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ERM For Insurers — From Compliance to Value

by Prakash A. Shimpi and Stephen P. Lowe

Adding a corporate finance dimension to actuarial analysis of risk creates a unifying framework that shows how enterprise risk management (ERM) can create value.

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Risk and capital management are important, fundamental concerns of the insurance industry. To address these concerns, insurers have always assessed risks, allocated capital to them and developed increasingly sophisticated methods for risk management at a level of granularity not always available to other businesses. Many insurance companies now recognize the critical importance of integrating risk management with capital management. Doing this is easier said than done—and requires careful thought to make sure both tasks are handled in a manner consistent with value creation.

Now there is a growing demand from shareholders and others for senior management to take enterprise risk management (ERM) more seriously. This means formalizing the essential connection between a company's business operations and its overall risk management program. This is ending the practice of operating these functions as silos within many organizations.

The initial stage of ERM is mostly about compliance and corporate governance. New rules and responsibilities have been imposed on senior management and boards of directors, resulting in higher costs, resource constraints and even questions about whether these new regulations are really cost effective.

However, leading companies are beginning to use ERM as a strategic tool that will help them increase shareholder value. To do so requires a synthesis of the actuarial techniques of insurance and the capital markets perspectives of corporate finance.

Strategic ERM requires a unifying framework that articulates risks consistently across an organization and evaluates alternative capital

Prior articles in *Emphasis* magazine have described leading-edge approaches to managing risk and capital at both the tactical and strategic levels.

In 1990/4 "Extending the Efficient Frontier," Joseph Buff and John Sweeney project a standard investment analysis technique to the joint management of an insurer's assets and liabilities.

In 1995/1 "The Once and Future Discipline," Jerry Miccolis predicts the use of strategic risk management within 10 years.

In 1998/3 "Risk Financing the DFA Way," Imelda Powers and Joseph Lebens present a decision-making technique to evaluate alternative capital management solutions.

In 1998/4 "Two Sides of the Same Coin," Stephen Lowe describes how managing risk and deploying capital are interrelated activities, ultimately leading to creation of shareholder value.

In 1999/3 "Risk Managing Shareholder Value," Jane Rastallis and Jerry Miccolis show how good corporate governance and the coordinated management of a full range of risks can increase an insurer's performance.

In 2000/1 "Getting a Handle on Operational Risks," Jerry Miccolis and Samir Shah develop rigorous techniques to model operational risk.

In 2002/3 "It's a Stochastic World After All," Alastair Longley-Cook and Michael O'Connor describe how simplistic methods to determine capital or assess risk are being replaced by more sophisticated stochastic modeling.

In 2000/3, 2002/4 and 2004/4, articles present the findings of periodic ERM surveys of the insurance industry.

structures—comprising equity, debt, insurance and hedging—to bear those risks.

The Evolution of ERM

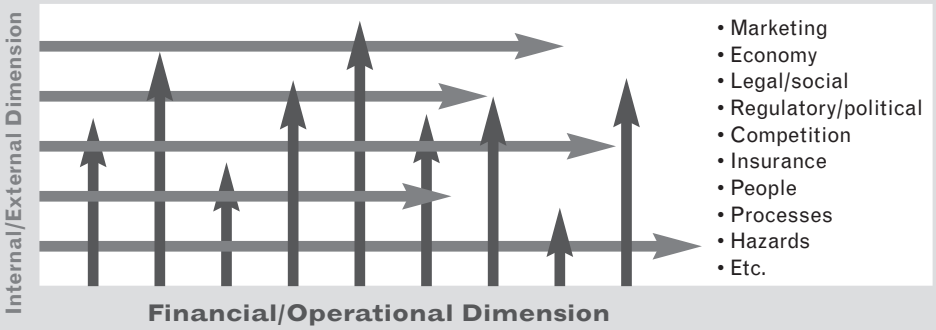
Both life and non-life insurers have contributed to the evolution of ERM techniques, reflecting the event risks that they face. For life insurers, the mortality event is a question of "when" and not "if," so they have focused intently on whether the firm has sufficient assets to meet the obligations of each policyholder at the right time. Given the long-term nature of life contracts and a focus on asset-intensive products such as annuities, life insurers have been early developers of managing financial and investment risks.

In the 1950s, the actuaries developed a formal asset/liability management (ALM) method for assessing and managing interest-rate risk. This method, known as immunization, has since become the foundation of several risk management techniques in life insurance, pensions, banking and derivatives.

The volatile interest-rate environment of the late 1980s, combined with regulatory action requiring life insurers to demonstrate capital adequacy relative to their liabilities, led to cash flow testing (CFT). This expanded ALM to include simulation of a wider set of risks of the business line and their financial impact over a variety of scenarios and time horizons. As a result, the life insurer's tool kit is now able to address risks arising from options and guarantees embedded in both the products and the assets used to fund them.

The techniques for managing event risks have come primarily from the P/C insurers where the questions about an event are both "if" and "how big." Formally, the analytical tools address the combination of frequency and severity of events, often with the challenge of sparse data. Immunization principles are not much help here, so P/C insurers have developed increasingly sophisticated tools to manage their portfolio of risks and assess the capital they need to run their businesses. The most notable tool is dynamic financial analysis (DFA), developed in the 1990s, which has the same underlying principles of ALM and CFT but addresses a wider range of business risks. In effect, DFA assesses the total capital required to cover the entire mix of event risks in the insurance portfolio.

EXHIBIT 1
Insurers Need to Manage Risk Arising From Many Interrelated Areas



ERM STAGES	MANAGEMENT ISSUES
1. COMPLIANCE AND GOVERNANCE	*...What are my risks?*
2. DIAGNOSTICS AND ANALYTICS	*...What is their financial impact?*
3. SOLUTION OPTIONS	*...What can we do about them?*
4. EXECUTION	*...How do I take action?*

Insurers have also benefited from risk management techniques developed by banks to assess whether they have sufficient capital to run their business—spurred in part in recent years by the growth in the derivatives markets. For the most part, these financial risks are actively traded with a wealth of data available to validate and calibrate pricing and hedging models. As a consequence, there is greater recognition of the need to evaluate risks on a market-consistent basis and impose arbitrage-free conditions that formalize the basic rule that two identical cash flow streams must have the same price.

Although some of the leading insurers have both life and P/C operations, traditionally risk and capital management were managed separately. This has changed dramatically in the last decade. For both single line and composite insurers, detailed analysis of risk dynamics for each business line can be aggregated to develop a firm-wide view of risk and the consequent

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capital requirements, enabling the entire organization to benefit from the diversification of the portfolio of risks underwritten.

A major work in progress for insurers, as well as for other corporations, is a robust way to qualify, quantify and manage operational risk. This, along with new regulations intended to increase transparency, account-ability and good corporate governance, has had the effect of formalizing risk management with a more comprehensive scope. Today, leading firms are doing more than complying with new corporate governance regulations. They are using ERM to create value.

Compliance and Governance

The compliance and governance phase of ERM begins by asking a vital but elementary question of management and the company's board: Do you know your risks? Clearly that must only be the first in a series of questions that lead ultimately to management action (see Exhibit 1).

The value of ERM is the ability to optimize the value created from the joint management of risk and capital. As Exhibit 1 shows, a firm is exposed to a variety of risks. The taxonomy of risks is merely a device to capture the descriptions of a firm's risk exposures. Perhaps more important is the diagnosis of the financial impact of those risks as they act in concert upon the firm. This forms the basis for developing and assessing a range of solutions and the criteria required to take action to mitigate or capitalize on those risks.

Ultimately, once compliance processes and procedures have been put into place, the firm needs to consider how to finance its risks. However, this is not easy. While the relationship between risk and capital management seems clear enough in principle, how does a firm put the right measures in place that fully capture this linkage?

Compliance to Value Creation

To move from a compliance focus to a value focus, management needs a unifying framework that is valid for the financial management of the full range of risks that it faces and that can be used at the tactical (product line) or strategic (senior executive) levels. This can be achieved if the framework combines actuarial techniques with the capital market perspectives of corporate finance and explicitly recognizes that risk financing instruments act as equity substitutes.

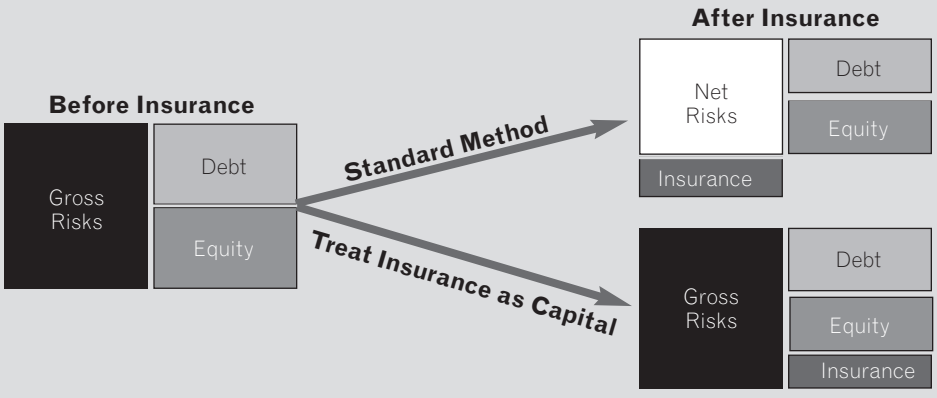
The actuarial perspective begins with a bottom-up evaluation of each individual risk and then aggregates that information into an overall assessment of the portfolio of risks. The analysis of the portfolio of risks leads to a determination of the amount of capital needed to support those risks.

The corporate finance perspective focuses on the firm's capital structure. Its purpose is to increase shareholder value by delivering the optimal balance sheet—composed of equity and debt—that minimizes the cost of capital not just in absolute terms but relative to the price of risks it bears.

Joint Perspective — Risk AND Capital

Both actuaries and corporate finance managers know intuitively that risk and capital are related.

EXHIBIT 2
Treat Insurance as Part of Capital Structure



Their joint perspective leads naturally to the question of how insurance and hedging instruments should be treated in the analysis of risk financing alternatives. There are essentially two possible choices: Treat them as offsets to risk or treat them as capital (see Exhibit 2).

Conventionally, capital is defined as only those instruments that provide immediate cash to the firm (*e.g.*, equity and debt) and exclude contingent capital (*e.g.*, insurance and derivatives) that may bring cash to the firm at some later date. The total paid-up capital (debt plus equity) must be sufficient to bear the net risk of the firm after insurance and hedging. The capital structure decision is about financial leverage, which selects the mix of equity and debt.

Alternatively, the definition of capital can be broadened to include all instruments that reduce the need for equity. With this definition, the sum of the paid-up and contingent capital must be sufficient to bear the gross risk of the firm. The capital structure decision combines financial leverage (equity versus debt) and risk leverage (risk retention versus risk transfer) to find the best mix of equity, debt and insurance. It is consistent with the way insurers evaluate their reinsurance programs and make decisions on risk transfer based on the capital relief they can achieve.

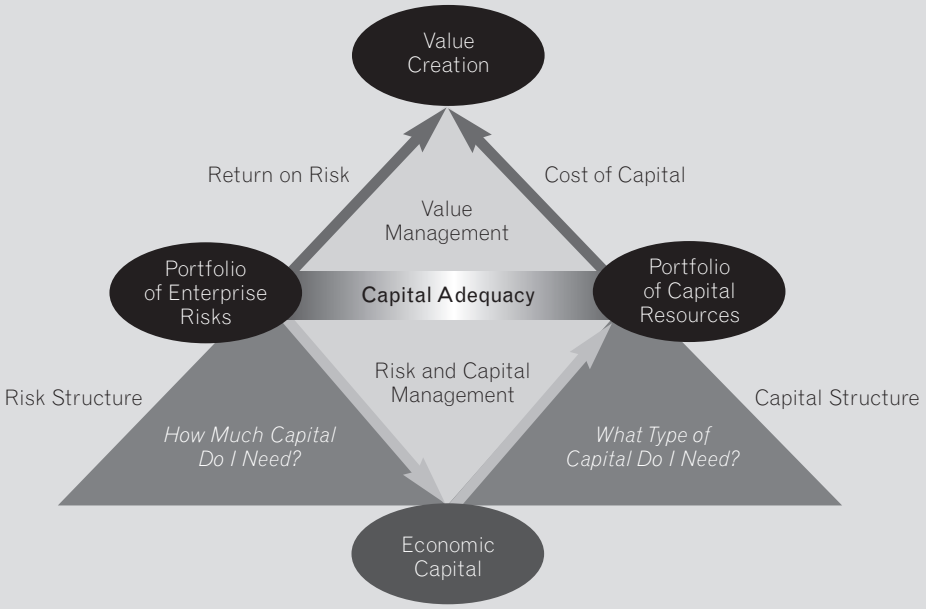
Strategic RCV Framework

A strategic risk capital value (RCV) framework (see Exhibit 3) connects value creation to the fundamental choices that managers make on a daily basis. Essentially, the portfolio of enterprise risks and the portfolio of capital resources are the two major items that management can change to advance the interests of the firm.

Conventionally, risk management and capital management have operated as two different disciplines and, indeed, as two (or more) separate operations within a firm. Nevertheless, the two have always had a close economic relationship.

EXHIBIT 3
A Strategic RCV Framework

Maximize value by relating the firm's decisions on the risks it takes to the decisions on capital it uses to finance its business.



In a corporate setting, this relationship acts like gravity, keeping the two portfolios of enterprise risk and capital resources tightly connected. The amount of risk dictates the capital needed and, vice versa, the amount of capital determines the risk capacity.

The relationship between risk and capital is not easy to articulate. In this framework, this relationship is developed by referring to an intermediate measure, economic capital (EC) which is the amount of capital needed to remain solvent with a high probability. In its purest sense, EC is the true measure of the weight of a firm's risks. (This term distinguishes EC from other measures that are also relevant to the firm, such as regulatory capital, rating agency capital and GAAP capital.)

The risk structure of the firm (i.e., the financial impact of the company's risk exposures as they unfold over time and scenarios) is measured by EC. In practice, this is done by running a dynamic EC model that simulates the financials of

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the firm over a range of possible futures and produces the minimum amount of capital that the firm needs to bear its risks.

With EC setting the minimum amount of capital needed, the key corporate finance question is: What is the best capital structure for the firm? The same dynamic EC model can help managers evaluate different combinations of capital resources (e.g., equity, preferred stock, debt, insurance, hedging).

The ultimate aim is to create value. The firm is expected to generate returns on the risks inherent in its activities. (Strictly speaking, the shareholders would expect the firm to generate excess returns over the price of those risks in the markets.) Holding capital—both in cash form as well as in contingent form—results in a cost reflecting the price of accessing that capital. Through their selection of risks and capital, management has the opportunity to maximize value creation (shown in the top half of Exhibit 3) bearing in mind the constraints imposed by risk and capital management (shown in the bottom half of Exhibit 3). In short, value is created when the return on risk exceeds the cost of capital.

While the RCV framework may be conceptually elegant, care must be taken in its implementation to be sure that all assumptions are explicit, particularly those regarding market consistency.

Broader Analysis, Better Results

Risk management at the enterprise level, or ERM, is intended to assess, control, exploit, finance and monitor risks from all sources in order to increase shareholder value. It encompasses the actuarial approach to risk. But it also addresses governance questions such as who is responsible for those risks, does the firm have enough capital to sustain itself and how much volatility can the firm tolerate.

Risk and capital management is the foundation of how insurance companies function. Today, with the latest developments in ERM, the insurance industry is taking another evolutionary step that is both beyond, and inclusive of, ALM, CFT and DFA. Using these tools within a unifying framework, managers can include more risks in their planning and arrive at a more comprehensive analysis of their business. While regulatory actions may have provided the initial impetus, the insights gained from this analysis can profoundly affect management's ability to create value.

Comments or questions may be e-mailed to *prakash.shimpi@towersperrin.com* or *stephen.lowe@towersperrin.com*. ✦

Praskash A. Shimpi, FSA, MAAA, is a consultant with Towers Perrin in New York, N.Y. He can be reached at *prakash. shimpi@towers perrin.com.*

Stephen P. Lowe, FCAS, MAAA, is a principal of Towers Perrin in Hartford, Conn. and is managing director of Tillinghast's Global Property/Casualty practice. He can be reached at *Stephen.Lowe@towersperrin.com.*