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HRG Assessment

Enterprise Risk Management and Insurance

What is the industry thinking?

Executive Summary

During the past few years, Enterprise Risk Management (ERM) has become a hot topic across America, especially in the insurance industry. Harvard Research Group (HRG) recently conducted research on Enterprise Risk Management through interviews with executive-level decision makers in the insurance industry. We were particularly interested in understanding the business drivers underlying enterprise wide risk management in the insurance industry, how they have evolved over the past few years and what industry decision-makers are saying about the future. In addition, we were interested in understanding what benefits risk management systems and processes provided to insurance enterprises and how these benefits may be changing.

These interviews included discussions with several Chief Risk Officers (CRO), Senior Line-of-Business Managers and Senior Actuaries in the insurance industry including both stock and mutual companies and Life, P&C and Multi-line companies.

Based on these interviews, HRG believes ERM in the insurance industry is being driven by a number of correlated factors including :

- With varying degrees, each interview indicated that the major business driver for ERM focused on "anything that threatens the enterprise's business objectives" or the "need to manage the business strategically is [the] most important [driver]" as one CRO indicated. Risk management has evolved significantly during the past few years from a narrow, technical discipline to being considered an integral part of an enterprise's business. ERM is rapidly becoming a way of managing a business while governance and organizational models are struggling to deal with this fact.
- ERM has not been simply a "response to 9/11 or Katrina"; in fact, these "jump events" as one CRO put it, are secondary drivers, certainly considered but not the "raison d'etre" of their ERM strategy. This is contrary to conventional wisdom which assumes that the recent volatility in the world at large is the primary driving force. ERM is here to stay and would be here regardless of these "external factors".

Enterprise Risk Management (ERM) has drawn considerable interest during the past few years in all areas of the insurance industry. What are the critical business drivers, both internal and external, leading senior management to examine ERM with focused attention? What benefits do they see in deploying an ERM approach? Harvard Research Group (HRG) conducted in-depth discussions with senior management in the insurance industry to answer these questions. The interest is being driven more on a need to "run the business strategically, providing a flashlight on areas of the business in a systematic way" than as a response to external events such as 9/11. ERM has moved beyond a technical discipline and into the mainstream as a strong approach to offering enterprises a more consistent, defined way to intelligently make capital, investment and product decisions and run their increasingly complex businesses.

- Standards bodies and ratings agencies play a major role as business drivers but their importance varies depending on whether the insurance enterprise is a stock vs. a mutual company. Long-term policyholder loyalty and satisfaction are more important for mutuals, but ratings agencies such as S&P, Fitch, Moody's and AmBest are significant drivers for stock companies, with more focus on short-term results.
- Government standards bodies and de facto standards such as National Association of Insurance Commissioners (NAIC) Financial Regulation Standards and Financial Accounting Standards Board (FASB) Statement 159 primarily play an "influencing" role in the Americas, particularly in guiding ratings agencies rather than specific insurance enterprises. In a couple of cases, state-mandated standards played a major role at a statutory level.
- "Volatility" in the market is a major business driver and forces insurance companies to continually analyze the competitive landscape, both in the product/liability side of the business as well as for the investment side. Our research indicates that insurance companies were learning from financial institutions, particularly on the asset and investment side but were not simply following them because of the significant differences in the two business segments.
- Transformative leaps in information technology as well as how insurance companies handle pensions is also becoming major new business drivers.

Given these complex and intertwined business drivers, what specific benefits do risk management systems and processes provide for insurance companies? In essence, what are their needs? Our survey results indicate:

- Planning and control are foremost as benefits, not surprising since one of the evolving drivers for ERM is the need to manage the enterprise "strategically". ERM helps to compare business lines. Risk management systems are helping to "run the business" literally and often are viewed as integral decision support or business intelligence (BI) systems. All interviewees indicated that ERM systems can help integrate disparate lines-of-business and allow a way of correlating and comparing risk across the enterprise. Nevertheless, it is absolutely essential that risk be tactically managed at the level it is taken.
- Along with planning and control, ERM systems provide both an explicit and implicit framework for establishing "consistency" and internal standards for defining and integrating risk management terms, metrics, processes and reporting thereby reducing overall cost and establishing an enterprise-wide level of discipline.
- The ability to model both economic and regulatory capital were absolutely essential benefits of a risk management system. Every interview indicated this ability was a major benefit of any ERM system. Regulatory is more straightforward than economic capital.
- The ability to sharpen overall product development and establish a competitive differentiator was considered a major benefit of ERM systems.
- ALM was considered an important benefit but the ability to actually model insurance liabilities was considered a difficult task.
- Our research also shows that prediction modeling such as demographic analysis as a key benefit to an ERM system particularly related to catastrophe event simulations.
- Finally, the ability to perform "trade-off" decision modeling of future re-insurer partners was also considered a key benefit and one which will become more prominent in the future.

HRG also discussed how ERM is organized within the insurance companies with these key decision makers and how corporate governance of risk management is approached. We concluded :

- There was no current single organizational model for ERM. Responses ranged from some enterprises having a single Chief Risk Officer (CRO) and an integrated, cross-business, functional risk team to some enterprises having no overarching risk officer with risk management efforts de-centralized.
- Across all interviews however, communication, both top down and horizontally across investment, asset management and product/liability lines-of-business, was essential with an integrated team at the Board level or the CFO level making ultimate discussions regarding risk management strategies and choosing risk scenarios.
- The majority of interviews all indicated that the enterprise must “buy into” risk management as an integral part of the corporate culture. It should be imbued within everyone’s job description. Some interviewees indicated that it must also be managed tactically at the business unit level with responsibility residing there, particularly if the organization includes a CRO framework. Often, the enterprise can get lazy and push responsibility “up” to the CRO without accepting accountability. All those interviewed felt that operational risk management was either integrated into their enterprise or needed to be.
- Finally, a governance model must ensure that ERM be bought into by the CEO and highest level of management and not be considered a “necessary evil”, as one interview mentioned, or simply another “corporate initiative” like so many Quality Initiatives which failed in the late 80’s and 90’s.

Lastly, many of the executives interviewed clearly felt that they received a return on investment, or “value” from risk management systems even though it was often difficult to quantify. Everyone had some form of internally developed set of risk management tools but would seriously consider vendor-based solutions, and pay for them, particularly if the enterprise scale and assets under management demanded a more robust solution. As one CRO said: “insurance companies can no longer treat [risk management] as just a cost center”.

Table 1 - Key Business Drivers and Benefits of ERM derived from research

Key Business Drivers for ERM	**Key Business Benefits of ERM**
Internal Need to Strategically Drive Business	Planning and Control – strategic and operational
Standards Bodies and Regulatory Agencies	Provides Consistent risk framework
Market Volatility	Consistently models economic and regulatory capital
Competitive Drivers	Sharpens product and revenue development
Technology Leaps	Optimizes hedge fund decision support
Pension Management	ALM modeling
Catastrophic Events important but not primary	Prediction modeling such as demographic analysis
	Re-insurance partnership modeling

HRG believes that ERM in the insurance industry is an evolving issue, and it has becoming much more fully integrated into both the strategy and everyday execution of an enterprise’s business. The benefits derived from ERM systems and processes include sharpened overall planning and control of the enterprise’s business, a major weapon in differentiating their increasingly complex businesses and the ability to consistently and dynamically make capital decisions based on both evolving statutory and market conditions. Decision makers in the industry agree that vendor-based solutions, assuming they are also flexible, will play a critical role in defining this evolution, particularly in providing a framework. The rest of this paper will examine these findings in more detail.

Key Business Drivers Underlying Interest in ERM – *Discussion*

Internal Drive To Run the Business Strategically

What is driving the accelerating interest in ERM within the insurance industry? There is a general consensus among interviewees that risk management, which has always been a concern for insurance companies, is in the process of being treated as an integrated set of tools, techniques and "best practices". It is moving away from being purely a highly technical area and more toward a broad set of capabilities which can manage the business of the enterprise at, across and above single lines of business. A primary business driver, therefore, is an internally driven need to "strategically manage the business", "supporting the enterprise's [overall] business objectives" as one CRO indicated. Our research indicates that "risk management is a strategic [issue], not a compliance one". In this sense, risk management systems are looking more like a decision support system, a BI framework since it can touch so much of the overall enterprise. This will impact how insurance enterprises do business since many have traditionally been firewalled into disparate lines-of-business. Proper implementation and execution of ERM systems will by definition require a change in how companies are organized and do business across lines-of-business, forcing much stronger asset liability management. In the final analysis, it is important to remember that the business of insurance is ultimately the "assessment and management of risk". It is only natural that interest in risk management at a strategic, enterprise level would evolve from simply being an actuarial tool.

Insurance companies are very complex and not monolithic in terms of businesses and offerings. The complexity of the business is critical to the approach to risk management. A number of CROs interviewed indicated that a holistic risk management approach in insurance companies must include the ability to model a complex business "simply" and "take into account the diversity of the insurance portfolio beyond traditional investment and liability scenarios including businesses that are not even directly related to insurance but which are integral components of the insurance company". Additionally, there is a consensus that operational risk management can not be treated as separate and is integral to each line of business and needs to be a significant component of an enterprise's overall ERM strategy beyond asset revenue management, product/liability and investment functions. Everyday management of risk was considered just as important as strategic management of credit, market and investment risk. Ultimately, as one Head of Risk Management indicated, the key business driver for risk management is "the long-term value [you get] by keeping your business in shape", ensuring the enterprise's financial and operational risk is in line with the their risk appetite.

Response to Extreme Events

Although 9/11, Katrina, terrorism, global warming and other "extreme events" certainly contribute to the increased interest in ERM, most interviewees considered these as secondary or even tertiary drivers. They stressed that these scenarios need to be always considered, particularly to estimate both economic and regulatory capital, but are not the exclusive driver of interest. An important corollary driver learned from these scenarios however is an increased focus on demographics or "concentrations" – what is the impact on the enterprise of insurance coverage, payouts and investments within certain geographic areas and what can be learned from these scenarios which can be used to balance other parts of the business? Risks can never be assessed separately but are often correlated in ways which are not always obvious. Some interviewees indicated that these kinds of risks need to be differentiated – are they asynchronous, outside the industry or a potentially predictable industry dislocation such as the recent accounting and options trading scandals in the financial industry? Finally, these types of events have a direct impact on operational risk management metrics.

One Head of Portfolio Management felt that the interest in enterprise wide risk management in the insurance industry clearly predated 9/11. It is a "broad trend going back at least to the 90's" built in part on financial industry heavyweights such as JP Morgan and Goldman Sachs.

Ratings Agencies and Regulatory Standards Bodies

Everyone indicated that standards bodies, regulatory agencies and ratings agencies all played a role as business drivers for ERM. However, the degree to which they actually impact ERM in the enterprise varies considerably. Ratings agencies in general are more of a factor in the US than any specific standards or regulatory agency. How are they a factor?

First, the rating agencies clearly see ERM as an increasingly important factor when rating insurance companies and all of the interviews indicated that. They look for financial integrity and an increasing "compliance" to a risk management framework as well as enterprise-specific Sarbanes-Oxley (SOX) compliance. The investment side of the insurance business is generally far more concerned with credit agency ratings and several of the interviewees on the investment side considered ratings agencies as "critical drivers". Stock insurance companies, who by necessity, are more short-termed focused than mutual insurance companies, clearly felt ratings agencies were critical drivers. Mutual companies felt that long-term policyholder satisfaction, loyalty, "persistence", were more important. As one interviewee indicated, "anything that would adversely affect their policyholders is considered a key business driver" for risk management.

Second, ratings agencies in the US often are thought of as setting "de facto" regulations and have a role in setting risk management definitions and metrics, although no one wanted to say outright that ratings agencies were dictating "best practices". A more positive way to say it would be that "they provide "an explicit framework for risk management goals". The ratings agencies themselves are "pulling pages from Solvency II [Europe]" as one CRO indicated. Solvency II, Basel and other European regulatory standards bodies have clearly had influence on insurance enterprises' strategy for risk management both directly and indirectly through US rating agencies as indicated. There was a decidedly mixed view of this development. Some of those interviewed indicated regulatory standards were a good thing, good for "discipline" and providing consistency in the industry. However, others felt that there could be a negative impact, that adherence to these standards may "force" a company to maintain more regulatory reserves, for example, and be at a competitive disadvantage. One Head of a Line-of-Business indicated that regulatory bodies played an important but somewhat secondary role offering "arcane definitions and formulas" but companies often prefer to "do their own thing". Risk management systems do play a role in helping formulate consistent *market-driven* standards. Everyone agreed that regulatory and standards bodies will only continue to provide increased influence as business drivers. The agencies help to stimulate internal interest in risk management and demand in the company especially in implementing operational risk management tactics.

Additionally, for some of the insurance companies interviewed, particularly the smaller, more regional ones, state regulators play an important role in driving ERM in their companies. State regulators are playing an increasingly more disciplined role in assessing the risk management practices of insurance enterprises and evaluating their "writings to surplus" ratios. Our research also found some need for a set of consistent Federal guidelines cutting across states. There needs to be "more Federal oversight" and "the next big one" may eventually force this.

Finally, regardless of Solvency II, some of those interviewed felt that there will be a continuing trend toward caution for Risk-Based Capital (RBC) models with no sign of this changing in the near term. This is why ALM is a front-burner issue – insurance enterprises need to learn how to use capital subject to RBC constraints. Any ERM system needs to include this as a given. One interviewee expressed this as a significant driver for future risk management approaches – how to deal with a more cautionary trend toward modeling capital.

Changing Market Landscape and Competitive Differentiation

Consistent with the fact that managing the overall enterprise "strategically" was an important business driver, interviewees also indicated that the volatility in both the insurance industry as well as the economy as a whole were very important drivers for their interest in risk management. In particular, the competitive landscape was a very important driver. As will be discussed later, a key benefit of ERM systems is to be able to point toward differentiation in investment and product/liability offerings and strategies. Once again, mutual companies, as opposed to stock companies, felt that industry volatility and short-term financial focus were less important drivers. Mutual companies however took account of competitive differentiation as a driver, but defined in more long term equity investment strategies and overall impact on their loyal policyholders. Stock companies were continually faced with market volatility and its impact on shareholders. This was a major driver for risk management. Complex, multi-line companies also felt that the definition of the competitive landscape has changed with insurance being a far more diverse and complex business from just a decade ago and risk management needs to include diverse businesses which only bear a resemblance to insurance. This will pose a major challenge.

Competitive differentiation as a business driver was clearly felt to be more significant for the product/liability side of the business rather than the investment side. As one Senior Investment Manager put it, "investments are investments". Efficient, optimized balancing of product portfolios will be a major driver for risk management in the future. However, one Head of Portfolio Management, supported by other interviews, indicated that competition was probably the number one driver for his investment line-of-business as well. This was due to the fact that there was "less spread" available than in the past and insurance companies "need to be much more creative. We are not being paid a large premium to take a risk anymore". He felt ERM systems are a necessity in this climate and provide a more exacting approach to assessing hedging strategies as competitive differentiators. The external market was in fact forcing them to examine risk management approaches more carefully than the past. He also felt that utilizing a risk management system for assets was probably the first step in an deploying an enterprise-wide risk management system, before liabilities, in part because it was easier to model scenarios. However, it was only the *first* step.

Competitive pressures are also driving enterprises to re-assess their risk-based economic and regulatory capital models regardless of externally-imposed regulations.

Learning from Financial Industry

Insurance enterprises are increasingly taking on characteristics of financial institutions in terms of their business lines and investment strategies. What role do financial institutions play as business drivers, influencing risk management approaches inside insurance enterprises? Is the insurance industry adopting the same approaches to modeling risk as financial institutions who have led the way during the past decade?

One CRO believes that the financial industry is clearly influencing insurance companies, particularly the investment and asset management side of the business. As he puts it, "the bleed is happening and I sense the [current gap between financial and insurance approaches] will close sooner than later." The financial industry has always taken a more market-oriented approach to calculation of capital and reserves and this, coupled with market volatility, is moving insurance to examine their own methodologies. In particular, the asset side of insurance is borrowing approaches to market risk, utilizing models that quantify a fair value for assets and how this fair value changes over market conditions. Our research also shows that insurance companies are borrowing approaches from pension management, another important driver over the next few years. Insurance companies themselves are hiring risk management specialists from financial and pension management institutions to give them more immediate expertise and a shorter learning curve.

Although the interviews indicated that insurance companies are learning from financial institutions regarding risk management, many interviewees also felt insurance business was different enough that insurance-specific standards are evolving, particularly for the Liability/Product side. The interviews stressed that the insurance companies are continuing to look at financial institutions for "best practices", not necessarily specific analytical tools and modeling techniques.

The mutual companies interviewed felt that they did not follow the financial industry lead on risk management. They felt that the financial industry is significantly different from a mutual insurance company. Mutuals are less quick to “jump on new products and businesses”, as one interviewee put it, and have a much more long-term financial focus. They measure their risk management success as “satisfaction to the policyholder rather than Wall Street”.

The insurance industry’s increasing emphasis on risk management also stems from Sarbanes-Oxley (SOX) compliance which emanated in part from the scandals and “irrational exuberance” in the financial industry during the late 90’s.

Others

A number of other specific business drivers were brought up during the course of the interviews which are important to the industry. Among them :

- How insurance companies handle pensions is also becoming a major business issue as is how re-insurance is handled, particularly related to the risk of implementing partnering strategies. Both of these are industry-specific drivers which risk management systems need to consider.
- Transformative leaps in information technology are another new and somewhat unpredictable driver. The use of Web Services and the Internet in general are changing the nature of the insurance business forcing companies to have “continuous, real-time interaction with clients …. [forcing companies to] report not quarterly or monthly but in real-time” as one interviewee said. This means the enterprise can be in a “radically different spot during the month.” Risk management will be driven by these needs for more currency in operations.
- One mutual company interviewee indicated that their “policyholders” were actually a primary business driver for their risk management initiatives and their largest and most influential policyholders were actually demanding demonstrable risk management policies.

Table 2 - Key Differences in ERM Business Drivers - Stock vs. Mutual Companies

Stock	**Mutuals**
Short-term financial goals	Longer-term financial goals
Influenced by Credit Rating Agencies	Policyholder-driven ERM goals
Intense Competitive Differentiation	Less Product Differentiation
Directly focused on market-driven economic capital modeling	More apt to incorporate standards-based ERM capital modeling

Key Benefits of ERM – *Discussion*

As our interviews confirmed, the insurance industry has seen a significant industry-wide increase in interest for ERM. Enterprises are being driven both internally and externally to embrace a risk management framework and several have undergone substantial organizational changes to implement a framework. Given this trend, what value do insurance enterprises actually see in embracing ERM? Are there specific benefits to deploying ERM systems, processes and “best practices”? A CRO interviewed asked “Does the risk management system [framework] provide a *service* or not? Would [my enterprise] go out of business without a risk management system in place?” His answer to both questions was “yes”. That is the ultimate benefit. This is a considerably different view from a few years ago.

Planning and Control

The most widely viewed benefit advanced from the decision makers interviewed focused on the benefits of planning and control that risk management, specifically enterprise-level risk management offers. This planning and control function may be most obvious at a line-of-business or functional level but several responses indicated that insurance companies will get the most benefit from risk management at the cross-business, enterprise level.

One CRO viewed a ERM system as essentially a "dashboard" allowing companies to strategically optimize their overall enterprise risk vs. return decisions based on a carefully chosen "appetite for risk". It allows the company to make more informed risk vs. capital (economic and regulatory), asset allocation, investment, and product/service offering decisions and allows better risk monitoring. It also provides the benefit of efficiency. However, the "dashboard" cannot be viewed as simply a CRO-level, enterprise compliancy tool. CROs interviewed stressed that it is "essential that risk management be tactically managed at an operational level." Risk management is everyone's job in the enterprise, not simply a functional CRO organization's. It always needs to tie back to the enterprise's business. Risks need to be managed at the level they are taken. Another CRO indicated that risk management systems are "a flashlight [used] to continually search for subtle differences. [They] expose everybody's actions". The cumulative net effect of these "differences" can lead to disconnects with the enterprise's overall business goals. Risk management systems can help provide the ability to "get it right every day" while allowing the enterprise to "see your total risk profile". In fact, according to the decision makers interviewed, the benefit of taking a "holistic' view of risk management must be balanced with a healthy, tactical implementation of "operational risk management" which in their view is where the rubber meets the road. Operational risk management, in the organizations interviewed, was considered a critical and necessary element of any ERM framework. In most cases, it was fully integrated into the specific lines-of-business responsible for assuming and managing risks, not separated in a top-down risk management organization.

It was stressed that risk management systems can never provide "complete oversight" and should not be viewed as compliancy frameworks. Instead, they need to be used proactively. They can be used to compare lines of business directly. Additionally, a key benefit of risk management systems is their ability to point toward opportunities for taking on *additional* risk, spotting opportunities to increase their exposure in a planned way, even taking on additional debt when necessary.

Risk management's benefits of planning and managing provides a "governance framework [allowing us to] construct ranges and cordon off a skating rink" as one interviewee put it. The "duration measures allow us to skate".

Ultimately, risk management systems provide the real benefit of "not being blindsided".

Organizational Consistency – the Framework - getting the culture to "yes"

Another major benefit of ERM according to our interviews was the positive impact it can have organizationally. Insurance enterprises today historically have been a "hodge-podge of disparate, home-grown silos of tools, metrics and policies" as one CRO indicated. Often, lines-of-business don't communicate with one another, operational processes are one-dimensional and risks are not correlated across businesses. Due to continued market volatility, an increase in mergers and acquisitions, and critical cost containment initiatives, this organizational structure is beginning to change. ERM can accelerate this trend by :

- "forcing some level of consistency in reporting and process" and motivating the overall enterprise to have "better [more integrated] information – stored, aggregated and easily accessible". This provides a clear return on assets and investments and reduces overhead and redundancy.

- They can also help drive some level of standardization regarding risk management metrics, definitions and policies and standards in general. Rather than having a set of isolated, "home-grown" tools using assumptions never clearly documented, a full ERM framework requires more consistent discipline. When someone uses terminology such as economic capital or regulatory capital or return on risk capital, people in different lines-of-business can learn from each other and realize that perhaps the businesses are not so dissimilar.
- One caveat which came up was the need to tie ERM systems to good historical data. Financial institutions have needed to balance the good analytical tools of ERM with sound, consistent historical data to take full advantage of ERM. They have learned that the benefits of ERM systems require both good analytical modeling and consistent, dynamic historical data.

Product Development and Competitive Positioning

Another major category of benefits derived from risk management systems focused less on control, particularly cost controls, and more on spotting new opportunities for revenue generation, product and service offering development and competitive differentiation. The ability to analyze "trade-offs" and establish risk-based pricing strategies was very important, both in the investment and product/liability businesses. One CRO indicated that "embedded guarantees" are an important component of their some of their products and the ability to be able to do "trade-off" analysis against their competition is an important benefit of ERM. Our research indicates that ERM offers "a marketing edge, the ability to better understand our coverage [scenarios] and better position our offerings", "whether or not to become a loss leader for strategic reasons or maintain an equivalent competitive holding pattern".

Another related benefit is the potential ability to segment the market and help to do a SWOT (strengths, weaknesses, opportunities, threats) analysis against the competition, being able to model and compare marginal contribution on the liability side of the business as an example. Several interviews indicated that the overall ability to plan the product liability business was an important benefit but felt that benefit needed to be tempered with the requirement for "lots of history …. model scenario history" and good data in general. Lapse rates were an important metric in planning and needed to be included in ERM models. However, one Head of Risk Management was skeptical that ERM would be useful in competitive positioning, feeling that it would be difficult to know a competitor's product characteristics to a level of meaningful comparison.

Several questions arise during product development that ERM systems can help analyze and model. One in particular was the need to accurately model "payouts" and retention limits in order to improve the overall product/liability offering portfolio.

The ability to not only understand the competition in product development but also the types of required strategic insurance partnerships was also considered a benefit of ERM. This was particularly true when it came to choosing re-insurers. One interviewee considered this one of the most critical benefits of ERM.

Modeling Capital – Hedging Strategies

One of the more direct benefits of ERM which was substantiated by this research was the ability to model both economic and regulatory capital. Also, the need to manage surplus and strategically decide when and how to pay distributions were important outputs of an ERM system. One interviewee on the investment side indicated that of all the benefits of risk management systems, the ability to "more efficiently optimize capital is at the top of the list." ERM systems can help the enterprise decide either how much capital the enterprise needs to hold OR how much debt they should carry both at an enterprise level as well as a line-of-business level.

However, our research indicated that economic capital , or a "measurement of future risk", was much more difficult to model than regulatory capital. This was due in part to the fact that economic capital is primarily shareholderbased and less subject to regulatory or industry-standard definitions. In order to receive the full benefits of an ERM system, the unique capital model definitions of enterprise must be considered. Regulatory capital calculations were more straightforward and easier to model. In fact, in many cases, regulatory capital modeling was considered a secondary benefit. But the ability to efficiently manage both were major benefits of ERM. Also mentioned were the advantages of being able to model "stress scenarios using historical events".

Some of the CROs felt that an ERM system must be a "complete asset allocation model, tuned to multiple objective functions employing [both] statutory and mark-to-market functionality".

Another benefit is the ability to assess hedging strategies. Several interviewees mentioned the need to be able to model and manage "complex options and derivatives". One Head of Risk Management indicated that internally developed systems and models could not compete with a comprehensive, enterprise-wide vendor-based systems that could model these complex, very large scale (e.g. over $60B) asset bases. One interviewee also felt the insurance industry was "playing catch-up with banks and brokers" on defining risk management methodologies and definitions.

As one interviewed VP indicated, traditionally, the insurance industry was viewed as a formal, sleepy business but not anymore. "The street and hedge funds show better risk management [practices] than seat-of-the-pants" and the insurance industry will only benefit in the future from this reality.

ALM – matching assets to liabilities

The ability to manage the enterprise's assets against liabilities was considered by some as "one of the most basic things we do" and a significant benefit from ERM systems. Is payout a problem? One large enterprise paid out well over $4 Billion in dividends and distributions and life insurance was the most significant aspect of their business. Matching assets to liabilities was absolutely critical to them. If something "went wrong", they could change their dividend rate dynamically.

The ability to actually model liabilities was also considered a difficult task and some concern was expressed as to whether ERM systems could accurately model them. From a corporate, top-down view, however, the ability to at least attempt to match assets to liabilities was considered an important benefit of risk management systems. Our research shows that matching assets to liabilities forces a cross-functional, enterprise look at the business, across lines-of-business, functions and even geographies.

Other Benefits

Interviewees also mentioned several other benefits to risk management systems :

- Several people mentioned being able to do demographic analysis as a key benefit to a risk management system particularly related to modeling the impact of external events such as 9/11, Katrina, global warming and terrorism. The ability to model clustering of demographic data was also considered very useful in understanding product and service offering coverages as well as correlating disparate risks within different geographic areas.
- A couple of interviewees felt that the ability to model and forecast pensions could be a major benefit of risk management systems and felt it was the next major industry driver as well.

Governance – *Discussion*

All interviewees felt that ERM as a concept was evolving. Everyone felt it needed to be an integral part of the corporate culture. As one CRO interviewed put it "everybody has to be a risk manager". It needs to be "bought into" at the highest level of the insurance enterprise but not necessarily driven as a compliancy initiative. Above all, each line-of-business or function needs to assume accountability for operational, tactical implementation of risk management.

The evolution of ERM in the insurance industry was reflected in the multiple forms of organization within the responding companies interviewed. Most stock companies had a Chief Risk Officer (CRO) who in some cases sat on a senior-level decision-making committee and wielded considerable influence. Some companies had no explicit CRO or clearly defined risk management structure but included risk management "experts" in some of the lines-of-business, both investment and product/liability. Those that did not have an explicit CRO effectively split the function between the CFO and COO of the enterprise with the Chief Actuary taking a leading role in risk management, often reporting to the CFO.

In every case, the enterprise formed a strategic risk management committee which included the CFO, CRO (if existing), Chief Actuary, and lines-of-business heads. Everyone felt that in order for risk management to succeed, there needed to be fast, thorough and accurate communication horizontally across lines-of-business and top-down as well.

Some companies take a more "enterprise" level view of risk management than others and include more than traditional definitions of risk management elements. In addition to asset, investment, product/liability and operational risk management components, some companies also include such elements as " business continuity planning (including IT-specific) and bricks-and-mortar disaster recovery".

One company has developed a strategic and detailed "risk management framework" which includes a CRO office which is responsible as a "center of expertise" In addition, they developed a strategic operating committee, called an enterprise risk council, which includes the COO, the CFO, the CRO the business unit heads, and the chief financial officers of the business units. This committee does not operationally manage individual risk initiatives within the company but offers overall guidance. They absolutely believe Em's greatest benefits come from a bottoms-up appreciation and accountability for risk management.

ERM and Returns on Investment – quantifying the benefits

How do enterprises actually place a "value" on risk management? How do they internally justify the costs associated with developing, deploying and supporting their risk management models, systems and processes? The interviews demonstrated a wide range of approaches to answering these questions.

Vendor vs. In-House

The majority of interviewees indicated they primarily had internally developed, "home-grown" risk management software and occasionally some form of vendor-based system within their enterprise. Most indicated they modeled economic capital, in particular, "in-house" since they could control the definition of economic capital to some degree. However, most insurance enterprises interviewed were very diverse and complex with multiple lines-of-business and functions. Internally developed risk management tools and models were often developed and supported within one functional organization or line-of-business with little integration beyond that particular function. Due to this complexity and wide range of internal development efforts, most interviewees were unable to determine with any degree of certainty how much was spent internally on risk management software. One Line-of-Business Head of Risk Management indicated that insurance companies in general need to get a much better handle on these "hidden costs" of development and perhaps more importantly, support. In some respects, this is another important internal driver, consistent with the previous discussion indicating that insurance enterprises are increasingly motivated to look at risk management approaches which provide better integration and cross-functional views of the enterprise. In this case, the issue is internal cost. As one VP put it, internal "data jockeys" need to be more disciplined with regard to how their internal economic capital models, in particular, are developed and supported. It can't be a distraction from the daily job function.

However, all interviewees expressed a desire to balance the consistency of vendor-based systems with the need for flexibility, the need to allow some level of customization and most important, the need to integrate with current or future in-house developed systems. All felt that the overall ROI on risk management systems needed to ensure co-existence at some level with existing models and tools. As one interviewee indicated, "vendor systems need to be nimble". Vendor systems should be able to "more quickly provide a direction from the data" rather than have "accuracy to the nth degree".

Quantifying the Investment

Most enterprises interviewed performed some level of traditional "return-on-investment" or ROI analysis for some component of their overall risk management investments. However, since many of their investments were essentially internal development and support, cutting across disparate functions, this was quite problematic to quantify. In some cases, depending on the governance model, there was no single focal point for understanding these investments in total. However, a few points can be made:

- Our research shows that many companies justified investments in ERM systems using a "basis points" measurement, as a percentage of assets under management. Using this as a criteria, some mentioned that their investments in risk management were "fractional basis points" - ½ to ¾ basis point – which is significant given the large assets under management in some companies ranging from $40 billion to $400 Billion in one instance. One Head of Risk Management estimated their high range was "a couple of basis points". In any case, having risk management investments "over $25 million" is not uncommon. One interviewee indicated that ERM systems could be justified based on "scale alone", that they were in fact a cost of doing business.
- Several companies hinted that ERM systems could be value priced. Our survey indicates that insurance companies are weighing different alternatives when deciding on the level of investment for an ERM solution. The price for a solution ranges anywhere $100K for an outsourced, no-frills solution to mid-tier systems around 500K to full-value solutions ranging in the multimillions. One company chose the latter because they felt their cost relative to value was miniscule compared to their other enterprise investments. As the company said "[we] make decisions every *day* that involve more dollars than [what we pay] for risk management …." HRG believes that insurance enterprises are beginning to understand that risk management "should not be treated with a cost center approach but rather a profit-center approach". They are taking a more dynamic approach to risk management than the tradition of the insurance industry has dictated in the past.
- Some companies indicated it was much easier to identify the "cost" aspect of the ROI equation than the "return" element. One Head of Risk Management indicated that the intangible benefits of a vendor-built system provided some measure of internal return. In particular, these benefits included consistency of definitions, providing an "internal process infrastructure" and "input/output controls" which in-house systems lack. In addition, some portfolios are simply too large and complex to manage with a "band-aid" solution, whether internal or vendor-built. As one Head of Risk Management indicated, "when you have $60B in assets under management, it's too big to do on a spreadsheet". This is when, increasingly, insurance companies are turning to more sophisticated, comprehensive, ERM systems from "trusted vendors".

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