

# Enterprise risk management for financial institutions

**Stanislas Rouyer** discusses the value, and some of the shortcomings, of risk management and provides a framework for third-party analysis

**E**nterprise risk management is the monitoring and management of risks that can affect a firm's well being. It can have a significant positive impact on a firm's risk profile by lowering earnings volatility and downside risk. It is, in some respects, a relatively new discipline that is still facing tremendous challenges.

One major issue is that many risks, and their relation among each other, are difficult to monitor or quantify. For example, very sophisticated techniques are used to manage market risk, and they have been quite effective in normal environments, but there is still disagreement on how to make these models more effective with event risk.

Despite the limitations, firms that have developed an effective risk management framework have fared better than others have in difficult times. Interestingly, some of the most effective risk management tools are not the most sophisticated, and can be made more transparent to third parties. Risk management, by itself, however, is not sufficient to ensure the survival of the corporation. A firm must also have liquidity policies and procedures that anticipate periodic contractions in confidence-sensitive funding and reductions in asset liquidity.

## The value of third-party assessment

Third-party assessment of the quality of a firm's risk management

adds value because a given event or environment can have significantly different consequences for similar companies that have made various risk management choices. Financial reports and other public disclosures may provide a good indication of a firm's condition, its track record, and overall operating strategy; they do not, however furnish sufficient information about the firm's discipline as it relates to the management of its risks.

Third parties have a very hard time evaluating the financial risk exposure (market, interest rate, and funding and liquidity) of complex financial institutions. They frequently make very bold assumptions (rarely consciously) about actual exposures and the effectiveness of their risk management. This lack of transparency can lead third parties to misstate the actual benefits of risk management. More useful disclosure by companies about the most important aspects of their risk management practices and track record would significantly improve third parties' evaluation of the companies' actual risk profile and the related equity and debt valuations and price volatilities.

## The Value of Risk Management

### What cannot kill you makes you stronger

**Complex and opaque issue.** Financial institutions are complex companies to manage; the nature of

their activities is such that they are exposed to many risks that could lead to significant losses if not properly managed. The growing use of derivative instruments and significant diversification activities are making it more challenging for management and third parties to get a clear sense of their overall risk profile. At the same time, markets are becoming less forgiving of bad news.

In many cases, traditional financial measures such as balance sheet leverage are becoming less useful in trying to assess the risk profile of companies. A trend among regulators and third-party analysts has been increasingly to rely on a firm's own risk assessment to come up with an opinion of its risk. However, firms often rely on complex models that represent only their own risks.

**Improved strategic decision-making.** Risk management today is increasingly a part of operational and strategic planning. Firms see it as a tool to reduce exposure to adverse developments and also as a source of competitive advantage. Good risk management gives the firm greater control over its destiny and provides management with an objective assessment of its risk profile, as well as highlighting areas of strengths and weaknesses. It should also help the firm determine the risks it wants exposure to, the risks it cannot avoid, and the risks that the firm is not prepared to

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face. Stephen Thieke (*Financial Times*, June 27, 2000) provided a good definition of bad risk:

1. A risk for which there is grossly inadequate compensation or none at all;
2. A risk that the business unit is unable to manage (that is, not able to stick with the business plan, or not able to make new investments should it get the risk-making decisions wrong);
3. A risk beyond the firm's appetite and capacity to absorb risk.

**Know thyself: a competitive advantage.** The value of risk management goes beyond the simple reduction of a firm's risk exposures. The operational and strategic knowledge that comes from internal risk assessment can uncover natural hedges, or countercyclicalities, that exist across the different businesses of a firm. Such knowledge helps the firm focus on its net risk exposures and more effectively allocate resources. Risk management often results in a better understanding of the environment, which can be a source of competitive advantage by the uncovering of new business opportunities, or through a simple competitive lead over less informed competitors.

### The illusion of control

Despite the increasing sophistication of techniques, risk management remains more an art than a science. Risk exposures are complex and interrelated, are at best estimated, and are frequently not quantified.

**The whole is more and less than the parts!** A firm is often described as a combination of businesses. This approach highlights the "portfolio effect" benefits, or the fact that not

all businesses would do poorly at the same time. As a result, the company as a whole gets some diversification benefits and is, in aggregate, less risky than its parts. However, this is not always the case. One can envision a situation where two businesses of a firm have similar risk exposures despite their different foci, and thus they expose their parent company to substantial concentration danger. In some cases, problems at one unit can generate a loss of confidence, can hurt the reputation, or can simply increase the cost of funds at unrelated units solely because of the common ownership. Certain events may even reveal unanticipated relationships or correlations within a portfolio.

**The false comfort of numbers.** The objective of risk management is to provide a unified framework to assess a firm's risk profile. One of the most difficult issues underlying the process is the quantification of exposures such as value, earnings, or cash flows at risk. In some cases, as for market risk, a wealth of numbers exists. In other cases – reputation risk, for example – the quantification of exposure is rarely more than an educated guess.

The wealth of data does not always provide value beyond the assessment of the embedded volatility of the firm's day-to-day activities ("customary risks"). For example, it is difficult to assess the potential impact of a market crash from daily changes in stock prices, nor is it possible to assess the total cost of a system meltdown from the number of calls to the computer help line.

An assumption often made about market risk – one that is

embedded in the simplest value-at-risk (VaR) models – is that the range of price movements is normally distributed, and that the relationship among prices of different instruments (the extent to which they move together or in opposition) is relatively stable. This simplifying assumption is, unfortunately, hard to support empirically, especially during market stresses. At those times, price movement effects on a firm's financial position are the greatest.

In some cases, there is very little information to determine the probability of occurrence and possible severity of risks related to adverse events ("event risks"), or to estimate the risk stemming from the cyclical nature of some of the firm's exposure ("cyclical risks"). Some of the exposures are so difficult to quantify that they have been completely ignored by risk management.

### Risk management, risk profile and capital adequacy Market and regulatory demands.

Two of the main motivations for developing a sophisticated internal risk management function derive from both regulator and investor demands. In the US, the SEC requires firms to discuss situations that can hurt them. Bank regulators are increasingly relying on the bank's internal models for capital adequacy, as opposed to traditional leverage measures. These resulted in very different capital allocations against these businesses. Some investors and analysts are now pushing for greater disclosures of the firms' risk exposures and corporate governance framework, including risk management.

**Risk management is not risk**

**removal.** Exposure to risk is a fact of life and, despite their best efforts, companies can only mitigate some of the risks of their business. In many respects, the success of a firm is based on its ability to reduce or take advantage of risk. Some of the uncertainties faced by corporations are specific to their particular industry or are the result of their unique situation and these will always remain significant issues, given the lack of attractive risk-mitigation strategies.

**Relationship among risk, credit rating, and capital.** Capital, the firm's net asset value, is only part of the overall credit assessment of a firm and is generally a less significant credit positive than the strength of the firm's recurring income. In certain extreme cases, capital is not even discussed as a factor in the rating of a firm. At the same time, capital provides a cushion against losses and is a source of long-term funding in times of market distress.

The credit rating assigned to a firm's debt securities reflects its unique risk profile and financial structure. To some extent, the two related questions about capital that one is trying to answer are as follows: *are the risk-adjusted returns on capital provided by the business consistent with current capital allocation? And, given the firm's operating and financial profile, what is the range of adverse developments it can face while maintaining sufficient flexibility to re-establish its current credit standing?* The first question deals with the issue of the stability of the capital structure, while the second relates to the financial strength (or flexibility) of a firm.

The relationship among risks,

capital and credit rating is complex and reflects the diverse nature of risks faced by a firm. As a result, capital alone cannot lead to improvements in credit ratings beyond a certain point, and an improvement in a firm's credit profile does not imply that it can buy back equity.

## How To Assess Risk Management?

The effectiveness of a firm's risk management is a function of the range and nature of the risks being covered, the effectiveness and availability of protection and the overall discipline in operating within risk management parameters.

### Risk management assessment

The objective of the risk management assessment is to determine to what extent a firm:

- has developed a comprehensive risk management framework; and
- is operating in a manner that is consistent with its risk appetite.

### Risk exposures and risk segmentation

Firms use different approaches to manage risk, but it is possible to assess the extent and effectiveness of their risk management efforts. The risks of a firm can be classified according to their broad categories (market, interest rate, credit, liquidity, operational, or environmental), and the nature of the risk to be mitigated (customary, cyclical or event risk). The extensiveness and track record of a firm's risk management should be the leading indicator of an effective risk-management strategy. The major questions to answer are as follows:

1. Are the primary risks of the firm properly quantified?
2. To what extent does the firm effectively mitigate its overall risk exposures?

### The different natures of risk

● **Customary risks: day-to-day changes.** These are risks that are faced by a firm every day. For a broker-dealer, the risks would include the price volatility of the securities traded, the quality of trade execution or the change in daily business volume. For a bank, these risks can relate to the imperfect match of asset and liability interest rate characteristics, the uncertainty about the ultimate credit quality of a new lending relation, or the variations in deposits outstanding. For a firm generally, it can be employee turnover or service consistency. These risks are typically well understood and can generally be dealt with through operating discipline, or process improvement. These risks generally impact a firm's core profitability and earnings predictability.

● **Cyclical risks: what happens when?** These risks emerge as a result of the underlying cyclical nature of a firm's business. They can include a down-turn in the economy and the related credit deterioration, the rise in interest rates related to inflationary pressures, the occurrence of a bear market or they can simply relate to a product's life cycle.

These risks can also emerge as a result of changing macroeconomic conditions, technical progress or imbalances of supply and demand for the products or services of a firm. Although unavoidable, such threats are unpredictable in terms of timing, ultimate length and

## Risk matrix

	Customary (volatility)	Cyclical (trends)	Event (discontinuities)
Market			
Interest rate			
Funding/liquidity			
Credit			
Operational			
Environment			
Risk management			
<i>Evaluation methods</i>	<i>Internal audit, operating limits, monitoring (6 sigma, VaR)</i>	<i>Strategic planning, scenario analysis</i>	<i>Concentration limits, stress tests, contingency planning</i>

depth. Firms generally try to limit the impact through strategic planning, hedging, diversification, flexible cost structure, or product development, but these risks can affect a company's long-term viability.

● **Event risks: what happens if?**

These out-of-the-ordinary risks, otherwise described as headline risks, have low frequency of occurrence but can generate major damages at a firm. These risks could be a market crash, a liquidity crunch, a system failure, fraud, a class action lawsuit, a strike or political unrest. Their mitigation involves a combination of operating discipline, diversification strategic planning, and pure risk management, such as insurance. These risks, if unchecked, can severely damage a company's credit standing in a matter of days.

**Risk exposures**

● **Market risk** generally refers to changes in the market value of a firm's trading and investment portfolio, but managers should also take into consideration the profitability of these operations in different environments. At a minimum, firms have limits on exposures to specific securities, sectors or countries. Increasingly, companies use statistical methods, such as VaR, to monitor the maximum loss that can be recorded over a certain period, for a given confidence level; these are also used for regulatory capital requirements.

Statistical methods rely extensively on price movements taking place in normal business conditions and as a result tend to be relatively effective at sizing a firm's exposure in normal environments (customary risk) but are quite ineffective when

it comes to other risks. They need to be modified or complemented by other risk management tools in order to incorporate consideration of prolonged adverse environments such as lower trading volume in a bear market (cyclical risk) or market disruptions (event risk). Some of the cyclical risks can be mitigated through a flexible operating structure that can expand or retract in sync with market activity.

There is no agreement on the best way to estimate event risk. Some firms try to adjust their VaR analysis to allow for wider price moves or for greater correlation (often referred to as 'fat tails'), while others use various stress tests to estimate how their portfolios would withstand adverse developments.

One of the main problems with event risk is that it is hard to estimate the probability of occurrence and impact. The simplest method to limit event risk is to operate within concentration limits that would reduce the maximum impact of a combination of market disruptions. More sophisticated methods would involve the purchase of protection against wide changes in market value, such as out-of-the-money options.

● **Interest rate risk** relates to the loss of value that can result from the differences in the characteristics of the interest earned and paid by the company. The differences can result from the gap in the resetting period between assets and liabili-

ties, or from variations in the underlying index. The simplest method to manage interest risk is a gap analysis. This is the attempt to match asset and liabilities repricing within the same period (one month, one to three months, three to six, etc). Debt rebalancing, interest rate swaps or other derivatives can help improve the gap position of a firm.

More sophisticated methods use the maximum decrease in net market value of equity as a result of interest rate movements, over a certain period and for a given confidence level. Firms then adjust their interest rate exposures by rebalancing their debt or through financial engineering. These approaches, similar to VaR, have some of the same shortcomings – that is, they do not easily incorporate cyclical or event risks. Here again, some stress tests or scenario analysis, such as testing the financial conditions of the firm if interest rates triple over a two-year period, can help management recognise the extent to which it is exposed to these very adverse scenarios, and evaluate whether to allocate resources to mitigate such threats.

One problem with interest rate risk is the evaluation of certain embedded options in some of the assets of the firm. One example is a firm's residential mortgage portfolio. Borrowers have an option to repay their mortgages whenever they feel like it but they have strong incentives to do so when market interests are low relative to their

mortgage. In order to manage their assets and liabilities properly, managements have to make assumptions using sophisticated models, about the likelihood of borrowers to exercise this option at any given level of interest rate. But of course, the assumptions made by management may be wrong.

● **Funding and liquidity risk** relates to the inability of a firm to access funds at its expected price. The extreme case is a complete inability of a firm to access the debt markets. The customary risk faced is the day-to-day shift in the credit and liquidity premium required by the market for its debt. The simplest way to mitigate this risk is to constrain the bunching of maturity, or to maintain committed bank lines, such that no significant portion of the firm's liabilities would have to be refinanced in adverse conditions.

Funding risk is distinct from interest rate risk because a firm can, for example, limit interest rate risk through interest rate swaps. However, the company can still face funding risk because its debt has a shorter contractual maturity than its assets.

Liquidity risk relates to the consequences of the inability of a firm to refinance or repay maturing debt without damage to its financial conditions. Liquidity risk is a function of the unique structure of a firm's assets and liabilities. A firm with long-term and illiquid assets is less exposed to liquidity risk if funded with equally long liabilities. A similar firm, but one with shorter-term debt, may have to liquidate some of its assets at a steep discount in order to pay maturing debt in an adverse environment. The ques-

tions for an analyst to ask in assessing the funding and liquidity of a company are the following:

1. How closely matched are the maturities of the assets and liabilities of a firm?
2. How long can the firm operate without borrowing new funds?
3. How liquid are its assets (how easy is it to sell these assets quickly with no loss of value)?
4. How stable is the "borrowing power" of the company's unencumbered assets (that is, what is

“Customary risk is most intimately related to the operations of the firm and is the hardest for third parties to price”

the risk that the company may suffer a withdrawal of confidence in secured funding markets)?

5. How diversified is the company's access to unsecured funding markets?
6. Are there bottlenecks (ie, regulatory barriers) prohibiting the flow of the company's consolidated liquidity to its various legal entities?

● **Credit risk** relates to the change in value of a firm's on-and-off balance sheet assets as a result of the deteriorating credit profile of third parties to which it is exposed. Over the last few years, companies have been moving from a binary approach (performing or non-performing) to a continuous approach that looks at the change in the financial conditions of counterparties ("rating transition risk").

The management of customary risks is generally done through a dis-

ciplined underwriting of exposures. Event and cyclical risks can be mitigated through single-exposure and sector limits. Today, some firms are using credit derivatives to reduce their concentration risk. Regular and synthetic securitisations have been employed for regulatory arbitrage, but these are increasingly designed to transfer certain significant risks. In most cases, for loan portfolios, the lender retains the first layer of risk, or customary risk, transferring cyclical and event risk. Customary risk is most intimately related to the operations of the firm and is the hardest for third parties to price.

● **Operational risk** relates to the loss of value due to inefficiencies, problems, or failures of the firm's operations. Extensive literature has been written on different facets of this fundamental issue. The events of September 11, 2001, have provided us with a dramatic and horrible example of the range and dimension of operational issues generated by event risks. Other operational risks may not be as apparent, but these could severely damage a firm's profitability, operational flexibility and reputation. Customary risks can be managed through process re-engineering, but the more acute risks can be mitigated through contingency planning or insurance.

● **Environmental risk** relates to the loss of value as a result of changing conditions of a firm's environment. The changes can be related to competition, supply-demand dynamics, regulations or reputation. These are some of the most difficult risks to manage, given the wide range of issues falling under this category.

At a minimum, firms are tracking the evolution of market conditions to determine, with some degree of confidence, the market demand for their product, and the changing needs and expectations of their clients. Strategic planning is generally involved in issues that relate to product growth and life cycle. Firms are also increasingly lobbying and/or using marketing to advance and protect their cause. Many managements are also developing contingency plans, such as public relations, to buffer the impact of damaging news.

● **All of the above.** The risks faced by a firm are deeply interrelated, creating either natural hedges or reinforcing loss dynamics. For example, property & casualty insurance claims are not correlated with the movements of the stock market. A market downturn can, however, harm a firm's overall operating profitability and liquidity position.

Integrated risk management is still a new discipline, and few companies have developed a framework that reports, analyses, and manages all risks on a consistent basis. A difficulty faced by companies is how to account for the relationships that exist between all the risks of a firm.

● **The risks of risk management.** The management of risk is, in itself, a source of risk to the firm. Some of the tools used by a firm are imperfect (basis risk), are subject to error (model and operational risk), may expose the firm to counterparties risk, or may only be sporadically available (liquidity risk). In some cases, hedging may be effective from a pure economic point of view but still create some GAAP earnings volatility. These consider-

ations have to be assessed when determining the effectiveness of a firm's risk management.

### Is management a believer?

**Is risk discipline aligned with company's strategy?** A determination to make when assessing a company's risk management is the extent to which the different operating units are involved and are participating. Risk management should not be an after-the-fact action that tries to limit the exposures created by the different units of a firm, nor should it be perceived as an annoyance, or even as a burden that prevents managers from harvesting all attractive business opportunities. The more integrated risk management is with the firm's overall operating philosophy, the more likely the possibility that different operating units will make the discipline an integral part of how operations are managed.

An important factor in assessing departmental buy-in is the extent to which capital allocation and compensation are done on a risk-adjusted basis. The more transparent and understandable the risk tolerances of the firm, the more likely the risk discipline is to become incorporated into departmental strategy. **Public disclosure shows that you mean it!** The regular public release of risk management results is at the opposite end of the spectrum from the "trust me" impression often left by some companies' financial reports. Quality disclosures generally take the form of a description of the firm's overall risk management framework, as well as the presentation of actual risk performance, and the analysis of the firm's ability to withstand various stress tests.

### Does it work? Post mortem analysis.

Public disclosure or discussion with the firm can give sharp insights about the effectiveness of risk management policies. Major market disruptions or significant changes in the cycle, are perfect opportunities to test a firm's effectiveness at reducing its exposure to adverse developments. At the same time, comfort and familiarity with the expertise of the risk managers can significantly reduce the market anxiety related to the impact of adverse developments on a company's credit profile.

In addition, disclosure of the expected impact of the three or four accepted possible adverse scenarios that could be the most damaging to its industry may be an effective way to communicate the firm's preparedness. This would greatly reduce market uncertainty, if such events were to materialise. ■

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