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Defining Risk Appetite

by Sim Segal

Most insurance companies implementing Enterprise Risk Management (ERM) programs have established an ERM committee. Perhaps the most important role of the ERM committee is to define risk appetite. Many of these ERM committees are defining risk appetite in terms of their Economic Capital (EC) definition. For example, they define risk appetite as:

“The level of risk that results in no more than a 0.5 percent chance of failure over a one-year time horizon, where failure is defined as losing 100 percent of GAAP capital.”

It is fairly natural to define risk appetite in terms of EC, since EC is usually a key element of an ERM program. However, this capital-centric approach to defining risk appetite:

- May not fully capture all risks of the enterprise, and
- Does not necessarily result in the optimal level of risk.

Not Capturing All Risks

A primary goal of ERM is to determine the integrated and aggregated impact of all risks in the enterprise. Therefore, it is important to select a risk appetite metric that addresses all enterprise risks. Unfortunately, the EC metric usually excludes operational risk (e.g., litigation) and strategic risk (e.g., poor forecasting). EC modeling typically works well for market, credit, liquidity and insurance risks, which are risks that primarily relate to values of assets and liabilities on the balance sheet. However, EC is less effective for measuring operational and strategic risks, which are risks that impact future revenues or expenses. EC models usually address these risks separately by allocating an addition-

al static percentage of EC or simply omitting them.

Not Necessarily Optimal

The optimal level of risk can be defined as the level that best serves the primary stakeholders (shareholders) while satisfying the constraints of other stakeholders (rating agencies, regulators, customers, the public, etc.). Using this definition, the optimal level of risk is one that maximizes shareholder value. Maximizing shareholder value is clearly the way to best serve the shareholders. In addition, the shareholder value will only be maximized by satisfying the constraints of the other stakeholders, to the appropriate degree. For example, holding large amounts of excess capital may result in a favorable rating, but too much fallow capital may lower shareholder value. Similarly, holding too little capital may result in higher costs of capital, which again may lower shareholder value.

However, the capital-centric approach to defining risk appetite does not necessarily result in a level of risk that maximizes value. The focus is on solvency, which is fundamentally different from maximizing value. The capital-centric process begins with the assumption that a specific rating (e.g., AA) is optimal. Another assumption is then made about the level of risk that will produce/maintain that rating. EC is then calculated and risk appetite is defined at the level of risk consistent with the EC formula. There is no consideration of the possibility that a lower or higher level of risk may enhance shareholder value.

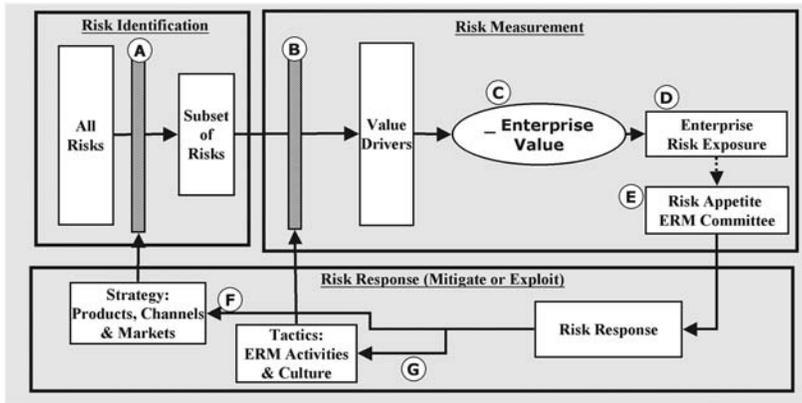
However, there is an approach that resolves these issues. It is called value-based ERM.

continued on page 18 ►

Defining Risk Appetite

► continued from page 17

Chart 1: The Value-Based ERM Framework



What is Value-Based ERM?

Value-based ERM is an approach that makes the quantification of enterprise value¹ central to all aspects of the ERM process. It is a combination of two techniques—enterprise risk management and value-based management.² (For an in-depth discussion of Value-Based ERM, see my article in the June 2005 issue of *The Actuary* magazine.)

The Framework

A portion of the value-based ERM framework is represented in Chart 1. On the far upper left is the entire universe of risks. Moving to the right on the chart, the company's chosen strategy (product mix, distribution channels and target markets) acts as the first filter (labeled "A" in Chart 1), screening out risks not relevant to the company. For example, the risk of changes in the costs of auto repair is not likely to be a rele-

vant risk to an insurer that is not selling auto insurance. For each relevant risk, a distribution is constructed, including probabilities and correlations.

Moving further to the right on the chart, these relevant risks operate on the company's value drivers, such as revenues, expenses, costs of capital, etc. The company's tactics, including ERM activities (e.g., reinsurance, hedging, etc.) and ERM culture, act as the second filter (labeled "B" in Chart 1), dampening the impact of the risks on the company's value drivers. For example, in a culture where problems are openly discussed and quickly acted upon, a risk incident is likely to have less of an impact than in cultures where this type of communication is not encouraged. The impact of the risks on the value drivers is quantified as a change in enterprise value (labeled "C" in Chart 1). Stochastic risk simulations are run to produce a range of enterprise value impacts called "enterprise risk exposure" (labeled "D" in Chart 1).

The enterprise risk exposure is a key input into defining risk appetite (labeled "E" in Chart 1). The upper graph in Chart 2 on page 19 illustrates enterprise risk exposure in terms of "value volatility" or enterprise shock resistance (ESR). This information (along with key supporting statistics) is presented to the ERM Committee along with the question, "Are you comfortable with this level of ESR and if not, with what level of ESR are you comfortable?" Risk appetite is then defined as the level of ESR with which the ERM committee is comfortable. For example, the committee may feel that a higher level of shock resistance would increase enterprise value (e.g., if stock analysts had indicated that the financial results of the company were more volatile than its peer group).

¹ Enterprise value may be defined as the present value of distributable earnings, discounted at the weighted average cost of capital. Distributable earnings include changes in required capital (which may be defined by the company as Economic Capital). This is an internal management valuation rather than market value.

² Value-based management involves decision-making that is driven by its potential impact on value.

To manage the risk exposure to a level consistent with risk appetite, management takes actions (labeled “F” and “G” in Chart 1), such as changing business/product mix, engaging in various ERM activities, making risk-informed business decisions and possibly changing the risk culture. Each such action changes the risk-value profile, resulting in a new calculation of expected ranges of enterprise value and enterprise risk exposure. This re-calculation is performed *prior* to management action, to inform management of the risk-value trade-offs and assist in identifying strategic alternatives.

With the framework above, the value-based approach to defining risk appetite captures all enterprise risks and also results in the optimal level of risk.

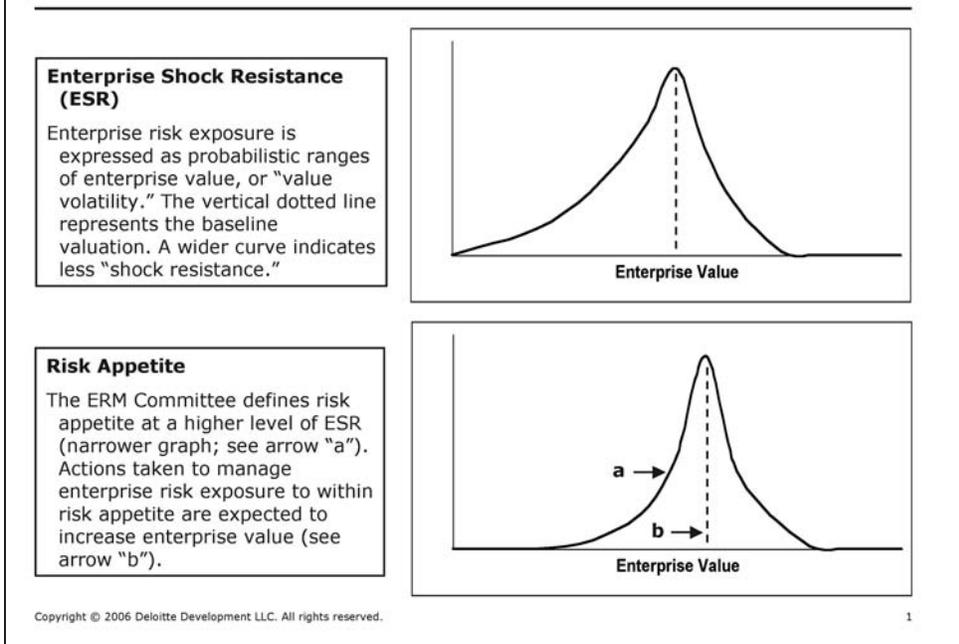
Captures All Risks

The capital-centric approach may not fully capture operational and strategic risks. The EC metric it employs is usually limited to addressing risks that primarily impact the balance sheet. However, the value-based approach captures all risks using a single metric. The value metric can accommodate all financial impacts—those impacting the balance sheet³, the income statement and the weighted average cost of capital.

Optimal Level of Risk

The capital-centric approach to defining risk appetite does not necessarily lead to the level of risk that maximizes value. However, the value-based approach is designed to do just that. The process of defining risk appetite begins with a focus on value by considering the distribution of enterprise value (ESR). The committee arrives at a consensus for the desired level of shock resistance, which is the level that will maximize shareholder value. As

Chart 2: Enterprise Shock Resistance (ESR) & Risk Appetite



an example, the lower graph in Chart 2 above illustrates how risk appetite might be defined by the ERM Committee. In this example, the committee decided on a higher level of ESR. The ESR graph becomes narrower (more shock resistant) and the enterprise value is expected to increase.

Defining risk appetite is one of the fundamental elements of an ERM program. Using an EC metric in a capital-centric approach to defining risk appetite is a natural outgrowth of an evolving ERM program. However, the capital-centric approach may not incorporate all risks and does not always result in an optimal level of risk. To further advance their ERM programs, companies can adopt a value-based approach to defining risk appetite. The value-based approach can enable a truly enterprise-wide definition of risk appetite, and can help define risk appetite at an optimal level, increasing enterprise value. ♦



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³ This reference to “balance sheet” here is intended to cover items actually on the balance (assets, liabilities, capital) as well as required capital, which may take the form of economic capital (EC). Value is a function of distributable earnings, which includes changes in required capital.