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Editorial

Where is ERM Heading?

by Shaun Wang

Dr. Shaun Wang, FCAS, ASA, Research Director of SCOR Group in Itasca, Ill. He can be reached at swang@scor.com.

For actuaries in various areas of practice (whether it is product design, pricing, reserve setting or others), risk management already exists in our day-to-day job functions. Lately enterprise risk management (ERM) has become a new buzzword, and in part prompted the SOA to create this new Risk Management Section. So what is exactly in store for us in the ERM movement and where are we going with it?

What is ERM?

According to the CAS Committee on Enterprise Risk Management (May 2003 Report):
"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."

As stated in the recently published SOA ALM Specialty Guide, ERM considers the broad range of risks associated with operating a business, including financial, strategic, operational and hazard risks from a company (or "holistic") perspective rather than a product (or "silo") level. The goal of ERM is to minimize the effects of risk on an organization's capital and earnings to better allocate its risk capital and to enhance shareholder value through established risk limits, lower capital costs and improved resource allocation.

Part 1. What's Behind the ERM Movement?

A good explanation for increased emphasis on ERM can be found in the ALM Specialty Guide: "Recent high-profile bankruptcies and shareholder lawsuits due to rogue traders, liquidity mismanagement, inappropriate accounting practices and corporate statements, has led to an increased emphasis on ERM from investors, regulators and senior management."

The emergence of ERM and its growing popularity is coinciding with many changes that have taken place in the insurance/financial industry:

1. Convergence: The insurance industry has witnessed rapid convergence with the banking and broader financial services industries. Life insurers, banks and mutual funds have crossed over each other's boundaries and are offering integrated investment vehicles to compete for the "savings dollars" of customers. As a result, life insurance and annuity products are getting more and more complex with many explicit or implicit options that are linked to broader market indicators (such as interest rates or stock indices). Willingly or not, life companies are under growing pressure to interact more with the capital markets for price setting and hedging. In 2000, the board of Equitable Life in the United Kingdom was sued by policyholders for not using derivatives to hedge their massive exposures to interest rate movements.

2. Conglomerates: Financial institutions today are serving an economy that is becoming increasingly global and diverse. There are many big whales or financial conglomerates. To effectively manage the diverse business activities within these financial conglomerates, risk-based performance evaluation of business units becomes critically important. This often requires companies to develop internal enterprise risk models that firstly calculate the overall required economic capital and then allocate it to business units.

3. Regulation: Externally, there is a trend toward supervisory frameworks that contemplate ERM approaches that encompass all financial risks and assess the quality of internal risk management processes. Risk-based capital frameworks used by regulators and rating agencies also require an enterprise-wide approach. Large diversified companies have the incentive to develop enterprise risk models to justify a reduction in capital requirements.

Part 2. Many Faces of ERM

Integration vs. Specialization

By definition, ERM implies an integrated approach to risks. However, if we look at the history of economic development over the past centuries, "specialization" has been the key driver for advancements. In light of this observation, ERM is a specialization that takes a holistic approach to assessing and managing the major risks facing the enterprise. ERM will not replace existing specializations such as asset-risk modeling, credit-risk modeling, etc. Instead, ERM is a new specialization that coordinates the risk-taking activities of various business units, reconciles diverse perspectives and harmonizes different economic interests and incentives for the ultimate benefit of the enterprise.

Single vs. Multiple Perspectives

In today's highly developed economy, each of us is necessarily working on a small "part" or "specialization" of the jumbo economic machine. Day in and day out we form our views about something based on our specialized and limited experience and knowledge base.

It is our human tendency to "theorize" our observations. As a result, we constantly live with contradicting arguments, opinions and theories. Oftentimes we see years of endless debates that are merely two different viewpoints or perspectives of the same reality. Enterprise risks have many dimensions; if we collapse the dimensions, we get contradictory pictures.

Enterprise vs. Business Units

The ERM perspective may be a 30,000 feet view of the enterprise as a whole. When you get closer down to business units, you may learn that local views are quite different. One important aspect of ERM is to communicate to business units of the ERM perspective, while at the same time learn from business units about their local perspectives. A promise of ERM is in encompassing many perspectives and many dimensions. It is worth repeating—the ERM perspective should not be used to replace local "senses" and "expertise."

ERM needs to harmonize goals between that of the enterprise and that of individual operating units. Using an insurance company as an example, the investment department may have the best expertise in making profit from trading activities. The risk tolerance level needs to be established at the enterprise level, yet some flexibility needs to be given to the investment department to take advantage of market opportunities. Striking a good balance is not easy, but it is very important.

Short vs. Long Time Horizons

ERM will necessarily have a long-term time horizon. On the other hand, some managers have a much shorter time horizon than the enterprise, as they are often motivated by short-term bonuses. We have seen numerous cases in which some managers deferred recognition of losses and pre-spent tomorrow's money.

Part 3. ERM as an Evolving Science

How can we specialize in integration? How can we maximize enterprise value by empowering local business units, which may have different local goals? As we look at these contradicting aspects of ERM, we realize that the theoretical foundation for ERM is yet to be re-established. For pure investment activities, financial economics offers indispensable insights for ERM (e.g., asset allocation, portfolio optimization, dynamic hedging, etc). For non-investment activities, I think that the theoretical foundation for risk management has more to do with management science than financial economics. With ERM perspectives anchored around the overall goals of the enterprise itself, the advance of the ERM discipline requires a blending of financial economics and management science.

Misapplications of Financial Economics in ERM

I am quite concerned by some undue influence of financial economics on current ERM thinking. During the past two decades, financial economics has been the theoretical foundation for the explosive growth of the derivatives markets, which in turn has earned financial economics undisputable authority in the academic world. Financial economics, including CAPM and no arbitrage option pricing theory, assumes no-frictional costs and information efficiency, and the only relevant risks to investors are systematic risks (non-diversifiable for the market as a whole). While these assumptions reflect some idealized states and approximate truth in some

continued on page 6 ▸

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Editorial

◗ continued from page 5

capital markets, they are far from reality when it comes to running an enterprise. It is exactly because of potentially large disruption costs in a non-ideal world that risk management becomes a necessity and of critical importance.

As a basic reality, every enterprise has its own set of relevant risks and its own core set of expertise. Unfortunately, this basic fact has been ignored by some people who blindly applied financial economic to ERM:

1) The financial economics type of thinking on "systematic risk" still dictates many aspects of ERM practices today. For instance, many companies are doing top-down economic capital allocations based on a giant covariance matrix where correlation parameters are guesstimates at best. By so doing, they are unknowingly using the top-down perspective to suppress many local perspectives that are most relevant to the local environment.

2) Historically, the blind application of portfolio theory misguided companies to "diversify" into new markets and business lines and they suffered big losses.

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ERM Needs a New Portfolio Theory

We are called upon to expand the existing portfolio theory so that we can reflect an enterprise's areas of expertise and frictional costs of doing business. First, it requires identifying the relevant risks to the enterprise and its business units, and then choosing appropriate risk measures in accordance with the relevant risks.

With a specific enterprise as our focus, ERM is concerned with the risks that are most relevant to the enterprise, which may be or may not be the same as the systematic risks to the market as a whole. ERM further recognizes that the set of relevant risks to a business unit can be quite different from that for the enterprise as a whole.

Pros and Cons of Diversification

After we have examined the relevant risks and areas of expertise, we can evaluate the risk diversification effect within the enterprise. I would categorize the effects of diversification into the following four different levels:

- "Offset" produces the highest benefits, e.g., long and short position in financial assets. An implication is that hedging is the most effective diversification, provided the hedging cost is fair.
- "Random drivers" offer good benefits, e.g., natural catastrophe events in various geographic regions. Some specialized property catastrophe writers actively manage their portfolios through geographic and risk peril diversifications.
- Pooling of "expertise intensive" business may yield little or even negative risk diversification. For instance, different sectors (banking and P&C insurance) may be subject to different market dynamics and require different sets of expertise. It would be very difficult for the management to understand and manage both well.
- For large diversified (complex) conglomerates, there may also be legal "drags" due to the deep-pocket effect. There may also be "drags" of reputation spillover. These potential drags are in effect negative diversification benefits.

Multiple Risk Measures

Recognizing the fact that the set of relevant risks can be different among various business units, ERM necessarily employs multiple risk measures. Solvency measures at the enterprise level (say, 99 percent VAR or TVAR) should not dictate the pricing risk measures used at the lower unit level (e.g., the Sharpe ratio). It is understandable that companies desire a common yardstick for comparing risk-return performances of various business units. The reality is that most enterprises have both risk-taking functions and service functions. We need to go beyond traditional risk measures so that we can quantify the brand name and customer services, as they are determinants of the franchise value for the enterprise.

Value Creation

Value creation should be the hallmark of ERM, as it will be the ultimate thermometer for its degree of success. There are documented evidences that companies having sound enterprise-wide risk management have performed better than those not having it. However, quantifying the benefits of ERM can be difficult since they may not be immediately observable.

Being not readily quantifiable, the value of ERM has been perceived differently by company executives. In the past, some executives have shyed away from establishing an ERM process in their companies since they view it only as another initiative that adds to the overhead but contributes nothing to the bottom line. Some companies attempted the ERM initiative but did not get very far because it was done incorrectly (e.g., lack of participation on the part of management). In the meantime, there are companies that practiced the ERM process and reaped huge benefits, as evidenced in their outstanding performances relative to their peers.

For the value or ERM, we can draw a modest analogy to physical exercise or medical treatment. If doing it right, regular physical exercise will bring good health benefits; the participant can definitely feel the benefits, even though it may not be readily quantifiable. Without regular physical exercise, there will be a higher chance of deteriorating health that would require medical treatment (crisis management).

ERM has many aspects of value creation:

1. Risk opportunities. Good companies consciously and constantly look for good risk (including arbitrage) opportunities. With the global perspectives of the enterprise and the markets it is in, ERM can help companies to identify good risk opportunities and avoid the danger of being arbitraged against.

2. Robust risk intelligence information. For example, forward-looking risk-return projections and gathering of relevant risk information are invaluable for making business decisions.

3. Alignment of incentives. Incentives are driving activities in organizations. Correctly aligning incentives with risk-based performance measures are essential for managing any large organization. Smart people will do the right (or wrong) thing when the right (or wrong) incentives are in place.

4. Cost reduction. For example, a) an enterprise-wide, activity-based cost/benefit analysis can help us identify managers who are expending their "kingdom" through massive spending; b) Hedging programs can be managed at the enterprise level to reduce the hedging cost.

5. Better Coordination. We know many large firms have spent hundreds of millions of dollars on IT projects. Without knowing an enterprise's business needs or without adequate business people's inputs, these IT projects may not serve the business needs of the enterprise. They may even create unforeseen headaches for the business operations.

While the promise of value creation in ERM is great, its realization depends on ERM being understood, implemented and communicated correctly. I hope that more open discussions and sharing of best thinking can help fulfill the promise of ERM.

Concluding Remarks

I predict that the ERM discipline will go deeper to reflect better of the realities in our enterprises. The science of ERM will leap forward through combining analytical skills and business knowledge, and through blending the insights of financial economics with the tools of management science.

ERM is an exciting new field, and it is new for everyone, including financial engineers and actuaries alike. Actuaries possess the necessary technical risk-management skills on both the asset side and the liability side. These traits make actuaries excellent candidates for playing major roles in ERM for a variety of corporations. Actuaries need the courage to step forward and not be afraid to take on new roles and responsibilities. As a first step in this direction, actuaries need to become better versed in strategic, business and operational risk vocabulary. This is precisely the goal of the new Risk Management Section.

Invitation

On behalf of the Risk Management Council, I extend my sincere invitation to all of you to contribute your comments and observations. The most insightful feedbacks will be published in the upcoming newsletters. ✦

News Update

Newsletter Name Contest!

With the birth of the SOA Risk Management Section, the newsletter has become an important part of our section activities. We need a good name for our newsletter!

The Risk Management Section Council would like to invite members to submit name suggestions for our newsletter. Please send your name suggestions to Valentina (VIsakina@soa.org) at the SOA office no later than **May 1, 2004**.

The Risk Management Section Council shall review all suggested names and vote for the best to be chosen as the official name for the newsletter. The winning individual shall be announced in our next newsletter.