwriter and Chief Operating Officer (among others). These experts are the primary risk owners and best understand their risks and how they interact with other risks. The actuarial skill set is broad and includes modeling capabilities related to correlation of risks. The actuary may lead the ERM team as a risk officer, but always should have a seat at the table as risk interactions are considered. Actuaries also have a strong educational basis for understanding interactions within the balance sheet.

According to survey respondents, health insurers focus on geographic variations in rates and risks. State regulation means a health insurer needs to develop a working relationship with each state they accept business from. This is due to rules that vary by state and reflect conflicting legislative intents. It is not uncommon for one legislature to encourage behavior that another prohibits, especially with regard to provider arrangements. Life insurers are often able to deem approval once the domiciliary state has accepted a policy and rate structure. Relative to life insurers, health practitioners tend to manage to a shorter time horizon. This provides more time for life insurers to react but also results in accepted risks having an impact on a firm's financials long after the team that placed the risk on the books is gone. Health insurer requirements for flexibility and nimbleness over short time horizons are much more consistent with casualty insurers and banks. Health insurers should monitor these other practitioners for best practices in addition to their life insurance peers.

Positive events can inadvertently trigger risk. A health insurer having an especially good year can create future problems. For example, if the health insurer drove a hard bargain with providers and other vendors by claiming a challenging economic environment and later reports exceptional results, those suppliers will have long memories of how they were treated. The company may have difficulty negotiating favorable contracts and rates during later periods.

Best practice ERM will move companies from a risk mitigation mindset to one where ERM is a key component of strategic planning across multiple time horizons. Some health insurers have started down this path but most companies remain focused on limiting downside risk.

During any discussion about health insurance in the United States, the “elephant in the room” is health care reform. A strong ERM framework considers this risk and incorporates it into initiatives such as scenario planning, stress testing and other “what if” analysis.

Researcher

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Report

Section 1: Literature Search – General ERM topics

These articles, papers, and books are sorted by lead author. Brief summaries have been written for each. Where links are provided, they were active as of the time this paper was completed but may have been updated since then.

Broad ERM

- Brehm et al. Enterprise Risk Analysis for Property & Liability Insurance Companies.

This book was written by actuaries at Guy Carpenter and provides a good resource for property and liability insurers. Those without a P/C background should pick up ERM first and then use this book for sharing best practices.

- Brooks, Doug. 2007. "Integrating ERM with Strategic Planning." *The Actuary*, August/September.

http://soa.org/library/newsletters/the-actuary-magazine/2007/august/int2007aug.aspx

Doug Brooks' paper helps the reader understand how to take ERM to its ultimate best practice state of strategic planning.

- CAS ERM Committee. 2003. "Overview of Enterprise Risk Management."

http://www.casact.org/research/erm/overview.pdf

The Casualty Actuarial Society's Enterprise Risk Management Committee showed interest in enterprise risk management very early in its developmental phase. This report states the definition of ERM that the SOA has adopted and remains useful today.

- Crouhy, M., Galai, D. and Mark, R. 2001. *Risk Management*. Irwin/McGraw Hill.

This book is written from the banking Basel framework of ERM for day-to-day technical practitioners. The authors have put together a broad text that gets into the details of quantitative risk management. Attention is paid to both silo risk management, correlations between risks, and qualitative assessments. It can be found on the SOA syllabus.

- Crouhy, M., Galai, D. and Mark, R. 2006. *The Essentials of Risk Management*. Irwin/McGraw Hill.

This book is written for senior members of an organization and avoids formulas, developing concepts qualitatively. Its high level approach makes it a good introductory read for board members and members of senior management.

- Fisher, Wayne. 2008. "ERM Perspectives." *Risk Management*, Aug.
http://soa.org/library/newsletters/risk-management-newsletter/2008/august/rmn-2008-iss13.pdf

Wayne Fisher's article details his experiences as CRO at Zurich Financial Services, noting the importance of senior management buy-in.

- Hiemstra, Stephen. 2008. "An Enterprise Risk Management View of Financial Supervision." *Risk Management*, August.
http://soa.org/library/newsletters/risk-management-newsletter/2008/august/rmn-2008-iss13.pdf

Dr. Stephen Hiemstra shares his expertise as a regulator to show how contagion and correlation makes regulatory ERM differ from company based ERM.

- Lam, James. Enterprise Risk Management: From Incentives to Controls 2003

James Lam wrote one of the first and still most popular books on ERM. It covers financial and operational risks using terms that require no special expertise to understand.

- www.riskglossary.com.

Risk glossary is an excellent reference site for ERM terms. It is maintained by Glyn Holton.

- Rudolph, Max. 2007. "ERM as a Competitive Advantage: Moving Beyond PBA to Add Value." *The Actuary*, April/May.
http://soa.org/library/newsletters/the-actuary-magazine/2007/april/erm2007april.aspx

Max Rudolph discusses how to leverage models built to support regulatory purposes for internal planning.

- SOA Risk Management Task Force. 2006. "ERM Specialty Guide." May.
http://www.soa.org/library/professional-actuarial-specialty-guides/enterprise-risk-management/2005/august/spg0605erm.pdf

The SOA's Risk Management Task Force, precursor to the Joint Risk Management Section, developed the ERM Specialty Guide to help practitioners implement an ERM process.

- Wolf, Robert. 2008. "The Evolution of Enterprise Risk Management," *The Actuary*. June/July.

http://soa.org/library/newsletters/the-actuary-magazine/2008/june/act-2008-vol5-iss3-wolf.aspx

This article by Bob Wolf, staff actuary at the SOA, was the first in a series published in The Actuary covering ERM. This one provides an overview of topics covered and the process.

Quantitative Analysis

- Basel Committee on Banking Supervision. 2006. *"International Convergence of Capital Measurement and Capital Standards."* June.

http://www.bis.org/publ/bcbs128.htm

From the www.bis.org website you can find many resources related to the Basel Accords that regulate banking risk management. Basel 2 last saw a full update in 2006. This document provides the primary how to for practitioners.

- Basel Committee on Banking Supervision. 2009. *"Observed range of practice in key elements of Advanced Measurement Approaches."* Bank for International Settlements, October.

http://www.bis.org/publ/bcbs160b.pdf

The Bank for International Settlements (BIS) has developed the Basel Accords that drive international capital requirements for banks. Advanced Management Approaches are quantitative methods to determine appropriate capital levels for operational risks.

- IAA Practice Note. *"Enterprise Risk Management for Capital and Solvency Purposes in the Insurance Industry."*

http://www.actuaries.org.uk/__data/assets/pdf_file/0006/138903/IAA_PracticeNote.pdf

The IAA practice note provides an excellent primer for practitioners when they are starting an ERM project at an insurance company.

- SOA Joint Risk Management Section. *Economic Capital Specialty Guide*. March 2004.

http://www.soa.org/files/pdf/news-pub-2004-spg-econ.pdf

This white paper, produced by the Risk Management Task Force, reviews current practices related to economic capital. It includes a literature search to allow for additional reading.

Operational Risk

- Doerig, Hans-Ulrich. "Operational Risks in Financial Services: An Old Challenge in a New Environment." *Institut International D'Etudes Bancaires*, London, Credit Suisse Group.

http://www.credit-suisse.com/governance/en/pop_s_cv_doerig.html.

Doerig's paper is a user friendly guide for practitioners to see what issues he has dealt with in the past regarding operational risks.

- COSO Report

www.coso.org.

This report was produced by a group of accounting organizations. Its goal was to cover all risks, but it is noticeably short on financial risks. A summary is available for free at their web site and is included on the SOA syllabus. The report is broken into two books. For operational risks it does a pretty good job, and the second book provides some excellent examples of risks and metrics. There is minimal coverage of financial risks and interaction between risks.

- Shah, Samir. "Measuring Operational Risk Using Fuzzy Logic Modeling."

http://www.irmi.com/expert/articles/2003/shah09.aspx

Samir Shah describes qualitative approaches to operational risk management using a tool often referred to as heat maps where events are ranked by frequency and severity using scales such as high/medium/low or 1-10. These are ranked and shown to senior managers and the board using a red/yellow/green framework.

ERM for Specific Practice Areas

- Choquet, Andre 2006. "From Pension Risk Management to ERM." *Risk Management*, July.

http://soa.org/library/newsletters/risk-management-newsletter/2006/july/RMN0607.pdf

This paper demonstrates the role of defined benefit pension plans in an ERM framework as the firm's life cycle will lead to declines as the DB plan is ramping up its needs. It is an interesting article given the challenging times today for automakers and others with legacy pension plans.

- Fitzner, Karen. 2006. *Pandemic roundtable.* March 21.

http://www.soa.org/files/pdf/ROUNDTABLE[1][1].TRANSCRIPT.PDF.pdf

Karen Fitzner moderated a panel of 7 pandemic experts in a discussion later summarized in the June 2006 issue of The Actuary.

- Ramenda, James. 2008. "An Analyst's Retrospective on Investment Risk Management." *Risks & Rewards*. August.

http://soa.org/library/newsletters/risks-and-rewards/2008/august/rar-2008-iss52.pdf

Jim Ramenda provides an ERM view from an institutional investor's perspective.

- Rudolph, Max J. 2007. "Pandemic Influenza's Impact on Health Systems." *HealthWatch.* January.

http://www.soa.org/library/newsletters/health-watch-newsletter/2007/january/HWN0701.pdf

This paper addresses an emerging risk that directly impacts health practitioners.

- Wolf, Robert 2009. Getting Up To Speed: ERM in the Life Insurance Industry. *The Actuary.* October/November.

http://soa.org/library/newsletters/the-actuary-magazine/2009/october/act-2009-vol6-iss5.pdf

This roundtable format, in the 5th of a series, tackles current ERM practices in the life insurance industry.

Rating Agencies

- "Risk Management and the Rating Process for Insurance Companies." 2008. *Best's Rating Methodology*, January 25.

http://www.ambest.com/ratings/methodology/riskmanagement.pdf

AM Best describes the application of ERM to their rating methodology in this paper.

- Moody's 2007. *Risk Management Assessment: Non-Life Insurance Companies.* March.

Moody's talks about non-life insurance companies in this white paper. While written with many examples for casualty insurers, it has direct and indirect applications for health insurers as well.

- "Apply Enterprise Risk Analysis To Corporate Ratings." 2008. *Standard & Poor's*, May 7.

S&P in 2009 incorporated ERM into their standard credit rating. This extends their ERM analysis for financial institutions.

- "Extending the Insurance ERM Criteria to the Health Insurance Sector." 2006. Standard & Poor's. November 8.

S&P formalized their interest in health insurance ERM in this paper. It is interesting that the focus is on silo risks to be considered, extending the thoughts presented in this research that an ERM framework does not vary between companies. For someone more familiar with health insurance it is a good introductory article that uses terms familiar to the reader.

- "Insurance Criteria: Refining the Focus of Insurer Enterprise Risk Management Criteria." 2006. *Standard & Poor's*, June 2.

This article provides an excellent overview of an ERM framework as S&P presented its methodology to review insurers.

Financial Crisis and other Emerging Risks

- Carroll, Paul B. and Chunka Mui. 2008. "7 Ways to Fail Big." *The Harvard Business Review*, September.

This article summarizes similarities among several insolvencies, providing tools to anticipate future issues.

- Ingram, David. 2008. "Does Subprime Prove that ERM is Ineffective?" *Willis ERM Briefing*, September.

http://www.willisre.com/html/reports/published/ERM_Briefing_91908.pdf

With plenty of blame to go around the mortgage crisis, how much should fall on ERM? This paper argues that subprime mortgages provided examples of how parts of ERM functioned well but that others, such as risk culture, were never implemented. It argues that risk managers should learn from the subprime crisis but not discard the ERM framework.

- Rudolph, Max. 2009. "Survey of Emerging Risks." *Risk Management Newsletter*, March.

http://soa.org/library/newsletters/risk-management-newsletter/2009/march/jrm-2009-iss15.pdf

A good risk manager is always thinking about what could go wrong. This survey, accessing the INARM list serve as well as the Joint Risk Management Section, shows how even risk managers remain anchored in the present. It also provides useful analysis about combinations of risks.

- Taleb, Nassim N. 2008. The Fourth Quadrant. A Map of the Limits of Statistics.

http://www.edge.org/3rd_culture/taleb08/taleb08_index.html

Nassim Taleb, author of the best selling Black Swan book, focuses his efforts as he develops an article addressing many of the issues from the book.

- Wolf, Robert. 2009. On the Current Financial Crisis: Did ERM Fail? February/March

http://soa.org/library/newsletters/the-actuary-magazine/2009/february/act-2009-vol6-iss1-wolf.aspx

A call for papers in fall 2008 led to a series of essays that focused on causes of the crisis, prudent strategies, societal themes, and effective risk modeling. Bob Wolf's article summarizes the essays in the third of the series. All of the essays can be found at http://www.soa.org/library/essays/rm-essay-2008-toc.aspx .

Risk Management Tools and Models

- Buehler, Kevin, Andrew Freeman and Ron Hulme. "The New Arsenal of Risk Management." *The Harvard Business Review*.

Quantitative risk management often includes complex mathematics. This often leads to equally complex models designed to model the underlying risks as well as the behavioral risks of customers. If models do not reflect reality and risk is distributed, some parties might not be paid for the risks they accept. Models have limitations and efforts should be set aside to qualitatively evaluate them.

- Karow, J. 2007. "Discovering Risk Appetite." *Cross Currents*, Fall 2007.

http://www.ey.com/Global/assets.nsf/US/Industry_Insurance_CrossCurrentsFall07RiskAppetite/$file/Industry_Insurance_CrossCurrentsFall07RiskAppetite.pdf .

Karow provides the basic issues involved with setting risk appetite for a firm.

- Lam, James. 2006. "Emerging Best Practices in Developing Key Risk Indicators and ERM Reporting." James Lam & Associates, Inc.

www.jameslam.com

Key risk indicators can provide metrics that help make better decisions. Lam discusses how these metrics can be developed.

- Panning, William H. 2004. "The Real Thing." *Best's Review*. June.

http://www.willisre.com/html/reports/published/Bests_Review_june_2004_new.pdf

Bill Panning writes a regular column for Best's Review. You can access them from the Willis Re site http://www.willisre.com/html/reports/published_frame.htm In this article he shares ways to make sure software will actually meet your needs after purchase.

- Wolf, Robert. 2008. “The Birth, Death and Resurrection of Dynamic Financial Analysis.” *The Actuary*, Oct/Nov.

In the second of his series on ERM, Bob Wolf discusses DFA and its use in the casualty insurance industry.

Section 2: Literature Search – Specific to Health Insurance

There have been several presentations designed by health practitioners to introduce enterprise risk management to their peers. A sampling of these sessions can be found here in chronological order.

> **October 2004 annual meeting Session #126 PD** (Record Not Available)
> Enterprise Risk Management for Health Insurers
> Stuart D. Rachlin, Cheryl A. Krueger, John C. Lloyd, Cynthia S. Miller
> http://www.soa.org/files/pdf/126_bk-ny04.pdf

This session was not written up but provides some very good slides for review. It discusses a draft of the list of risks specific to health insurers. Some of the slides are redundant with the June 2005 presentation, but there are enough differences to make both worthwhile.

> **June 2005 spring health/pension meeting Session #102 PD**
> Session 102PD Enterprise Risk Management for Health Insurers
> Rajeev Dutt, Kara Clark, John Stark

This session provides an excellent description of ERM from the health practitioner’s perspective. The presenters were members of the RMTF ERM Health task force. Major categories are split into environmental (could also be called external operational risk), financial, operational (internal), pricing, reputation and strategic risk. These differ slightly from those used by Basel II.

Record, Volume 31, No. 2 New Orleans Health/Pension Spring Meeting June 15-17, 2005

You can find the slides at http://www.soa.org/files/pdf/102_bk_hlth05.pdf and the RSA at http://www.soa.org/library/proceedings/record-of-the-society-of-actuaries/2000-09/2005/june/rsa05v31n2102pd.pdf .

- Southeastern Actuaries Club November 2006. Introduction to ERM for Health Insurers, Kara Clark

http://www.actuary.com/seac/handouts/health_erm.pdf

This presentation provides a nice overview of ERM for health practitioners.

- "Enterprise Risk Management Part One: Defining the concept, recognizing its value," "Part Two: Getting an ERM program started," "Part Three: The Role of the chief risk officer (CRO)." 2006. *American Society for Healthcare Risk Management*, Feb.

http://www.ashrm.org/ashrm/education/development/monographs/ERMmonograph.pdf

This three part series defines ERM from a hospital's perspective.

- Wolf, Robert. 2009. "ERM in the health care industry." *The Actuary*, April/May.

http://www.soa.org/library/newsletters/the-actuary-magazine/2009/april/act-2009-vol6-iss2-wolf.aspx

In the 4th article in his series, Bob Wolf discuses the overlap between actuarial practice areas and ERM, and potential growth opportunities looking forward.

Kara Clark's articles in Health Section Newsletter 2005/06
Part 1

- Clark, Kara. 2005. Taking a Closer Look at Enterprise Risk Management. *Health Section News.* August.

http://www.soa.org/library/newsletters/health-section-news/2005/august/hsn-2005-iss50-clark.pdf

Part 2

- Clark, Kara. 2006. Enterprise Risk Management. *HealthWatch.* January.

http://www.soa.org/library/newsletters/health-watch-newsletter/2006/january/hsn0601.pdf

Kara Clark wrote two articles, appearing at the end of the RMTF Health ERM task force, introducing health practitioners to ERM.

- Spring Health meeting June 2009 The Current State of Health ERM

http://www.soa.org/files/pdf/2009-toronto-health-gobes-50.pdf

This session provided an update on this research project and also included a best practices firm and their practical learnings.

- As this research is completed, a companion article for HealthWatch introducing Enterprise Risk Management to health practitioners has been written by the researcher and POG chair Joan Barrett.

Section 3: Survey Results – Current ERM Practices

A total of 22 completed surveys were received, with 13 coming from health insurers, 9 from consultants, and one from a regulator. This sample size should be considered when making conclusions. Survey participants were selected based on their reputation for strong ERM practices, so these results should be more reflective of best practice companies rather than representative of the overall industry. Most of the consultants were asked to respond based on their membership on the Health Section Council, and the responses were sparse. Consultant comments are included, but few questions were answered so totals shown in the results section often total less than 22. Follow up discussions occurred with representatives of each group. At the SOA spring health meeting in June 2009 (Toronto), a session described the research work to date and several discussions were held at that time.

The survey has been separated into sections covering Emerging Risks, Modeling and Metrics, Accounting, Current Topics, and Demographics. Highlights of each are presented here.

Comments are summarized and combined in this section of the report. Actual comments made can be found in Appendix I.

Survey - Preliminary Questions

The first section, preliminary questions, poses some general questions about the type of work represented in the survey and also about the level of ERM program in place. In question 1, respondents were asked about their employment. Thirteen of 22 (59%) work at health insurers. Almost all the rest are consultants, with one regulator providing feedback as well.

When asked about the level of ERM formality for the company respondents, 69% (9 of 13) stated that they have a formalized ERM program. Keep in mind that best practice companies were sought out so this percentage is likely quite high relative to the industry as a whole. 23% (3 of 13) have an informal program and 8% (1 of 13) of the company respondents have no program in place. This lone respondent is the valuation actuary at a small Medicare Part D insurer and mentions they might not be aware of such a program.

Formal programs at companies covered most, if not all, of the listed risk categories (pricing, operational, credit, equity, interest rate, and strategic). Some of the responses excluded credit and interest rate risk. 56% (5 out of 9) with a formal ERM program stated that they included analysis of correlations between risks. Of the 3 with informal programs, two considered correlations. When asked to describe their practices, one stated that they use correlations in their economic calculations while the others said their practices were more qualitative in nature or not very far along a quantitative path.

One consultant stated that his clients have formal ERM programs. They consider all of the risks listed and look at correlations, but for simplicity independence among risks is assumed. Another consultant noted an informal ERM program, but only pricing and strategic risks are considered and no correlations are built into the analysis. The respondent stated that risk combinations are considered qualitatively.

Three consultants stated no formal or informal ERM program but that risk assessments are made of all but credit and equity risks, and no correlations between risks are considered.

46% of company respondents stated that their firm had a Chief Risk Officer (6 of 13). The reasons for establishing a CRO included

- Developed position when formal ERM program was adopted
- Establishes ownership of the ERM program

CRO positions have been filled for 6 years or less. Half were created in the last 3 years. Where there is no current position, 14% (1 in 7) anticipated creating one in the next 12 months and the rest did not have such a position in their current plans.

Of those from companies with no CRO (44%), comments made it clear that risks are considered. They included

- Position is implicit within the finance (or audit) area.
- Enterprise risk is measured on a corporate level, but with a relatively small insurance company such a position would not be cost effective.
- Position is combined with other senior manager (e.g., CFO or Chief Actuary)
- ERM Committee rather than one person
- Informal team of financial risk officers

While ERM is now on the radar screen at most companies, best practices to date tend to be at large public health insurers that have invested the time internally to implement the concept. Smaller firms often do not have a sophisticated block of business, sometimes focused in a single state, so it makes sense that the tools they use are not as complex. This does not eliminate the need to identify their risks, implement a risk culture and develop plans to improve their risk profile as part of their strategic planning process.

Survey Section 1 – General

Company risk profiles are reviewed on a regular basis, but that varies by firm. The most popular answer was an annual review (30%), but others review it quarterly, every 2 years, or every 3 years. The two consultants who answered this questioned listed ad hoc and quarterly, with a more serious look annually.

One measure of ERM’s importance within a firm’s culture is to consider what preparation is given to new board members. When asked to describe the material provided to describe the risks taken by the firm, common documents included

- Financial statements
- Risk appetite statement
- List of risks
- Prior meeting agenda material for audit/risk committee
- Reports specific to certain high priority risks (capital, claims)
- ERM charter
- Recent risk report

60% (6 of 10) of the company responses stated that the material provided was adequate. 40% (2 of 5) of the consultants thought it adequate.

One consultant stated that his clients receive a teaching session about the material received to be sure they understand it. Another noted that ERM needs to be given a higher priority.

All 9 companies responding stated that the **board addresses risk management**. All have assigned ERM to a formal board committee.

Consultants did not agree, with only 60% (3 of 5) saying their client's boards address risk management. They see formal board committees, senior managers reporting, ad hoc discussions, Sarbanes-Oxley driven discussions, and partial discussions not always including the health lines.

Best practice ERM involves the board on a regular basis. This includes recurring reports in a standard format (dashboard, key risk indicators) as well as presentation and discussion time during committee and full board meetings.

Incentive compensation schemes that relate to ERM are considered best practice, so the survey asked if ERM was incorporated in the practice. For company respondents, 45% (5 of 11) said yes, although follow-up phone interviews reduced this figure. Bonuses are generally built off top line (revenue) and bottom line (income) metrics, with no risk adjustments made (some may include this qualitatively). Some firms have schemes that work across multiple years.

Consultants have a different view, with only 20% (1 in 5) seeing ERM in incentive compensation.

Senior managers at **best practice ERM** firms receive incentive compensation based on a multi-year time horizon and incorporate the risks that are accepted. Methods to accomplish this are still evolving and full implementation is rare at this time.

One of the most interesting results came from question 7, asking how the ERM program could be improved. The reader is encouraged to read all responses as listed in Appendix I, but a sampling will be included here. These provide a wish list for further research.

- Better communication
- Improved engagement
- More awareness of ERM capabilities internally
- Expanded use of ERM tools in decision making
- Risk limit optimization
- Improved metrics and models
- Moving beyond collecting of data to do more analysis
- Understanding of risk appetite
- Higher visibility in strategic and tactical planning

- More formalized
- Leading indicators

The survey asked for the **top 3 health industry risks**. A consensus number one was some version of national health care, regulation, health care reform, and public policy. Others included

- Economic conditions
- RBC levels
- Litigation
- Pricing/reserving issues
- Unfunded mandates/cost shifting
- Operational risks leading to litigation
- Reputational risks
- Provider contracting
- Fluctuation of asset values
- Pandemics
- Investments

For company respondents, the top 3 **risks they felt could be addressed at the enterprise level** of a company included

- Strategic (line of business decisions to enter/exit)
- Investment risks
- Expense management
- Large risks
- Long horizon risks
- Pricing
- Operational
- Regulatory/political
- Reputational
- Stress testing
- Data integrity
- Provider network
- Privacy/information security

Risk culture is a key component of a successful ERM framework. Survey respondents were asked to **describe the risk culture** at their firm. Here are some excerpts.

- Tone at the top is supportive.
- Board and senior management are engaged.
- Lower levels of the organization are not engaged with risk concepts.
- Ethics and fair treatment of policyholders is important.
- Risk culture is emerging/developing down the corporate ladder.

- The board role is not fully developed or formalized.
- Risk culture is not embedded throughout the organization.

There is a wide dispersion of practices related to risk culture. Even at **best practice ERM** firms there is a tendency to view the ERM team as providing input and not as part of the strategic planning team. Good practices are driven by communications with senior management and rank-and-file employees. Poor practices include autocratic CEOs where employees at all levels are afraid to speak up if they have a concern.

There is a disconnect between company perceptions internally and industry wide regarding **turf issues**. While 23% (3 of 13) of company respondents felt there were company turf issues at their firm, 58% (7 of 12) felt turf issues were common in the health industry. When asked to rate the ethical environment from 1 – ethically pure to 5 – ethically weak, company respondents averaged 2.4 and consultants 2.5. The dispersion was much wider for the companies than the consultants.

The current industry **relationship with regulators** question had many common answers, including anxiety, state variations from good to poor, from cordial to adversarial. How it compares in **your experience** was 42% better and 58% similar for the 12 company responses, with 3 consultants split between worse at 33% and similar at 67%.

The company's **reputation from an outsider's perspective** ranged from excellent to a blanket negative for all health insurers. Companies and consultants responded similarly. This is a challenge for the industry as there are many companies and each is sharing its own message in its own market. Some of the companies seemed isolated and overly optimistic in this response.

Competition comes from both national and regional competitors, along with government agencies.

Best practice ERM seeks to optimize the balance between risk and return for the enterprise based on a firm's stated risk appetite. One way to measure this is to ask how risk management is used to **identify opportunities**. Most of the respondents said it was not done yet, but several referred to spending, growth, and pricing decisions. Others said it is being used defensively to date but there were plans to involve it as an offensive tool as well. Perhaps the most interesting response came from a consultant, who commented that risk management is sometimes used to keep from chasing opportunities. Sometimes the best offense is the best defense, and having metrics to point to can help a manager avoid accepting bad decisions even when there is momentum to complete a transaction.

Survey Section 2 – Operational Risks

Having the right management team in place is a key to successfully implementing a strategic plan. The survey asked about a **succession plan**, and 73% (8 of 11) company responses indicated that they have one.

Questions asked by external stakeholders can help identify holes in internal practices relative to industry standards. The survey asked **What questions about operational risks asked by external stakeholders** are difficult to answer. Most respondents said that external stakeholders don't ask questions at this level of detail. The ones that do have questions ask about customer service and disaster recovery plans.

At this time rating agencies have been focused on other issues, temporarily deferring focus on an ERM framework. Questions at health insurers have been driven by actual surplus reduction events driven by silo risks such as credit risk, or alternatively health care reform. Since many risk combinations are considered independent, correlation risks have not been priority issues requiring complex solutions.

Survey Section 3 – Balance sheet risks

Allocating capital is a challenging topic for any firm, and some of the regulatory requirements make it even harder for health insurers. So it was not surprising that companies use a variety of means to put capital into product lines. Many used more than one, so the totals add up to greater than 100%. 50% use a ratio of the NAIC RBC formula, 20% use a ratio of a rating agency formula, and 70% use a different method. Of these 7 company responses, four do not allocate capital to product lines, one uses economic capital, one does not know, and one allocates all capital to their one product line. Consultants generally use a ratio of NAIC or rating agency formulas. There appears to be a discontinuity with state requirements, many of which do not allow pricing to include a capital requirement.

Liquidity risk has been highlighted during 2008-09 as a risk that financial services firms need to take a closer look at. Health insurers typically maintain a very liquid investment portfolio. Comments did not reflect any problems, due mostly to a focus on cash and short term investments along with the ability to reprice frequently. The tone of the responses was that this was not a problem for this market. None of the respondents commented about access to the capital markets.

Despite one comment that durations did not need to be managed, 90% of the company respondents stated that **interest rate risks** are managed. This topic could provide further research to look at asset only, liability only, and asset-liability management.

Companies are managing **diversification** primarily by geography and industry, although several consider contagion as well. Consultants use geographic tools.

Regulatory requirements that define premium development pricing in a detailed way ignore capital risks and other costs. This leads to inconsistencies with any internal ERM models. Most health insurers hold a large portion of their assets in very liquid form, helping in a stress situation. Little analysis is done to determine if this is an optimal decision of **best practice ERM** or if taking additional investment risk would better fit the desired risk profile.

Survey Section 4 – Pricing discipline

Although both company and consultant practices are diverse regarding methods/metrics used for **cost-benefit analysis**, more companies are using return on equity (ROE) and statutory return on investment (ROI) than present value of premiums or stochastic methods. Some have regulatory mandates and seem to have adopted that for business planning as well. Some also do sensitivity analysis that includes stochastic simulations. Consultants also use a variety of methods.

Consistent enterprise risk management would seem to require **consistent pricing** methodologies. But survey responses are mixed, with only 56% (5 of 9) of companies saying they used consistent methods for such projects as acquisitions and internal new business. Consultants, on the other hand, all said their methods were consistent. Reasons why there were inconsistencies considered loss leaders for new business and based on market conditions in various regions. Future surveys should be written more clearly, as the question was supposed to expose differences in pricing methodology (ROI vs. ROE) rather than supply and demand forces in the marketplace.

New products can generate excitement that creates momentum and makes it hard to stop a project that will not meet profitability and growth goals. Some companies will provide checkpoints along the product development process timeline where experts from other areas of the company come in and peer review a new product. Some have called this "**break the product**" and it occurs at initial product design, prior to filing the product, and before rollout. All 9 companies that responded said they employ such a process, while 75% (3 of 4) consultants said the same.

Health insurers have a variety of **counterparties** to deal with, including reinsurers, hospital/physician groups and federal/state governments. When asked how these risks are managed, answers included

- Function that focuses on vendor management
- Aggregate exposure to a name
- Several areas focus on their specialty

Scenario planning, where **alternative scenarios** are developed as a form of stress testing, has become more popular as various entities have used the process to be better prepared for the future. 90% (9 of 10) of companies do some form of this, with **adjusted variables** including membership, loss ratio, growth rate, expenses, share repurchase, interest rates, reinsurance options, reimbursement rates and claim trends. While most looked at reasonable alternatives, none described true tail scenarios. Scenario planning is currently being used for tactical planning rather than solvency risk assessment.

All respondents stated that risks are considered when **exiting a block** of business. This question would have extracted more information from the responses if it discussed marginal analysis of exit strategies, looking at where the firm would be expected to end up after the strategy was implemented.

Survey Section 5 – Asset risks

All companies, and 50% of consultants, considered **asset risks** as part of their risk management process. All stated that someone was accountable for the **surplus account**, although follow-up discussions show that it is not commonly part of their incentive compensation package.

Survey Section 6 – Learnings

Strong ERM practices result in improved processes over time and better understanding of a firm's business mix. Here are some of the learnings companies listed

- Buy in to ERM takes time
- ERM took longer to implement that we anticipated
- Solutions are unique to a firm
- Improved decision making is the goal
- Management must be committed for success
- Don't forget about operational risks
- When identifying the risks be complete
- Realistic projections are valuable
- Size of relative risks differs from my original perception
- Many practices are already strong enough
- It's difficult to embed ERM into a culture

Consultants added

- ERM is important
- Concepts must be readily understandable – translation/communication
- Easier to identify mispriced products

Some themes include the need for preparation and senior management buy-in when implementing an ERM process. Working with auditors, especially when looking at operational risks, can add value and provide both teams internal resources.

Knowing what unique risks exist at a firm help that company make better decisions.

Survey Section 7 – Emerging risks

There has been much interest on the fringes of the insurance industry about emerging risks. The survey asked how companies **scan for new risks**. Their responses included

- Review outside resources
- Ask experts internally
- Part of our strategic planning and forecasting process
- Annual surveys of key employees
- Quarterly discussion with executive management
- Emerging risk committee

One way to test emerging risks is to identify stress scenarios and the drivers for them. 62% (8 of 13) of the companies reported that events potentially leading to insolvency had been identified. One of the 3 consultants answering the question also answered yes. Companies then reported developing risk mitigation solutions based on these scenarios. At this time the analysis performed seems to be primarily qualitative and not embedded in a recurring planning process.

Section 4: Best ERM Practices

There are several activities that drive strong ERM practices, and no insurer in any practice area does them all well. These practices include identification of risks, prioritization of risks, a strong risk culture encouraging skepticism from top to bottom, risk appetite aligned throughout the company, incentive compensation that includes both rewards and risks, transparent and proactive peer review. Communication to all stakeholders should be clear.

Specific examples show that ERM has not been successfully implemented consistently throughout firms. Where it has been successfully implemented is driven primarily by the pervasive risk culture at a firm. During the financial crisis, even when data was provided about the risks involved, it was often ignored. At other companies the fox was watching the henhouse, using the same methods to price and value a financial instrument. At AIG one division became a large contributor to profits, increasing concentration risk while having little risk transparency with the rest of the organization. When credit default swaps required additional collateral, government intervention was required. Pension plans have struggled to remain viable as their valuation methods have resulted in volatile results, while firm cultures focused on steady growth.

Insurance firms are at various levels of proficiency regarding ERM. Based on the researcher’s experience, those who write sophisticated products requiring asset-liability management tools are closer to being ready for ERM. The modeling to perform cash flow testing and other ALM requirements gives a firm a head start in developing any ERM holistic analysis. The key, of course, is whether the information provided through quantitative and qualitative methods is used to make better decisions.

Board members and senior managers should receive risk materials and a teaching session about ERM and what the process can provide.

Those companies that have focused on quantitative models such as economic capital have been limited by looking at a single figure. This number then takes on a life of its own as it moves up the management ladder, with none of the shortcomings or concerns associated with it attached for discussion. To date few health insurers see the value in computing economic capital and sharing it with stakeholders.

Section 5: Recommendations for Future Work

As ERM for health practitioners evolves, there are several specific steps that can be taken to nudge the process forward.

Communications

There is a need to have additional ERM articles, white papers and other material available that focus on health practitioner's needs. General articles need to be followed up with some that discuss actual implementation practices. Three specific topics have been identified, but more would be welcome.

- Intro to ERM for Health Insurers article in HealthWatch (completed in winter 2009 along with companion piece sharing an implementation case study)
- Networking with non-actuaries (this is not health specific)
- Constant Review of general and health related ERM research

Recommendations for the Health Section

While these suggestions were developed specifically with the Health Section's needs in mind, many could also be considered by other practice areas.

- Cross pollination – What's new in ERM in other practice areas, including banks and property/casualty insurers? This would involve regular searches of literature and presentations for topics of interest to health practitioners.
- Liaison – specific implementation of the prior point would be to appoint a liaison to the Casualty Actuarial Society to monitor practices and look for synergies. One example would be to co-sponsor a seminar on predictive modeling. Article reprints could also prove helpful to both groups.

Scenario Planning

Stress scenarios can provide useful information to firms as their strategic plans are developed. They can be used for regulatory requirements too, but more useful is the knowledge that is built up internally to better understand the risks and opportunities of in-force and new business lines.

Scenarios should consider assets as well as liabilities. A health insurer's assets include the financial assets found on the balance sheet. Those assets backing medical lines are generally held in the general account in short-term, liquid instruments. Self funded plans create their own asset management challenges. Other assets, such as provider contracts, do not appear on the balance sheet but should be considered. Future premiums is another off-balance sheet asset that does not get enough direct attention as it relates to asset-liability management and interest rate risk.

An interesting project would be to use expert learning techniques (where technology learns from experts and recreates their decisions for future situations) to develop a computer game surrounding a health carrier. The user would pick from a pre-defined set of assumptions or develop their own. These drivers would relate to the economy, provider relations, and the regulatory environment for example. The game would introduce ERM tools, but the player could decide whether to use them or not as a way to help practitioners learn where ERM can help their decision making process related to profitability and solvency.

Research projects

A variety of research projects could naturally flow from this report. For US-based health practitioners, a major consideration is health care reform. As this is being addressed by other groups, it is recommended here also, but with no need for further details given the other efforts. .

Other recommended efforts include:

- How to deal with Regulatory risk

- Another uniquely health focused risk is the correlation between medical and other insurance risks. Since this subject has a broad range of possible topics, it can be further broken into several smaller pieces and attacked in the following order:

    - Interactions between disability income, long-term care and medical morbidity. DI would include Workers' Compensation (e.g., drivers of results, key risk indicators).
    - Interactions between DI, LTC and medical products with a focus on investment/liquidity/cash flow requirements (asset-liability management).
    - Interactions between DI, LTC and medical products with a focus on demands on strategic development resources and capital (i.e., strategic planning).
    - Correlation between medical risks and the economy in general. This includes higher Medicaid enrollment and changes in utilization patterns by age/gender mix due to regional levels of unemployment (in both directions – when layoffs occur as well as increased hiring). These changes drive results, make historical data suspect, and lead to unexpected consequences.
    - Interactions between health and life/annuity products. Regulators and rating agencies would have special interest in the interaction with reinsurance providers (e.g., diversification benefits).
    - Interactions between health and property/casualty risks. There are both similarities and differences between health and P/C risks. Greater collaboration between the Health Section and the Casualty Actuarial Society is needed to learn from each other through networking opportunities and jointly sponsored seminars. Joint research projects could be coordinated through the Joint Risk Management Section.

- A strong risk culture provides a competitive advantage across all lines of business. The details as they apply to health insurance would benefit from some fleshing out through the following projects.

    - How to involve ERM in strategic and tactical planning process.
    - Research detailing what risk appetite is and how to implement it practically by involving the board and senior management.

    - Research about successful risk culture – this would probably be a case study detailing how a specific company had implemented a strong risk culture from top to bottom and generalizing it for others to apply.
    - Using ERM to identify opportunities. This could be a research project or share case studies where this practice has helped firms to make better decisions.
    - How ERM tools can be used to make better decisions and move towards risk optimization – this would involve both quantitative and qualitative analysis.
    - Develop leading key risk indicators (KRIs). Show how lagging KRIs add value but are not nearly so helpful in making timely decisions.
    - Combinations of emerging risks – what are you looking for that negatively, or positively, impacts your strategic plan

- Application of enterprise risk management to the balance sheet has some issues specific to health risks.

    - Role of capital (regulatory, rating agency, economic) in health pricing and regulatory filings. While quantitative capital models are not perfect, ignoring risk driven capital requirements can lead to poor decision making. For example, in the recent past residential mortgage-backed securities were pooled and tranched while investors and rating agencies ignored the systemic risks inherent in their structure.
    - Correlation between assets and liabilities (e.g., both disability claims and residential mortgage-backed securities are driven by unemployment rates)
    - Review of modeling techniques available for those who want to move toward economic capital.
    - Alternative methods to allocate capital – this could include a literature search of methods used by casualty insurers

Appendix I - Survey Results

A total of 22 survey responses were received, with 13 coming from health insurers. This relatively small sample size must be considered when making conclusions. Survey participants were selected based on their reputation for strong ERM practices, so these results are expected to be more representative of best practice companies rather than representative of the industry. Most of the consultants were asked to participate based on their Health Section Council membership, and the responses were sparse. Consultant comments are included in the results, but generally their answers were left blank.

Question 1: What type of work do you do?

13 – Health insurance company or health plan employee
8 – Consultant
1 – Other (Regulator)

Question 2: Does your company have a formal Enterprise Risk Management program, or are you involved with companies that have such a program?

Companies only

9 – Yes
4 – No

One consultant answered this question yes. There were a number of consultants who filled out the survey based on their participation on the Health Section Council rather than their expertise as ERM practitioners. Many questions were left blank and this is reflected, as appropriate, in the results.

For the 9 company actuaries answering Yes to Question 2,
Question 3: Which of these risks does it (they) consider?

9 – Pricing
9 – Operational
6 – Credit
8 – Equity
6 – Interest rate
9 – Strategic

The consultant who answered Question 2 Yes said that all 6 risks were being considered by clients.

For the 9 at companies answering Yes to Question 2,
Question 4: Are correlations between these risks (holistic analysis) considered?

5 – Yes
4 – No

Those who answered yes were asked to describe their practices. One firm calculates economic capital and noted that correlations are included in that analysis. Two companies reflected that they were early in the process of developing quantitative analysis around risk interactions. Two others prioritize risks informally but do not quantify correlations between risks.

The consultant who answered Question 2 Yes also answered Yes to Question 4 about correlations. The models implemented include some interactions between risks but for simplicity independence is assumed.

The next set of questions was asked of those who stated they had no formal ERM program.

Question 5: If the answer to question (2) is no, is there an informal ERM program?

Companies only

3 – Yes
1 – No

One consultant answered this question yes.

For the 3 at companies answering Yes to Question 5,
Question 6: Which of these risks does it (they) consider?

3 – Pricing
3 – Operational
3 – Credit
3 – Equity
2 – Interest rate
3 – Strategic

The consultant who answered Question 2 Yes said that pricing and strategic risks were being considered by clients.

For the 3 at companies answering Yes to Question 5,
Question 7: Are correlations between these risks (holistic analysis) considered?

2 – Yes
1 – No

Those who answered yes were asked to describe their practices.
When we do financial modeling of the portfolio, we bring all these risks together, but there is not a formal co-variance matrix that we use.

The consultant who answered Question 5 Yes answered No to Question 7 with the following comment.

The health plans that I consult with do not have a formal quantitative process of considering pricing or strategic risks. During their planning process, they will estimate the impact of pricing decision on future profitability. In a qualitative way, they will look at the impact of pricing decisions on their strategy and on their market position.

Question 9: If the answer to question 5 is no (no formal or informal ERM program), Are risk assessments of these risks conducted?

The one company actuary that answered no to Question 5 did not complete this question. Three consultant responses were

2 – Pricing
3 – Operational
0 – Credit
0 – Equity
2 – Interest rate
2 – Strategic

For the 1 company answering No to Question 5,
Question 10: Are correlations between these risks (holistic analysis) considered?

1 – No

The 3 consultants who answered Question 5 No all answered No to Question 10.

All respondents were asked,
Question 11: Is there a Chief Risk Officer?
Companies
6 – Yes
7 – No
Consultants
1 – Yes
5 – No

Question 12: Please describe why there is or is not a Chief Risk Officer?
Companies answering Yes
We implemented a formal ERM program at the beginning of 2007 and at that time we created the CRO position.

Establishes ownership for integrating ERM.

There is a CPA reporting directly to the CEO responsible for ERM and internal audit. The title was added to an existing position.

CFO is also the Chief Risk Officer.

This is not a separate position, but incorporated into the CRO's other duties. It was determined that this was an important function so a CRO title/function was added to that person's duties.

Companies answering No

This is an implicit position in the Finance area.

Enterprise risk is measured on a corporate level, but not within the relatively small insurance company as such a position would not be cost effective.

We have an Enterprise Risk Management Committee that is responsible for ERM oversight.

There is no one with the formal title of CRO, however, as the CFO (and Chief Actuary), I consider myself to be responsible for all aspects of Enterprise Risk. The CEO expects this as well as does the CEO of the Health System that owns the health plan. I have been CFO and Chief Actuary of two other companies since 1990 and considered risk quantification as part of my job function. The key difference is that we do not currently produce a holistic, aggregate, view of all risks.

ERM reports to General Auditor, who reports to the EVP and General Counsel.

ERM reports to CFO and the Audit Committee.

Consultants answering Yes
Some have person with that title, others assign either the CFO or the Chief Actuary with that responsibility.

Consultants answering No
No – we are consultants

ERM is a low priority right now due to other issues at the company, such as staffing and financial reporting problems.

Question 13: If the answer to question 11 is yes, for how long? (fill in number of years)
5 responses from Companies
1.5 years
2 years
3 years
4 years
Less than 5 years
6 years

Question 14: If the answer to question 11 is no, is it anticipated naming one within the next
Companies
- 1 - 12 months
- 0 - 3 years
- 6 - Not in our current plans

Consultants

All 5 consultants responding to this question stated that it was not in their current plans.

Section 1 – General

Question 1: How often is the company(ies) risk profile reviewed?

Companies

1 – Monthly
2 – Quarterly
3 – Annually
2 – Ad hoc
2 – Other

Other - Most risks are handled adequately as they arrive. A formal risk review process is conducted every 3 years or so.

We do dynamic financial testing every two years. Some individual risks are reviewed as often as weekly (e.g., marketing, claim administration, pricing); others monthly, quarterly, and annually.

Consultants

1 – Ad hoc
2 – Other

Other - quarterly, with more serious look annually

Question 2: What are the primary documents, if any, given to a new board member to describe the risks taken by the firm? List up to 3 or say None.

Survey 1
financial statements
risk appetitie statement (if on audit & compliance committee)

Survey 2
enterprise-wide risk list
10-k forward looking risk factors
BOD & Committee Agenda as informed by risk list

Survey 5
Quarterly meetings of audit committee include ERM material

Survey 6
I am unsure, but I assume adequate documentation is given

Survey 8 (Consultant)
None

Survey 9 (Consultant)
None

Survey 11
Annual statutory financial statement

Survey 12 (Consultant)
risk report
teaching session to be sure they understand it

Survey 14 (Consultant)
none

Survey 15
Not sure

Survey 17
Quarterly investment reports
Capital vs. required RBC reports
Reports on claim trend

Survey 19
None

Survey 20
ERM charter
Recent risk report

Survey 21
None

Survey 22
None

Survey 23
None

Question 3: Is this adequate?
Companies

- 6 – Yes
- 4 – No

Consultants

- 2 – Yes
- 3 – No

Question 4: Why or why not?
Survey 1
They should be given more details on the entire risk universe in order to get a better feel for all possible risks our enterprise are subject to.

Survey 2
Provides clear linkage between the agenda and risk

Survey 5

Not sure what is given to new board member but quarterly financial information shared with board is very thorough and annual plans and strategic plans are very thorough

Survey 9 (consultant)
We are a consulting firm. While we have to manage risk, it is of a different order of magnitude to that of an insurer.

Survey 11
Because our company only writes Medicare Part D business, such issues can easily be addressed within the statement of actuarial opinion.

Survey 12 (consultant)
Will probably increase in future but good start

Survey 14 (consultant)
ERM needs to be given a higher priority

Survey 19
We didn't have any new additions to the board in recent years. With changing environment it may be prudent to add risk appetite/policy related materials.

Survey 22
We have not gotten into extensive discussion of the overall management of risk by the corporation, but this should occur.

Question 4: Does the board address risk management?
Companies

9 – Yes
0 – No

Consultants

3 – Yes
2 – No

Question 5: If so, how?
Companies

7 – Formal board committee assigned ERM
1 – Senior manager reports ad hoc
0 – Board developing plan
0 – Not in current plans
3 – Other

If Other, please describe.
Senior manager reports per agenda
Audit Committee is also assigned ERM
Don't know

Consultants

1 – Formal board committee assigned ERM
1 – Senior manager reports ad hoc

0 – Board developing plan
0 – Not in current plans
3 – Other

If Other, please describe.
ad hoc discussions
SarBox
The Board addresses risk management only for the Life and Annuity products, not Health

Question 6: Does the incentive compensation scheme incorporate risk management?

Companies

5 – Yes
6 – No

If yes, how?
Incentives depend on achieving annual plan targets. All risks must be identified and mitigated for the target to be achieved.

Profitability and growth are key determinants for bonuses.

Not sure, though I believe the answer to the above question is no. (respondent did not answer yes or no)

Only to the extent that ERM is addressed in components of executive performance plans, which in turn affects merit raises. It does not affect bonuses per se.

Certain functional executives are held responsible for risks in their areas, but their incentive plans do use the terminology of risk

Treatments developed through risk assessments are added to senior managers' goals.

Consultants

1 – Yes
4 – No

If yes, how?
C-suite incentives

Question 7: How could the ERM program be improved? List up to 3 ways.

Companies

Survey 1
more consistent responsiveness of ERM committee members
better corporate wide awareness of existing ERM tools

Survey 2
Deeper integration into core management process
Expanded use of economic capital in decision making
Strengthened linkage to optimal risk limits

Survey 5
Better metrics

Better models

Survey 6
Every employee in a responsible finance and actuarial position should have training on the risk review process
There is a lot of scrutiny of specific risks, but to my knowledge there is no formal compilation and analysis of the risks

Survey 7
ERM used for decision making
When ERM becomes a way of doing business for an organization
Understanding true risk appetite and tolerance

Survey 11
If we were to implement ERM within the insurance company, as compared to our entire corporate group, it would be my job as valuation actuary to learn about the ERM procedures necessary for our type of company and then implement them.

Survey 15
Explicit factor tied to ERM measures

Survey 17
Needs to become a formal part of all strategic and tactical planning

Consultants
Survey 12
increased consideration of risks
more communication to all
review of assumptions to be sure it adequately measures risk

Survey 14
Needs to be formalized
Needs an officer assigned to implement a program
Consider all the risks when products are priced

Survey 20
ERM application
Ownership of ERM program and risk plans by the business
Development of leading indicators

Survey 21
More in-depth approach to risk identification
More quantitative/portfolio view of risk used

Survey 22
More formal analysis and quantification

Survey 23
More formalized

Question 8: What are the top 3 health industry risks? List up to 3.
Companies

Survey 1
national health care
economic conditions
RBC levels

Survey 2
Regulation & litigation
Public policy
Healthcare affordability

Survey 5
Trend
Pricing
Incorrect reserves

Survey 6
Ill conceived health care reform
The economy in general…fewer companies can afford health insurance so there is more anti-selection amongst those that do purchase insurance.
Autism - this is a very prevalent disease, the treatments are not well-defined and a very emotional disease. I expect to see more mandates which can not be adequately priced.

Survey 7
Health care costs
Regulatory/legislative

Survey 11
Pricing risk - Cost of health products can change erratically, which can lead to inadequate pricing.
Strategic risk. Mainly regulatory, as government could impose new rules that would adversely affect operations.
Operational risk. A company is only as good as its people. A mistake within operations could topple a company quickly.

Survey 15
Regulatory/legislative/reputational
Pricing/trend
Risk selection

Survey 17
Changes in federal and state laws (Medicare, Medicaid, Healthcare reform)
Cost shifting to health plans
Mandates and other underwriting reforms without adequate pricing or anti-selection measures

Survey 19
Economic downturn
health care costs
government regulations

Survey 20
Health care reform
Rising cost of healthcare

Increasing/complex regulations and mandates

Survey 21
Federal health care reform
Competitors
Utilization costs

Survey 22
Underwriting
National reform
Investments

Survey 23
Health care reform – government health insurance program
Economic recession
Ability to maintain competitiveness

Consultants

Survey 3
Regulatory
Operational
Economic

Survey 8
Operational risk - Improper denials, volatility in claim processing speed and mispayment of claims. Improper denials have resulted in large lawsuits judgments. Mispayment and volatility in claim processing have resulted in pricing not reflecting actual experience causing higher loss ratios due to lower than necessary price increases or higher lapse rates due to higher than necessary and than the competition.
Pricing and underwriting risk - incorrectly estimating future medical expenses or failing to accurately predict the risk profile of future new applicants
Provider contracting - over paying providers for services, paying too much for the wrong services, having an unattractive network of providers

Survey 9
Government intervention
Regulatory environment
The economy

Survey 10
UCR (usual, customary, and reasonable) litigation
Contracting
Liability

Survey 12
profitability, accurate IBNR (incurred but not reported claim reserve) estimates
asset fluctuation risk even though predominantly short term
changes in provider contracting and legislative changes to key operating principles (i.e., political risk)

Survey 14
Funding future claims for LTC
Keeping Medicare solvent

Financial impact of epidemics (e.g., swine flu)

Question 9: What are the top 3 risks, in your opinion, that can be addressed at the enterprise level of a company?

Companies

Survey 1

strategic (lines of business to enter, exit)
Investment policy
administrative expense management

Survey 2

Small but pervasive risks
Large risks
Long horizon risks

Survey 5

Trend
Strategic
Pricing

Survey 6

Pricing
Operational
Strategy

Survey 7

Strategic risk
Regulatory/Political
Product mix, link to company mission

Survey 11

Pricing risk
Credit risk
Equity risk

Survey 15

Pricing
Operational
Regulatory/legislative/reputational

Survey 17

In strategic and budgetary planning, the Enterprise needs to anticipate the risks cited in #8 (1) changes in law and #8 (3) mandates
Forecasted claim trend needs to anticipate the risk in #8(2) cost shifting as well as all the other aspects that affect frequency and severity of claim costs
Testing adequacy of capital under severe stress conditions

Survey 19

data integrity
execution of key initiatives
Strategic Network Management (provider network)

Survey 20
Health care affordability
Privacy/information security
Competition

Survey 21
Federal health care reform
Competitors
Utilization costs

Survey 22
Strategic
Operational
Pricing
Informal

Survey 23
Non-compliance with regulations
Privacy breach
Improper premium underwriting

Consultants
Survey 12
profitability forecasting
asset fluctuation, availability of credit
business risk/liability

Survey 14
Financial impact of LTC claims far in the future, and the buildup of reserves to pay those claims.
Adequacy of premiums on all health business
Quality of business submitted by agents

Question 10: Describe the risk culture at the firm (this includes leadership from board and CEO all the way down the organizational ladder, incentives that are aligned with optimizing risk relative to return, communication of risk goals, ethics).

Companies
Survey 1
Tone at the top is supportive (Board, CEO, Executive VPs, Senior VPs), but much work is needed to bring a risk based focus at lower levels of the organization.

Survey 2
Strong risk culture with an engaged Board and senior management team that is committed to risk/return management and the ethics of achieving a fair profit.

Survey 5
There is a strong risk culture, including leadership from the Board and CEO. Risk issues are identified in the annual and strategic plans. Plans are measured monthly and new forecasts are done each quarter. The company has a very high standard for ethics.

Survey 11

I don't know, but I am aware that at a corporate level, of which insurance is only a small part, it is considered.

Survey 15
I would describe it as emerging/developing. While risks are monitored and measured, risk optimization is not yet part of the framework, nor does ERM go below the board/executive level as an integral part of the company

Survey 17
Strong leadership and follow up from CEO regarding all aspects of pricing, reserving, network, claim administration risk. This is supplemented by strong follow up from the CFO (me) with functional heads of these areas as well as CFO leadership in strategic, investment, capital, and operational risks. The culture is moving fairly rapidly to a more formal one. The Board really doesn't ask questions in these areas until we present a specific initiative for their review. The risk culture, by and large, does not reach below director level, except in the financial areas (financial reporting and planning, actuarial services and informatics, and underwriting.

Survey 19
ERM was verbally endorsed by the Board, CEO and senior management. However risk management still needs to be incorporated in day to day activities of the company. In particular optimization of the risk taking. As well as proactive approach versus "putting out fires". Company-wide training of management on ERM concepts was conducted recently. Some of the comments received suggested that better communication of risk goals is needed.

Survey 20
The board and executive leadership are supportive of ERM, and management is starting to understand and see the benefits, however I would not say it is embedded in the culture yet.

Survey 21
Very strong risk-aware culture. Leaders are engaged in understanding risks. Very strong ethics awareness.

Survey 22
Informal.

Survey 23
ERM is embraced by Senior Management.

Consultants
Survey 9
We are a start-up company. Our concerns are staying in business/growing. Enterprise risk is much too nebulous a concept.

Survey 12
Varies from client to client. Most clients are doing a great job of this and take it seriously.

Survey 14
None

Question 11: Are there company turf issues over risk management topics?
Companies
3 – Yes

10 – No

Consultants

2 – Yes
4 – No

Question 12: Do you think ERM turf issues are common in the health industry?

Companies

7 – Yes
4 – No
1 – Not sure

Consultants

3 – Yes
2 – No

Question 13: Rate the ethical environment in your industry from 1 Ethically pure to 5 Ethically weak.

Companies (average 2.4)

2.5 – 1
6.5 – 2
2 – 3
1 – 4
1 – 5

Consultants (average 2.5 but lower volatility)

0 – 1
3 – 2
3 – 3
0 – 4
0 – 5

Questions 14: What is the current industry relationship with regulators?

Companies

Survey 1

Anxiety over possibility of national reform coming down from the new administration. We are a one state company, so we only have one set of state regulators to deal with.

Survey 2

Engaged but vulnerable

Survey 5

The relationship varies by state. In general, health insurance companies are not viewed well by regulators.

Survey 6

Varies greatly by state

Survey 11
It seems OK, albeit not great.

Survey 15
Mixed - good in some areas and very adversarial in others

Survey 17
generally good

Survey 19
It varies by state. New Jersey is highly regulated and politicized (much more than Nebraska)

Survey 20
We work closely with regulators, but the current environment makes the relationship tense.

Survey 21
Adversarial

Survey 22
Neutral to negative

Survey 23
Average

Consultants
Survey 3
Somewhat antagonistic

Survey 4
depends on state

Survey 8
Cordial

Survey 9
Not good

Survey 12
somewhat adversarial

Survey 14
Fair

Question 15: How does it compare relatively for your firm?
Companies

- 5 – Better
- 0 – Worse
- 7 – Similar
- 0 – Not applicable

Consultants

- 0 – Better
- 1 – Worse
- 2 – Similar
- 3 – Not applicable

Question 16: Describe the company's reputation from an outsider's perspective.

Companies

Survey 1

Excellent

Survey 2

I believe the company's reputation is sound and that it is viewed as part of the solution for the healthcare system.

Survey 5

The company is viewed negatively, as are all health insurers.

Survey 6

Fair to good

Survey 7

My company has an excellent reputation and is well known for their innovation

Survey 11

Reputation of the overall company is quite good. The insurance company is too small for outsiders to provide much feedback.

Survey 15

Poor - the health insurance industry is viewed as only interested in denying care to make money

Survey 17

My Company is in the news all the time as one of the top-rated health plans in the country for quality and customer service, and one that is mentioned frequently as a national example for initiating changes in the delivery and payment of medical services.

Survey 19

Because of the Blue Cross Blue Shield license the company is considered to be a high quality insurer.

Survey 20

I believe most people look favorably on our company, especially in comparison with competitors, however at this time the health insurance industry is taking a beating by the media.

Survey 21

Very customer-oriented. Provides high-quality service and products.

Survey 22
Leader in the state.

Survey 23
Local health insurance provider that cares about its customers.

Consultants
Survey 3
Good

Survey 8
Reputation varies between the different companies I work with . Most have a good reputation, however health plans/HMO's in general are not perceived positively by consumers.

Survey 9
We have a good reputation for expertise in our area of practice.

Survey 12
Excellent

Survey 14
Company may be seen as somewhat deficient in customer service.

Question 17: Who is the competition (briefly)?
Companies
Survey 1
United Healthcare and Coventry for most coverages, Mutual of Omaha and Physicians Mutual for Medicare Supp

Survey 2
Any health plan with a presence in the local markets we serve; any disruptive potential entrant.

Survey 5
Aetna, United, Healthnet, Blue Shield, other local HMOs

Survey 6
Blue Cross, Aetna, Cigna

Survey 7
The newer competition is organizations that want a piece of the health care dollar managing HSAs, PBMs and other allied health organizations that want to make inroads into the health arena.

Survey 11
Other Medicare Part D providers

Survey 15
other health insurers

Survey 17
Three different Blue Cross/Blue Shield plans, other regional health plans, and a couple of national plans (e.g., Coventry for commercial and Medicare, Aetna and United for TPA, and Humana and others for Medicare)

Survey 19
National carriers (e.g., Aetna, United)

Survey 21
Aetna, United, Regence

Survey 22
Other insurance plans

Survey 23
All health insurance companies that sell insurance in our state and potentially the federal government.

Consultants
Survey 8
Most of the health plans I work with are regional and their competition still tends to be regional. Each company's competition varies depending on their region and the strength of the three large national health plans in their region

Survey 9
Other consultants and internal resources

Survey 12
other health plans

Survey 14
Other companies who sell similar products, and the government

Question 18: How is risk management used to identify opportunities?
Companies
Survey 1
At this point, ERM is used more from a defensive, risk identification standpoint and we have not transitioned to using it from an offensive standpoint.

Survey 2
Where to spend or not; where to grow or not; when to price risk higher or lower.

Survey 5
Risks are identified as part of the planning process and strategies are developed to mitigate the risks.

Survey 6
On-going strategic discussions

Survey 11
Don't know if it is done here, though the upside potential for it certainly exists.

Survey 15
it isn't at this time

Survey 17
Weekly meetings of CEO, CFO, and heads of marketing, actuarial, and underwriting

Survey 19
Company is still struggling with embracing the idea of connecting opportunities with risk management

Survey 20
We try to identify opportunities through the same process as risk identification.

Survey 22
Risks are measured vs. rewards. Some risks are determined to have more upside risk than downside so they are 'taken' as opportunities.

Survey 23
Can be used in the strategic planning cycle and used to improve business processes and products.

Consultants
Survey 8
None of the companies I work with use risk management for that purpose.

Survey 12
Often times used to control chasing opportunities

Survey 14
Not at this time

Section 2 – Operational Risks

Question 1: Does the company (or industry in general if you do not work directly for a health plan) have a succession plan for the CEO and senior management team?

Companies

- 8 – Yes
- 1 – No
- 2 – Don't know

Consultants

- 2 – Yes
- 1 – No
- 1 – Don't know

Question 2: What questions related to operational risks asked by external stakeholders are difficult to answer, and why?

Companies

Survey 1

We don't have any issues addressing questions from external stakeholders

Survey 2

Anything predictive is difficult if market driven.

Survey 5

Why customer service cannot be improved. Why health insurance is so difficult to understand.

Survey 11

I have never gotten any such questions.

Survey 15

Most operational issues are fairly easy to address

Survey 17

We do not have a formal disaster recovery plan

Survey 19

Nothing in particular comes to mind

Survey 21

None

Survey 23

Unknown

Consultants

Survey 12

national health care and its impact

Survey 14

No such questions are asked

Section 3 – Balance sheet risks

Question 1: How is capital determined and allocated to the product lines at health plans? Share ratio or describe other method.

Companies (10 responses)

- 5 – Based on ratio of NAIC RBC formula
- 2 – Based on ratio of rating agency formula
- 7 – Other

Other

We do not currently allocate our RBC to product lines (multiple responses)

EC allocated

I believe it is an internally developed ratio, but I don't remember.

With just one product, all capital goes to back it.
NAIC is used to measure total risk, but it is not allocated to product lines
NAIC RBC formula is used for general analysis. We do not allocate capital to particular product lines.

Consultants

- 2 – Based on ratio of NAIC RBC formula
- 1 – Based on ratio of rating agency formula
- 1 – Other

Other

based upon combination of ratio of RBC and actual surplus requirement calculations

Question 2: How is liquidity risk dealt with?

Companies

Survey 1
Our investment policy has a large amount of cash and short term investments to handle any liquidity needs.

Survey 2
Targeted cash balances, short term investment allocation, and capital market activities, are set strategically, but driven tactically by environmental considerations.

Survey 5
Each business unit develops cash flow estimates as part of planning process.

Survey 11
Mainly through agreements with upline companies to provide support if liquidity becomes an issue.

Survey 15
Careful cash management - liquidity is not nearly the concern in medical insurance that it is for other types of insurance because we are a very active cash flow business

Survey 17
Frequent discussions and exchange of information with Treasury operations and our investment management firm

Survey 19
Since there is a relatively short timeframe between the occurrence of a claim and its submission and payment, there is no need to match asset maturities with specific liabilities. The Investment Policy is designed to provide the necessary liquidity to meet current liabilities. Also, illiquidity considerations are factored into product design.

Survey 21
Reserves

Survey 22
Investment allocation

Survey 23
Formalized cash management program and Investment Committee approved

Consultants

Survey 8

Liquidity risk is dealt with by holding a large percentage of the portfolio (usually over 50%) in cash and cash equivalents. Over 50% of the balance sheet liabilities have a duration of 1.5-2.5 months. Products are repriced annually.

Survey 12

asset mix

Survey 14

Keep enough short assets on hand

Question 3: Are interest rate risks managed?

Companies

- 9 – Yes
- 1 – No

Consultants

- 2 – Yes
- 3 – No

Question 4: Which measures of diversification are currently measured?

Companies

- 7 – Geographic
- 6 – Industry
- 3 – Contagion
- 2 – Other

Other

Survey 15

Market segment (group, individual, government plans, etc.)

Survey 22

Asset allocation

Consultants

- 3 – Geographic
- 0 – Industry
- 0 – Contagion
- 2 – Other

Other

Survey 8

I haven't seen any plans measure diversification.

Survey 10

Diversification is not handled quantitatively

Section 4 – Pricing discipline

Question 1: What methods/metrics do you use to perform cost-benefit analysis?

Companies

- 2 – Present value of premiums
- 5 – Statutory return on investment (ROI)
- 5 – Return on equity (ROE)
- 1 – Stochastic methods/CTE metric
- 0 – Stochastic methods/VaR metric
- 3 – Other

Other

Survey 11

Based upon claim experience via procedure that is regulatory mandated.

Survey 15

ROI on a GAAP basis

Survey 17

Present value of benefits vs present value of costs followed by sensitivity analysis, perhaps, using Monte Carlo simulation.

Consultants

- 1 – Present value of premiums
- 1 – Statutory return on investment (ROI)
- 2 – Return on equity (ROE)
- 0 – Stochastic methods/CTE metric
- 1 – Stochastic methods/VaR metric
- 1 – Other

Other

Survey 8

Products are priced/repriced annually with a profit percentage target for the year based on market/competitive considerations.

Question 2: Is pricing methodology consistent across all purposes? (acquisitions, internal new business, etc.)

Companies

- 5 – Yes
- 4 – No

Consultants

- 4 – Yes
- 0 – No

Question 3: If the answer to question 2 is no, why not?

Companies

Survey 1

New business is sometimes priced at a loss to land a strategic client from one of our competitors

Survey 5
Pricing methods vary considerably by geographic area as a result of large number of acquisitions.

Survey 6
Variation in the type of risks

Survey 15
Not sure how to answer this - we have different lines of business which are priced differently

Survey 17
distinction is made between new and renewal business

Question 4: Are new products reviewed by other areas in the organization? (looking for checks and balances early in the process) If yes, then describe.
Companies
9 – Yes
0 – No

Survey 5
Product development process includes sales, underwriting, actuarial, IT, operations, network management, and others.

Survey 6
We have a "stagegate" process that requires sign-off by impacted areas of the company including operations and actuarial

Survey 15
New products are a collaborative effort between various areas of the company

Survey 17
Every new product is reviewed by cross functional teams

Survey 19
Product development area works with Actuarial, Operations, Underwriting, Marketing and Legal departments to evaluate any potential issues up-front.

Survey 22
All applicable areas are included in analysis.

Consultants
3 – Yes
1 – No
No comments

Question 5: How are counterparty risks managed? (reinsurers, vendors, suppliers/providers)

Companies

Survey 1
We have a strong vendor management function.

Survey 2
Managed as aggregate exposure to a name

Survey 5
Procurement area handles vendors and suppliers, network management handles providers, actuarial and finance handle reinsurance.

Survey 6
Ad hocs

Survey 11
Not involved

Survey 15
Mostly on a credit basis

Survey 17
Formal contract review by functional area, legal, and finance with rules on who can sign what kind of contracts.

Survey 19
These risks are managed by Enterprise Vendor Management Office

Survey 22
Actively by appropriate personnel.

Survey 23
Unknown

Consultants
Survey 9
vendors are selected formally; generally those that we have prior relationships with

Survey 12
on a case by case basis

Survey 14
Not managed, other than looking at the reputation of the reinsurer

Question 6: Are alternative scenarios considered during the annual planning process?
Companies
    9 – Yes
    1 – No

Consultants
    3 – Yes

1 – No

Question 7: If yes (to question 6), What variables are adjusted?

Companies

Survey 2

Income statement variables

Survey 5

Membership, loss ratio

Survey 6

Growth, budget variation, etc.

Survey 15

membership growth, claims trend, business mix, share repurchase, interest rates

Survey 17

new membership, lapse assumptions, pricing, and claim trend assumptions

Survey 19

interest rate, unemployment, government reimbursement, provider reimbursement

Survey 22

Mainly membership and loss ratio experience

Survey 23

Unknown

Consultants

Survey 8

Projected membership, projected rate increases and medical trends are the variable usually adjusted in the scenario process

Survey 9

trend

Survey 12

reinsurance: thresholds and coinsurance levels, alternate carriers, etc.

Question 8: Are risks considered when exiting a block of business?

Companies

10 – Yes

0 – No

Consultants

3 – Yes

0 – No

Section 5 – Asset risks

Question 1: Does the risk management process incorporate common asset risks such as credit, equity, and interest rates?

Companies

- 10 – Yes
- 0 – No

Consultants

- 2 – Yes
- 2 – No

Question 2: Is someone accountable for results of the surplus account?

Companies

- 9 – Yes
- 0 – No

Consultants

- 2 – Yes
- 2 – No

Section 6 – Learnings

Question 1: What has been learned based on your Enterprise Risk Management/Risk Management practices over the recent few years? List up to 3.

Companies

Survey 1

Buy in takes more time than we initially thought
Scoring and prioritizing the universe of risks took longer than we expected.

Survey 2

No one size fits all
Need decision making relevance
Also management commitment

Survey 5

Attention needs to be paid to operational issues.

Survey 6

Track all the risks, even ones with a small probability of payout
The value of realistic projections and estimates
It matters…something we should pay attention to

Survey 11

I have not formally been involved in ERM/RM practices, but I certainly have identified issues that present potential risks for this type of insurance.

Survey 17

Pricing risk is much bigger than investment risk

Recasting claims is crucial to understanding the business
Claim reserve techniques have been adequate

Survey 19
It is relatively easy to formally introduce ERM but it is difficult to embed it into the culture.
Strong leadership from the top is needed; open communication is the key.
Operational risks are difficult to model.

Survey 20
Some significant risks have been identified and communicated, and mitigation plan developed.

Survey 22
Refining of risk approaches and responses.

Survey 23
Still developing practices

Consultants
Survey 12
ERM is important
translating into something a client can readily understand is key

Survey 14
LTC products may have been mispriced
Med supp increases may be deficient
Guaranteed issue life product may have been mispriced

Section 7 – Emerging risks

Question 1: Describe the process to scan for new risks.
Companies
Survey 1
Educate cross functional work groups on risk universe so they can let us know if new risks emerge. Blue Cross Blue Shield Association survey results identify emerging risks.

Survey 2
Planning & forecasting process, internal management reporting

Survey 5
Environmental scan done as part of annual strategic planning process

Survey 6
On-going, day to day analytics and business reviews

Survey 7
Good process of planning, identification and monitoring of risks.

Survey 11
I am not involved with it.

Survey 15
Annual surveys of executives and key employees, quarterly discussions at the executive level

Survey 17
Not a good process - usually brain storming around Board meeting agenda

Survey 19
Emerging risk committee was created

Survey 20
Meet with various departments, integrated with other 'risk focused' areas, industry research, marketplace information.

Survey 21
Interview risk area executive sponsors.

Survey 22
Monitoring of current events, other's experiences

Survey 23
Top down approach – conduct formal risk assessment with senior management. Bottom up approach – give employees the opportunity to identify risks in their area.

Consultants
Survey 8
None of the plans I work with have a formal process in place to scan for emerging risks.

Survey 10
None

Survey 12
continued review of risks, brainstorming sessions

Survey 14
None

Question 2: Are events identified that would make a firm insolvent?
Companies
- 8 – Yes
- 5 – No

Consultants
- 1 – Yes
- 2 – No

Question 3: Are steps taken to mitigate these severe risks?
Companies
- 8 – Yes
- 0 – No
- 4 – Not applicable, answered no to question 2

Appendix II: Survey

Questionnaire for Health ERM Survey 2009

The Society of Actuaries' Health Section has commissioned a research project to examine the current state of enterprise risk management in a health context, with an aim of informing future related efforts. The SOA has adopted the following definition for enterprise risk management.

ERM is the discipline by which an organization in any industry assesses, controls, exploits, finances and monitors risks from all sources for the purpose of increasing the organization's short- and long-term value to its stakeholders.

A current example of how ERM would impact health insurers will help provide context for this survey. Clearly, health insurers have been impacted by the recent financial crisis. Their assets have been written down or defaulted; public health insurance companies have had their market value significantly reduced; and revenue has been reduced as employees lose their jobs and group health coverage. A manager who deals with these risks at the company level, including considerations of the risk interactions, is practicing enterprise risk management. However, a manager could be practicing effective risk management on an individual risk or in a silo type of organizational structure, yet not be practicing ERM because it is not across multiple risks or at the corporate level.

This survey contains both multiple choice and fill in the blank questions. The goal is to identify the current state of the health industry related to enterprise risk management, as well as identify holes in current practice that could lead to future research. Responses do not need to be lengthy, and the survey should not take more than an hour to fill out. The researcher also plans to follow up with respondents to better understand their answers and document best practices. In order to encourage open responses, the names of respondents and their companies will not be included in the report. The Health Section thanks you for helping to improve the current state of ERM in the health industry. Some of the respondents will be asked to participate in a follow up phone survey and we hope you are open to this discussion as well.

Survey Questions

Respondents are expected to include a diverse range of experience. Because of this, first we want to categorize your responses by the type of stakeholder you are.

Preliminary Questions – Current Status of Practice

For this survey, risks have been consolidated into several primary categories consistent with frameworks developed by financial services regulators, rating agencies, actuaries and accountants. What follows is not meant to be complete, only to provide some guidance as you complete the survey. Please read the brief descriptions that follow prior to proceeding.

- Pricing risk: Insurers accept risk by modeling contingent events. This risk reflects that models, both qualitative and quantitative, are not perfect reflections of reality. Examples: group major medical plan pricing
- Operational risk: As a firm transacts business, this risk covers events that prevent full execution of a business plan. Examples: legal risk, fraud, processing errors
- Credit risk: When a debtor does not fulfill a repayment promise or the likelihood of future repayments becomes materially less. Example: default of a bond
- Interest rate risk: Movements in interest rates can impact results. Mismatches in asset and liability cash flows create risk. This includes the surplus account of an insurer. Example: assets backing long term care policies payable many years in the future are invested in short maturity securities.
- Equity risk: Stock market investments may be volatile or drop in value at an inopportune time. Example: investments in a broad stock index
- Strategic risk: Business plans are impacted by external events as well as management's plans. Examples: political/regulatory risk, internal 5 year plan

1. What type of work do you do?

☐ Health insurance company or health plan employee
☐ Consultant
☐ Academic
☐ Health provider employee
☐ Other

If Other, please describe. Enter response here

2. Does your company have a formal Enterprise Risk Management program, or are you involved with companies that have such a program?

☐ Yes
☐ No

If the answer to (2) is yes, then answer questions 3 and 4. If no, proceed to question 5.

3. Which of these risks does it (they) consider? (Check all that apply.)

☐ Pricing
☐ Operational
☐ Credit
☐ Equity
☐ Interest rate
☐ Strategic

4. Are correlations between these risks (holistic analysis) considered?

☐ Yes
☐ No

If the answer to (4) is Yes, briefly describe. Enter response here

Go to question 11.

5. If the answer to question (2) is no, is there an informal ERM program?

☐ Yes
☐ No

6. If the answer to question 5 is yes, does it include these risks? If the answer is no, then go to question 9. (Check all that apply.)

☐ Pricing
☐ Operational
☐ Credit
☐ Equity
☐ Interest rate
☐ Strategic

7. Are correlations between these risks (holistic analysis) considered?

☐ Yes
☐ No

8. If yes, go to question 11. If no, then why not? Enter response here

9. If the answer to question 5 is no, Are risk assessments of these risks conducted? (Check all that apply.)

☐ Pricing
☐ Operational
☐ Credit
☐ Equity
☐ Interest rate
☐ Strategic

10. Are correlations between these risks (holistic analysis) considered?

☐ Yes
☐ No

11. Is there a Chief Risk Officer?
☐ Yes
☐ No

12. Please describe why there is or is not a Chief Risk Officer? Enter response here

13. If the answer to question 11 is yes, for how long? (fill in number of years) Enter response here

14. If the answer to question 11 is no, is it anticipated naming one within the next
☐ 12 months
☐ 3 years
☐ Not in our current plans

Section 1 - General

1. How often is the company(ies) risk profile reviewed?
☐ Monthly
☐ Quarterly
☐ Annually
☐ Ad hoc
☐ Other
If Other, please describe. Enter response here

2. What are the primary documents, if any, given to a new board member to describe the risks taken by the firm? List up to 3 or say None.
    1. Enter response here
    2. Enter response here
    3. Enter response here

3. Is this adequate?
☐ Yes
☐ No

Why or why not? Enter response here

4. Does the board address risk management?
☐ Yes
☐ No

5. If so, how?

☐ Formal board committee assigned ERM
☐ Senior manager reports ad hoc
☐ Board developing plan
☐ Not in current plans
☐ Other

If Other, please describe. Enter response here

6. Does the incentive compensation scheme incorporate risk management?

☐ Yes
☐ No

If yes, how? Enter response here

7. How could the ERM program be improved? List up to 3 ways.

1. Enter response here
2. Enter response here
3. Enter response here

8. What are the top 3 health industry risks? List up to 3.

1. Enter response here
2. Enter response here
3. Enter response here

9. What are the top 3 risks, in your opinion, that can be addressed at the enterprise level of a company?

1. Enter response here
2. Enter response here
3. Enter response here

10. Describe the risk culture at the firm (this includes leadership from board and CEO all the way down the organizational ladder, incentives that are aligned with optimizing risk relative to return, communication of risk goals, ethics) Enter response here

11. Are there company turf issues over risk management topics?

☐ Yes
☐ No

12. Do you think ERM turf issues are common in the health industry?

☐ Yes
☐ No

13. Rate the ethical environment in your industry from 1 Ethically pure to 5 Ethically weak.

- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5

14. What is the current industry relationship with regulators? Enter response here

15. How does it compare relatively for your firm?

- ☐ Better
- ☐ Worse
- ☐ Similar
- ☐ Not applicable

16. Describe the company's reputation from an outsider's perspective. Enter response here

17. Who is the competition (briefly)? Enter response here

How is risk management used to identify opportunities? Enter response here

Section 2 – Operational risks

1. Does the company (or industry in general if you do not work directly for a health plan) have a succession plan for the CEO and senior management team?

- ☐ Yes
- ☐ No
- ☐ Don't know

2. What questions related to operational risks asked by external stakeholders are difficult to answer, and why? Enter response here

Section 3 - Balance sheet risks

1. How is capital determined and allocated to the product lines at health plans?

- ☐ Based on ratio of NAIC RBC formula
- ☐ Based on ratio of rating agency formula
- ☐ Other

Share ratio or describe other method. Enter response here

2. How is liquidity risk dealt with? Enter response here

3. Are interest rate risks managed?

- ☐ Yes
- ☐ No

4. Which measures of diversification are currently measured?
☐ Geographic
☐ Industry
☐ Contagion
☐ Other
Describe if other Enter response here

Section 4 - Pricing discipline

1. What methods/metrics do you use to perform cost-benefit analysis?
☐ Present value of premiums
☐ Statutory return on investment (ROI)
☐ Return on equity (ROE)
☐ Stochastic methods/CTE metric
☐ Stochastic methods/VaR metric
☐ Other
If other, describe. Enter response here
(CTE is conditional tail expectation, also called Tail VaR or shortfall expectation
VaR is Value at Risk)

2. Is pricing methodology consistent across all purposes? (acquisitions, internal new business, etc.)
☐ Yes
☐ No

3. If the answer to question 2 is no, why not? Enter response here

4. Are new products reviewed by other areas in the organization? (looking for checks and balances early in the process)
☐ Yes
☐ No
If yes, then describe. Enter response here

5. How are counterparty risks managed? (reinsurers, vendors, suppliers/providers) Enter response here

6. Are alternative scenarios considered during the annual planning process?
☐ Yes
☐ No

7. If yes, What variables are adjusted? Enter response here

8. Are risks considered when exiting a block of business?
☐ Yes
☐ No

Section 5 – Asset risks

1. Does the risk management process incorporate common asset risks such as credit, equity, and interest rates?

☐ Yes
☐ No

2. Is someone accountable for results of the surplus account?

☐ Yes
☐ No

Section 6 - Learnings

1. What has been learned based on your ERM/RM practices over the recent few years? List up to 3.

    1. Enter response here
    2. Enter response here
    3. Enter response here

Section 7 - Emerging risks

1. Describe the process to scan for new risks? Enter response here

2. Are events identified that would make a firm insolvent?

☐ Yes
☐ No

3. Are steps taken to mitigate these severe risks?

☐ Yes
☐ No
☐ Not applicable, answered no to question 2

Section 8 - Follow up Questions

1. What is your name and contact information (optional)? Responses will not be attributed to a company or person in the report.

    Name Enter response here
    Phone Enter response here
    Email Enter response here

2. Are you willing to be contacted to follow up on some of these questions via phone by our researcher (Max Rudolph, FSA CERA)? He has been asked to develop best practices and identify holes in current practice.

☐ Yes
☐ No