

Enterprise Risk Management for Nonfinancial Companies:  
From Risk Control and Compliance  
to Creating Shareholder Value

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**Enterprise Risk Management for Nonfinancial  
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to Creating Shareholder Value**

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**Abstract:** In the current environment of global competition, the question of how much, and in what way, the enterprise risk management (ERM) function contributes to the creation of shareholder value will only increase in importance and urgency. Since ERM is a conscious management process, it requires the development of a clear and specific understanding of whether, and how, current and new activities of the ERM function can create shareholder value. Since risk transfer is usually done at a fair price, to create shareholder value a company has to take on the right risks, retain and manage them. To achieve all that, it has to build and apply the following key risk management capabilities: the development and update of a risk-tested strategy, strategic flexibility, operational flexibility, financial flexibility, and full risk incorporation in performance management and new investments selection. We argue that the ongoing optimal application of those capabilities—so that over time they create net earnings rather than net losses while reducing the likelihood of bankruptcy—represents the risk management activities, which can create shareholder value. We also briefly illustrate how these optimal applications can be carried out in practice.

**Keywords:** Enterprise Risk Management, Shareholder Value, Strategy, Strategic Risks, Strategic Flexibility, Operational Flexibility, Financial Flexibility, Performance Management, Capital Allocation

## **Enterprise Risk Management for Nonfinancial Companies: From Control and Compliance to Creating Shareholder Value**

Over the last 10 years, enterprise risk management (ERM) has made significant progress in becoming a key part of corporate management and governance. However, during this period, the question for senior management and boards has always been: How does ERM create shareholder value? Unfortunately, many corporate leaders, including senior risk managers, have no clear answer to this question and, by extension, no clear ERM policy relating to the key objective of the firm.

### **What Has Been Done?**

Most companies have created a risk management function separate from, but closely connected to, the chief financial officer (CFO) and internal audit functions. Driven by compliance obligations and board directives, companies have implemented the requirements of various regulations standards, and frameworks such as the Sarbanes-Oxley Act of 2002 (SOX), ISO31000<sup>1</sup>, AS/NZS 4360<sup>2</sup>, COSO<sup>3</sup> and GRC<sup>4</sup>. These efforts have produced the following key results:

1. *Risk awareness:* Boards' and senior managements' attention to ERM has motivated employees at all levels to participate in the process. The adoption of ERM frameworks and training has created a common language and understanding of risk management.
2. *Risk control and compliance:* Efforts in these areas reduce the probability of occurrence for a variety of controllable risks.
3. *Reduced impact of risk events:* Better preparation and planning helps companies reduce the negative impact of key risk events, should they occur.
4. *Business improvement:* In many cases, ERM efforts have driven a review of the ways business is done and have triggered business improvement initiatives.

These results have a positive impact on corporate performance and should create shareholder value, if achieved at sufficiently low cost. However, they represent only the lowest common denominator of what ERM can contribute to the process of creating shareholder value and so put a company on par with, but not ahead of, its competitors.

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<sup>1</sup> Risk management standard created by the International Organization for Standardization (ISO)

<sup>2</sup> Australia/New Zealand Standard for Risk Management

<sup>3</sup> Committee of Sponsoring Organizations of the Treadway Commission (COSO) has developed an integrated framework for Enterprise risk management

<sup>4</sup> The Open Compliance & Ethics Group (OCEG) is a global nonprofit organization that develops standards, guidelines, and tools to address governance, risk management, compliance and ethics (GRC)

## **How Does Enterprise Risk Management Create Shareholder Value?**

As a financial category, the value of the firm is determined by the equity market's expectations about the size and reliability of its future free cash flow. Those expectations can be separated into three distinct parts: 1) the scale of company's profitable growth opportunities and the corresponding risks; 2) management's ability to take advantage of these opportunities by successfully executing a profitable growth strategy under a range of plausible scenarios where different risks materialize; and 3) the assurance that during execution, the company's ownership will not be transferred to its debtholders through bankruptcy. To maximize and deliver on these expectations, management, among other things, has to manage risk while taking full advantage of opportunities.

From a shareholder value perspective, there are two fundamental constraints for risk management. First, as risk and opportunity are inseparable, the firm cannot manage risk by limiting or eliminating its exposure to the risks, as this would mean simultaneous limitation or elimination of the opportunity. For example, a fisherman cannot consistently deal with the threat of a storm by keeping his boat anchored in the harbor. A company has to take on risks to access opportunities. Second, for most risks (except for the few that are insurable), transferring the risk is usually priced at the benefit level of the opportunity and thus does not create shareholder value. For example, consistently buying put options for price protection of outputs and call options for price protection of inputs is no way to create shareholder value.

To create shareholder value, a company has to take on the right risks, retain them and manage them within its boundaries. The major risk management activities here are:

1. Identify the strategic risks associated with each strategic alternative and select the strategy with the best risk/reward characteristics;
2. Build and apply strategic flexibility to take advantage of new strategic opportunities and protect against materialized strategic risks;
3. Build and apply operational flexibility to manage ongoing business environment volatility;
4. Build and apply financial flexibility allowing the company to survive, execute its strategy and not transfer ownership during periods of financial distress;
5. Build in full risk assessment in the performance evaluation of existing businesses and the corresponding rewards/compensation of management and employees; and
6. Build in full risk assessment in the evaluation, ranking and selection of new investment projects.

Engaging in some or all of the above activities does not assure the creation of shareholder value. The problem is that each risk management activity in one form or another represents an expense up front and a possible benefit later. In retrospect, for every risk that doesn't materialize, the risk mitigation activity is an unnecessary effort and expense. The opposite is also true; every materialized risk impact that has not been mitigated more cheaply is an unnecessary additional expense. Of course, in practice, the decisions are not simply whether to mitigate or not to mitigate a particular risk, but what and how much mitigation to do.

The creation of shareholder value through risk management is an optimization activity where management assesses the probability of occurrence and likely impact of different risks, and balances it against the cost and benefit of available mitigation. The uncertainty of risk occurrence and impact and the ongoing adjustment of mitigation mean that for every risk over a period of time, there will be a string of incremental costs of unused mitigation, incremental savings from used mitigation combined with the incremental costs of insufficient or excessive mitigation, and the rare cases of perfect matches (Figure 1).

**Figure 1. Incremental Costs and Savings from ERM**

	Under Mitigation	Correct Mitigation	Over Mitigation
Risk Materialized	Savings/Loss	Savings	Savings/Loss
Risk Not Materialized	Loss	Loss	Loss

The value creation goals of ERM are—through the ongoing optimization and carrying out of its different activities—to achieve a maximum cumulative net savings for the firm and to reduce the volatility of its overall free cash flow and its probability of bankruptcy. In the rest of this paper, we will illustrate the practical application of value-enhancing risk management activities.

### ***1. Risk Assessment in Strategy Formulation and Optimal Strategy Selection***

Strategy development is the process of identifying coherent strategic alternatives and selecting the one expected to maximize shareholder value. Some of the key dimensions of a strategy are the risks it carries, and the tools available and costs required for their mitigation. A suboptimal strategy can be not only unprofitable, but also devastating, creating exposure to huge losses and threatening the very existence of a company. BP’s failure to assess correctly the environmental risks of deep-water drilling in the United States and the associated proper level of mitigation is a recent example.

A reasonable question here is how risk management adds value, as risk assessment always has been a part of strategic formulation. A strong risk management function can significantly reduce the likelihood of the following key failures: failure to identify strategic risk, failure to properly assess its likelihood and full potential impact, failure to assess the ability and cost of mitigation, and, most importantly, failure to be prepared and act if the

risk occurs. ERM can support senior management by realistically risk-testing proposed strategies and assessing the degree and cost of available mitigation, as well as the residual risk exposure. The results of this testing can change the relative ranking of strategic alternatives and lead to a much better understanding of the resource allocation required for the chosen strategy.

The challenge for strategic risk identification starts with the lack of an accepted definition of strategic risk.<sup>5</sup> Correctly defining and subsequent categorization of strategic risks are critical, as they frame the identification effort. The most common problem is that the strategic risk categories closely overlap with nonstrategic risk categories and do not facilitate a distinctive risk identification effort. Strategic risk tunnel vision leaves many companies with large blind spots in their strategic risk assessment.

That is why we are proposing the following broad definition: Strategic risk is a significant fast-paced or slow-paced change in either the external environment or the internal operations of the firm with a strong negative impact, threatening its ability to achieve strategic objectives, or its very survival.

The definition has three elements:

1. The most important is a strong negative impact threatening the company's ability to achieve strategic objectives or its survival. A number of significant, but not strategic, risks that do not meet the requirement of the definition have to be filtered out. Without this filtering, the identification effort will quickly lose focus. The challenge here, however, is bi-directional. Companies always experience "sticker shock" when impacted by a strategic risk and realize, often too late, that they have failed to estimate all of its direct and indirect, as well as short-term and long-term, cost. A strong risk management function can develop and "enforce" a detailed and consistent methodology for assessing the full potential impact of risks. This most likely will change not only the overall size, but the relative order, of risk impacts. The result will be not only a better strategic risk focus, but more adequate allocation of resources for risk mitigation.
2. The change can be in the external environment or in the internal operations of the firm. This distinction is very important, as each group of risks requires separate attention and should be managed with a very different set of tools. As external risks are largely independent, the focus is on managing exposure, risk transfer and impact minimization. For internal risks, since many of their drivers are under management's control, the focus is on minimizing the probability of occurrence. Usually, companies are better at dealing with external risks, as management on all levels has a positive bias toward its execution capabilities and an inflated sense of control. However, case after case demonstrates that despite a turbulent business environment, most of the strategic

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<sup>5</sup> For example, Adrian Slywotzky and John Drzik define strategic risks as "an array of external events and trends that can devastate a company's growth trajectory and shareholder value." Adrian Slywotzky and John Drzik, "Countering the Biggest Risk of All," *Harvard Business Review* 83, no. 4 (April 2005): 78-88, 133. The Committee of European Banking Supervisors (CEBS) defines strategic risk as "the current or prospective risk to earnings and capital arising from changes in the business environment and from adverse business decisions, improper implementation of decisions or lack of responsiveness to changes in the business environment." Bob Allen, "The Best-laid Plans," *Risk* 29, no. 7 (2007): 142-43.

blunders are errors in execution. The problem usually starts with a failure to properly estimate the potential cost from an execution failure. The damage may be immediate, as with BP and the Deepwater Horizon accident, or impair the company over time, as with AT&T's failure to expand internationally during the period of telecommunications deregulation in many countries and become a global telecommunications company. Forcing senior management to focus on internal risks and manage them more actively and realistically can be a major value-enhancing contribution for the risk management function.

3. The change can be fast or slow paced. A fast-paced change with negative impact represents a shock to the company to which it has to respond quickly. A slow-paced change with negative impact represents a deterioration of the company's environment or operations to which it has more time to respond. Intuition would suggest that shock risks, with the required short response time, are the major danger for companies' survival and success. However, if the shock risks are not individual, but impact the whole industry, no company is likely to build a relative advantage, take market share and threaten the survival of the others. Somewhat surprisingly, the risks of deterioration are the Achilles' heel of most companies exactly because they provide sufficient time for competitors or newcomers to adapt to the changes, to build a relative advantage, and increase market share. Companies' frequent failure to respond promptly and adequately to deterioration risk is rooted in the difficulty of identifying long-term, slow-moving threats early on. Failure can also be found in the so-called "agency problem." Employees have built skill sets and achieved positions in the management hierarchy based on the current value chain of the firm. Engaging in change, which may threaten their current position and compensation for a future reward, which they may not be around to enjoy, is suboptimal for the individual employee and will be resisted. A popular example of external deterioration risk for dominant technology companies is the development of "disruptive technologies."<sup>6</sup> The products and services of disruptive technologies initially have lower prices, but much lower quality, and create new markets for less demanding consumers. The dominant technology companies usually focus on these limitations and thus ignore the long-term threat. Over time, disruptive technologies improve and provide a better combination of price and quality, thus attacking directly the markets of the established companies. At this point, it is too late for those companies to respond, and they are severely damaged. The typical example here is the development of digital photography and the failure of Kodak to respond in a timely manner even after identifying the threat of digital imaging. It is important to stress that risks of deterioration may come from the internal operations of the firm as well. These risks may come from the general tendency of a company to become more bureaucratic, more risk averse, and to have a higher cost structure. These risks also may come from an accumulation of tradeoffs in which short-term savings and expediency are accomplished at the expense of building and maintaining long-term capabilities. A strong risk management function engaging not just senior management, but also the board can facilitate the management of deterioration risks through timely adaptation.

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<sup>6</sup> Joseph L. Bower and Clayton M. Christensen, "Disruptive Technologies: Catching the Wave," *Harvard Business Review* (January-February 1995).



Based on the strategic risk definition provided above, in Figure 2 we combined the two key dimensions of the strategic risks in a simple taxonomy table and list a few examples. A further, more detailed categorization of the strategic risks specific to a company should be developed. The taxonomy can be used for an exhaustive identification of strategic risks.

**Figure 2. Strategic Risks Taxonomy**

	Risks of Shock	Risks of Deterioration
External Risks	<ul style="list-style-type: none"> <li>• Natural Disasters</li> <li>• Price Shocks</li> <li>• Supply Shocks</li> <li>• Adverse Regulatory Action</li> </ul>	<ul style="list-style-type: none"> <li>• Disruptive Technology</li> <li>• Reduction of Customer Base due to Demographic Change</li> </ul>
Internal Risks	<ul style="list-style-type: none"> <li>• Strategic Project Failure due to Poor Execution</li> <li>• Liabilities from Product's Harmful Effects</li> </ul>	<ul style="list-style-type: none"> <li>• Rising Cost Structure</li> <li>• Slowing Speed of Execution</li> <li>• Short-term vs. Long-term Trade-offs</li> </ul>

As mentioned earlier, strategic risk identification and assessment have to be followed by a disciplined risk mitigation program as a key element of strategy evaluation and selection.

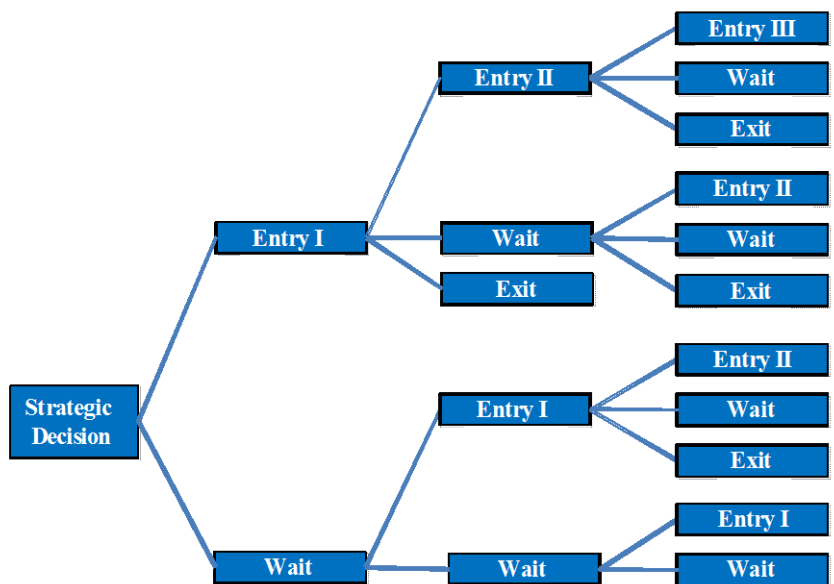
## ***2. Optimal Strategic Flexibility***

Strategy alternatives are typically built around a range of likely scenarios. The selected strategy maximizes the advantages and minimizes the disadvantages for the firm under those scenarios and thus provides for higher profitability. During implementation, things can go better or worse than expected. Strategic flexibility should allow a company to take advantage of positive deviations and protect against negative deviations. This is accomplished by building offensive and defensive options into the strategy and executing them under the appropriate scenarios. Strategic flexibility is expensive, and management must design an optimal amount at a minimal cost to create shareholder value. ERM, using methodologies such as real options analysis (ROA),<sup>7</sup> can support senior management in this process. We will illustrate this point through a simple example. Let's assume a company has a strategy to achieve scale and lower cost by developing an international footprint. It plans to enter three foreign markets that are separate but closely related. If the company is successful in one of those markets, it is likely to be successful in the others and

<sup>7</sup> Thomas E. Copeland and Vladimir Antikarov, *Real Options: A Practitioner's Guide* (Texere 2003).

vice versa. Management expects the conditions to be favorable but can only assign probabilities to different scenarios. The company may decide to enter all three markets at the same time to maximize growth. However, simultaneous entry would expose the company to a greater strategic risk. If the conditions prove unfavorable, the company will have to exit all three markets with significant losses. Alternatively, management can decide to introduce strategic flexibility by sequencing the three entries, and in each period decide whether to enter the following market, wait for another period and decide later, or exit the markets already entered to minimize losses (Figure 3).

**Figure 3. Strategic Flexibility: New Markets Entry**

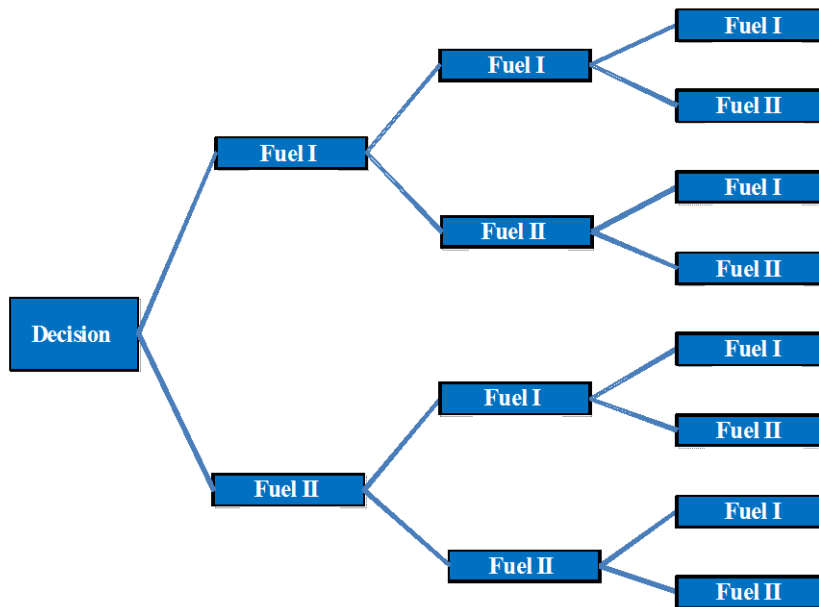


As this example illustrates, even this simple strategy contains offensive options - entries in the three markets, and defensive options - wait or exit. A real options analysis can identify the optimal execution of each option so that the overall value of the strategy is maximized across all likely scenarios. It can also assess the value of the strategy with and without flexibility. Does flexibility create extra value, accounting for the additional cost—the lost revenue from earlier entry in markets two and three? Any incremental value would come from the improved ability of the company to manage strategic risk. A sophisticated risk management function should be able to assist senior management in identifying and optimizing strategic flexibility. The improvement is not only in the enhanced analysis and strategy design, but in the discipline of strong execution. Organizational inertia and internal politics drive companies to act when they should wait, and to wait and lose money when they should acknowledge failure and exit. By building an up-front consensus on what strategic actions the company should take under different plausible scenarios, ERM can help management to enact a timely and coherent response to changes during implementation.

### 3. Optimal Operational Flexibility

Operational flexibility enables a company to quickly alter its output levels, product and service portfolio, and sources of supply, while maintaining profitability. Operational flexibility largely determines the resilience of a company's operations, as well as its supply and distribution chains, to the shocks and stresses faced in today's turbulent business environment. Operational flexibility has more than defensive significance. By increasing the reliability of its supplies and services to its customers, a company can gain a competitive advantage and grow profitably by taking market share away from competitors. Operational flexibility is costly and has to be built in optimally to create shareholder value. We will illustrate the value of operational flexibility with a simple example. A power company is considering what portfolio of electricity-generating assets it should build and operate. It can invest in cheaper single-fuel power generators or it can invest in more expensive assets that would allow it to switch between two different fuels at a particular switching cost (Figure 4).

**Figure 4. Operational Flexibility: Optimal Fuel Use**



The company at any point would like to maximize the difference between the price it can charge for electricity and the cost of its generation. In addition, the company would like to minimize its switching cost and the amount of its overall investment. Based on assumptions about the future volatility and correlation between the prices of the two fuels and the price of electricity, a switching options analysis can identify both optimal operations for different price levels and the value of the flexible asset portfolio. A comparison with a single-fuel generation portfolio would show whether the additional investment and the expected switching cost would be justified by enabling sufficient

additional returns. Here again, any incremental value would come from the improved ability of the company to manage price risk by switching fuel consumption. Operational flexibility can provide value to companies even without frequent use by creating strategic leverage. For example, by building a second assembly line for its Dreamliner in South Carolina, Boeing did not simply reduce the potential impact of a labor dispute at its main facility in Seattle. By having the option to switch production, the company reduced the probability of such an interruption by gaining leverage with its labor force. Similarly, most of the Canadian tar sands oil will likely flow through a pipeline extending south into the United States, since the United States is the closest large customer. However, a pipeline extending west to the Pacific ports will provide the oil suppliers with a switching option, giving them leverage with U.S. consumers and allowing them to maximize sale price per barrel. A sophisticated risk management function can support management in building optimal operational flexibility both on the input and the output sides of the company, and so to enable the creation of incremental shareholder value.

#### ***4. Optimal Financial Flexibility***

For a broad range of scenarios, financial flexibility assures on one hand the availability of financing to execute the strategy, and on the other hand the capital structure and covenant compliance that do not trigger financial distress, potential bankruptcy, and transfer of ownership.

When a strategy is selected and implemented, a company becomes exposed to a variety of risks that result in a corresponding amount of volatility and potential shocks to key financial metrics such as revenues, EBITDA<sup>8</sup>, cash from operations, net income, free cash flow, the value of physical and financial assets and liabilities. The potential severity of these shocks depends on the business environment, while the ability of the company to cope with them depends on its business model, investment program, and financial flexibility. A company has to be able to survive stressful periods without falling into financial distress and without losing key assets or capabilities, while continuing to implement its investment program. In fact, in many industries, the best time to acquire and build new assets is at the bottom of a cycle, when financial performance suffers the most. In those cases, a company must be able to engage in opportunistic investments to create shareholder value because at least some of its competitors or outside investors will.

We will use a simple example to illustrate this approach. A local company believes that by adapting its current line of products—by eliminating some features and dramatically reducing costs, it can successfully expand and be profitable in a range of emerging markets. The strategy will require significant investment capital, but the company believes there is a narrow window of opportunity before competitors conquer those markets. The company has been profitable and has accumulated some cash reserves. However, in the current difficult business environment, existing markets are stagnant and profitability is very low. The company has maintained a 30/70 debt-to-equity capital structure to benefit from the low cost of debt and lower taxes. It also has some of its debt maturing in the coming three

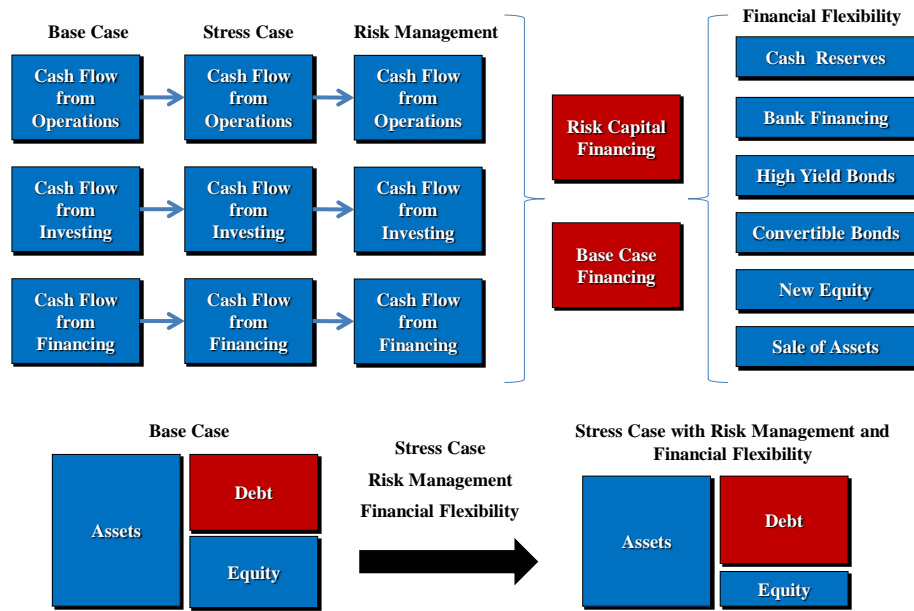
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<sup>8</sup> Earnings before interest, taxes, depreciation and amortization.

years. For clarity, we will present sequential steps in building financial flexibility. Note that in reality the process is iterative.

The analysis starts with projections of the cash flows from operations, investing, and financing, as well as the value of assets and liabilities and the capital structure under a base case scenario (Figure 5).

**Figure 5. Optimal Financial Flexibility: Surviving a Stress Case Scenario**



Under the base case scenario, the company assumes its current operations return to profitability and are able to generate cash, which together with its cash reserves will finance two-thirds of the new investments. It also assumes that with economic improvement, and by explaining its strategy to the banks, it will be able to refinance its maturing debt and borrow the additional investment capital at reasonable rates. During the strategy implementation period, the company's balance sheet grows bigger, and its capital structure drops to 50/50.

To test the viability of its strategy, the company has to develop and test a stress case scenario. This is the scenario the company wants to be able to survive, without abandoning its strategy and without changing ownership. The stress case scenario has to be comprehensive and realistic. Many experts in the field believe the severity of the stress case should reflect management's risk appetite. This approach would introduce random subjectivity and nonrandom self-interest. The severity of the stress case has to reflect the expected value of the growth strategy. If the international expansion is expected to drive the value growth of the company, its execution should remain viable under more severe

scenarios. If the growth strategy is a smaller portion of a company's existing operations and value, a less severe stress case can be used.

Many companies are satisfied by performing some kind of sensitivity analysis on their existing Excel models. This is misleading at best, as it misses the accumulation and reinforcement of the negative drivers in the scenario. The stress case should be developed as a "coherent bad story" and then translated into numbers. Companies should ask themselves challenging questions. What will happen if the economy falls back into recession and existing operations become significantly cash negative? What if the current banks refuse to refinance the existing debt and extend new debt? What if some of the existing assets require impairment and together with new financing dramatically change the financial leverage of the firm? What if some of the new investments are not profitable for a longer period than expected and require additional cash?

Once the initial impact of the stress case is assessed, the available risk management tools to minimize this impact have to be evaluated. What can the company do to reduce cost and remain profitable? Can the company reduce production, switch suppliers or modify the product line? Can the company enter into futures contracts to control key input cost? Can the company reduce the number of markets it plans to enter to reduce investment capital? Can the company lease assets to reduce capital requirements?

After applying the available risk management tools, the company can assess the additional cash requirements it will have under the stress case scenario. This additional liquidity is the risk capital that the company has to have access to, in case it needs it. The company does not have to own the risk capital, but it has to have guaranteed access to it under the conditions of a stress case scenario. Can the company increase the capacity of its current revolver, extend its maturity and loosen its covenants in exchange for additional fees and a higher interest rate? Can the company issue high-yield or convertible corporate bonds? Finally, can the company issue new equity or sell noncore assets to raise cash?

The actual selection of instruments for risk capital financing will be made, based on their availability, their cost and the impact on the company's capital structure. The company may decide to raise part of the capital through the issuance of new equity to reduce its leverage and increase its future borrowing capacity without the threat of covenant violation. Since raising the additional risk capital is costly, its burden has to be added to the cost of executing the growth strategy and has to be part of its profitability assessment. In addition, the process of ensuring financial flexibility has to be dynamic. As strategy execution progresses and risks subside, the available risk capital and its cost should be reduced promptly.

## ***5. Improved Performance Management and Capital Allocation***

A firm's different lines of business carry different risks. Financial institutions have been focused on measuring risk-adjusted performance, but most nonfinancial firms fail to

adequately and consistently incorporate risk into the assessment of current performance and future investments. In accordance with traditional financial theory, companies reflect only the “market-related” risk, and only in their cost of capital. They also typically use a single cost of capital rate across the company for existing businesses and new projects.

When measuring the performance of businesses using metrics like economic value added (EVA), companies take into account only direct capital outlays and the company’s cost of capital. Incorporating the *full* amount of capital put at risk by a business unit or a line of business—inclusive of capital required to safeguard the company amid resulting volatility—and also incorporating the *full* cost of managing the risks into the evaluation of business results, gives management a stronger lens to assess performance. This leads to an increased ability to reward and ultimately manage performance.

The shortcomings of traditional approaches to risk management are even more important for the evaluation of new investments. First, there is an opportunity to make the right decision before locking in a choice. Second, a wrong decision can lock the company into a wrong choice for years to come and destroy shareholder value. Even when companies perform sensitivity and stress testing on investment projects, they often lack a clear way of incorporating the results into their decision criteria. ERM can enable a company to correctly understand, evaluate and manage the risk exposure embedded in its existing and future lines of business. In doing so, an ERM function helps to better align management’s perspective with that of the shareholders and helps management create shareholder value.

There are different approaches to incorporating risk into performance management and capital budgeting. Some authors try to adapt metrics developed for the banking industry like risk-adjusted return on capital (RAROC).<sup>9</sup> Other authors use the derivatives theory (value of put options) to assess risk capital measurements and the corresponding required rate of return for investment projects.<sup>10</sup>

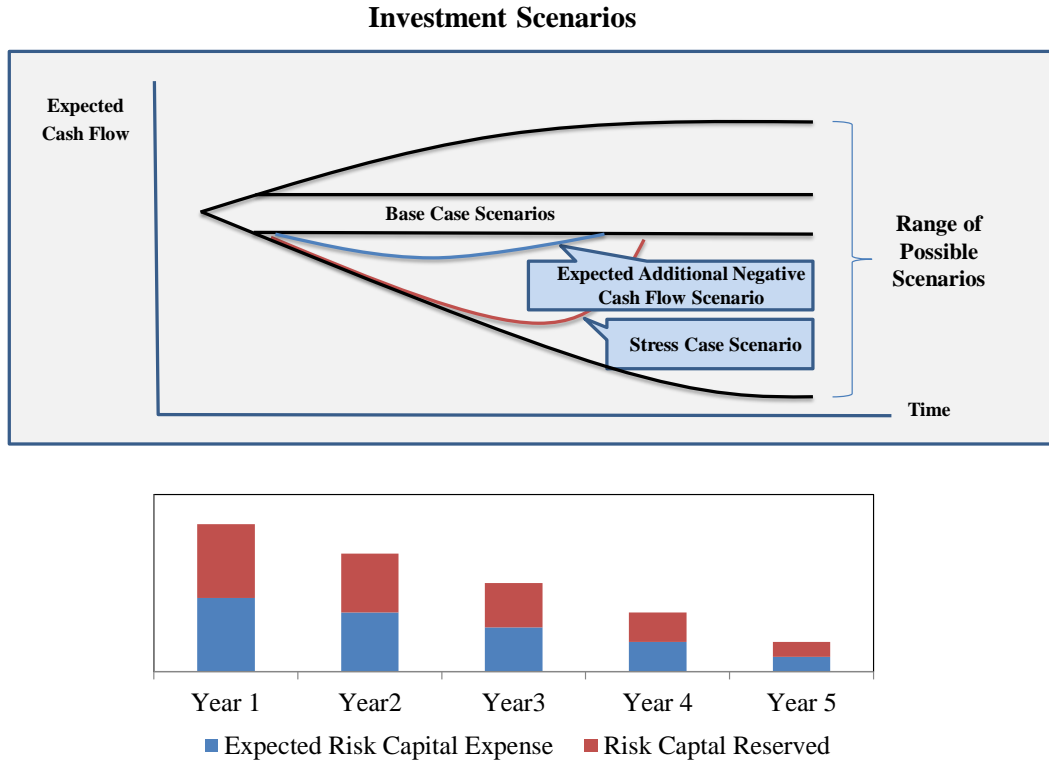
From a practical perspective, risk has to be incorporated in a way consistent with the methods familiar to management. For capital budgeting, this is net present value (NPV) analysis. The introduction of risk capital has to augment NPV analysis and increase its accuracy. Financial theory prescribes that the full range of possible future cash flow values for each period should be taken into account when estimating the expected future cash flow. In practice, managers use a fairly narrow range of base case scenarios to estimate these expected cash flows, and thus fail to incorporate a wide range of negative and quite probable scenarios. On the other hand, managers often leave out scenarios that are better than the base case as well. However, the positive bias is usually dominant (Figure 6).

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<sup>9</sup> Michel Crouhy, Dan Galai and Robert Mark, *The Essentials of Risk Management* (McGraw-Hill, December 14, 2005).

<sup>10</sup> Robert C. Merton and Andre Perold, “Theory of Risk Capital in Financial Firms,” *Journal of Applied Corporate Finance* 6, no. 3 (1993): 16-32.

**Figure 6. Risk Capital Reserves and Expenditures for Capital Budgeting**



Unlike financial institutions, nonfinancial companies invest/build real, and often very customized, assets. As these assets are highly illiquid, disposing of them to stop a particular risk exposure is an action of last resort. Nonfinancial investment risks are managed by assuring the resilience of the investment during a difficult period of time before returning to normal conditions. A stress case scenario usually assumes difficult conditions for a few years before returning to the expected base case range. As a “worst case” scenario that the project needs to survive, the stress case helps management estimate the maximum additional risk capital the project may require. However, the expected additional negative cash flow for all scenarios worse than the base case is significantly smaller than the cash flow for the stress case. So, in practice, management is dealing with two categories of risk capital. First, risk capital expenditures are the additional capital expected to be spent to cover additional expected losses outside the base case scenarios. Second, risk capital reserves are the capital that management has to set aside, usually in liquid assets or borrowing capacity, but is unlikely to spend. The first category is treated like every other capital expenditure, requiring a weighted average cost of capital return. The second category requires the same return, but for the period earns only low interest invested in liquid assets before being returned. Even such a simple approach introduced and supported by an ERM function would encourage management to assess the full risk of projects and to incorporate it into their investment evaluation and performance assessment.



## **ERM: Focus on Shareholder Value, Integrated Process and Practical Results**

The growing amount of financial, human and organizational resources dedicated to the ERM function and its maturation create the opportunity to expand beyond its current focus on controls and compliance, while the question of how much the ERM function contributes to the creation of shareholder value will only increase in importance and urgency. As ERM is a conscious management process, this will require the development of a clear and specific understanding of whether, and how, current and new activities of ERM can create shareholder value. Unfortunately, today large sections of ERM literature and ERM practitioners lack such specific understanding. In this article, we have outlined the general optimization approach and the critical activities of shareholder value creation by the ERM function. Changing the status quo is a great challenge, but also a great opportunity to vastly expand the role and the contribution of the ERM function within the companies.

All elements of enterprise risk management are complex and interconnected, but not all elements merit the same level of analysis or priority of execution. Competent and strong leadership of the ERM function is a key requirement for establishing an efficient process and bringing those elements, including control and compliance, together “on time and on budget.” The ERM function should be able to work closely with senior management and the other relevant functions to produce clear insights, capabilities and results, contributing directly to the challenging effort of creating shareholder value.