

# **Operational Risk Management**

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## Operational Risk Management

The Basle Committee on Banking supervision has recently initiated work related to operational risk. Managing such risk is becoming an important feature of sound risk management practice in modern financial markets. The most important types of operational risk involve breakdowns in internal controls and corporate governance. Such breakdowns can lead to financial losses through error, fraud, or failure to perform in a timely manner or cause the interests of the bank to be compromised in some other way, for example, by its dealers, lending officers or other staff exceeding their authority or conducting business in an unethical or risky manner. Other aspects of operational risk include major failure of information technology systems or events such as major fires or other disasters.

A working group of the Basle Committee recently interviewed approximately thirty major banks from the different member countries on the management of operational risk. Several common themes emerged during these discussions:

- Awareness of operational risk among bank boards and senior management is increasing. Virtually all banks assign primary responsibility for managing operational risk to the business line head. Those banks that are developing measurement systems for operational risk often are also attempting to build some form of incentive for sound operational risk management practice by business managers. This incentive could take the form of a capital allocation for operational risk, inclusion of operational risk measurement into the performance evaluation process, or requiring business line management to present operational loss details and resultant corrective action directly to the bank's highest levels of management.
- While all banks surveyed have some framework for managing operational risk, many banks indicated that they were only in the early stages of developing an operational risk measurement and monitoring framework. Awareness of operational risk as a separate risk category has been relatively recent in most of the banks surveyed. Few banks currently measure and report this risk on a regular basis, although many track operational performance indicators, analyse loss experiences and monitor audit and supervisory ratings.
- Many banks have identified significant conceptual issues and data needs, which would need to be addressed in order to develop general measures of operational risk. Unlike market and perhaps credit risk, the risk factors are largely internal to the bank and a clear mathematical or statistical link between individual risk factors and the likelihood and size

of operational loss does not exist. Experience with large losses is infrequent and many banks lack a time series of historical data on their own operational losses and their causes. While the industry is far from converging on a set of standard models, such as are increasingly available for market and credit risk measurement, the banks that have developed or are developing models rely on a surprisingly similar set of risk factors. Those factors include internal audit ratings or internal control self-assessments, operational indicators such as volume, turnover or rate of errors, loss experience, and income volatility.

Additional details from the interviews are discussed below under five categories: Management Oversight; Risk Measurement, Monitoring and Management Information Systems; Policies and Procedures; Internal Controls; and View of Possible Role for Supervisors.

### **Management Oversight**

Many banks noted that awareness of operational risk at the board of director or senior management level has been increasing. The focus on operational risk management as a formal discipline has been recent but was seen by some banks as a means to heighten awareness of operational risk. The greater interest in operational risk was reflected in increased budgets for operational risk measurement, monitoring and control, as well as in the assignment of responsibility for measuring and monitoring operational risk to new or existing risk management units.

Overall the interview process uncovered a strong and consistent emphasis on the importance of management oversight and business line accountability for operational risk. Senior management commitment was deemed to be critical for successful corporate-wide risk management. Banks reported that high-level oversight of operational risk is performed by its board of directors, management committees or audit committee. In addition, most respondents referred to the important role of an internal monitor or “watchdog”, such as a risk manager or risk committee, product review committee, or internal audit, and some banks identified several different internal watchdogs, who were all seen as important, such as the financial controller, the chief information officer and internal auditors. The assignment of formal responsibilities for operational risk measurement and monitoring is far from universal, with only about half of the banks interviewed having such a manager in place.

Virtually all banks agreed that the primary responsibility for management of operational risk is the business unit or, in some banks, product management. Under this view, business area managers are expected to ensure that appropriate operational risk control systems are in place. Many banks reinforce this risk attribution and responsibility through charging operational losses to the related business or product area. In an earlier survey of

internal audit issues, some supervisors noted the trend to conduct more internal control reviews in the business line, rather than in independent units such as internal audit. Several respondents to the operational risk survey noted the creation of new controls or risk management in business lines to assist in the identification and control of risk.

Several banks noted one potential benefit of formalising an approach to operational risk. That is the possibility of developing incentives for business managers to adopt sound risk management practices through capital allocation charges, performance reviews or other mechanisms. Many banks are working toward some form of capital allocation as a business cost in order to create a risk pricing methodology as well.

## **Risk Measurement, Monitoring and Management Information Systems**

### **Definition of operational risk**

At present, there is no agreed upon universal definition of operational risk. Many banks have defined operational risk as any risk not categorised as market or credit risk and some have defined it as the risk of loss arising from various types of human or technical error. Many respondent banks associate operational risk with settlement or payments risk and business interruption, administrative and legal risks. Several types of events (settlement, collateral and netting risks) are seen by some banks as not necessarily classifiable as operational risk and may contain elements of more than one risk. All banks see some form of link between credit, market and operational risk. In particular, an operational problem with a business transaction (for example, a settlement fail) could create market or credit risk. While most banks view technology risk as a type of operational risk, some banks view it as a separate risk category with its own discrete risk factors.

The majority of banks associate operational risk with all business lines, including infrastructure, although the mix of risks and their relative magnitude may vary considerably across businesses. Six respondent banks have targeted operational risk as most important in business lines with high volume, high turnover (transactions/time), high degree of structural change, and/or complex support systems. Operational risk is seen to have a high potential impact in business lines with those characteristics, especially if the businesses also have low margins, as occurs in certain transaction processing and payments-system related activities. Operational risk in trading activities was seen by several banks as high. A few banks stressed that operational risk was not limited to traditional “back office” activities, but encompassed the front office and virtually any aspect of the business process in banks.

### **Measurement**

Most banks that are considering measuring operational risk are at a very early stage, with only a few having formal measurement systems and several others actively

considering how to measure operational risk. The existing methodologies are relatively simple and experimental, although a few banks seem to have made considerable progress in developing more advanced techniques for allocating capital with regard to operational risk.

The experimental quality of existing operational risk measures reflects several issues. The risk factors usually identified by banks are typically measures of internal performance, such as internal audit ratings, volume, turnover, error rates and income volatility, rather than external factors such as market price movements or a change in a borrower's condition. Uncertainty about which factors are important arises from the absence of a direct relationship between the risk factors usually identified and the size and frequency of losses. This contrasts to market risk, where changes in prices have an easily computed impact on the value of the bank's trading portfolio, and perhaps to credit risk, where changes in the borrower's credit quality are often associated with changes in the interest rate spread of the borrower's obligations over a risk-free rate. To date, there is little research correlating those operational risk factors to experience with operational losses.

Capturing operational loss experience also raises measurement questions. A few banks noted that the costs of investigating and correcting the problems underlying a loss event were significant, and in many cases, exceeded the direct costs of the operational losses. Several banks talked in terms of possibly two broad categories of operational losses. Frequent, smaller operational losses such as those caused by occasional human errors are seen as common in many businesses. Major operational risk losses were seen to have low probabilities, but an impact that could be very large, and perhaps exceed those of market or credit risks. Banks varied widely in their willingness to discuss their operational loss experience, but only a handful acknowledged the larger losses.

Measuring operational risk requires both estimating the probability of an operational loss event and the potential size of the loss. Most approaches described in the interviews rely to some extent on risk factors that provide some indication of the likelihood of an operational loss event occurring. The risk factors are generally quantitative but may be qualitative and subjective assessments translated into grades (such as an audit assessment). The set of factors often used includes variables that measure risk in each business unit, for instance grades from qualitative assessments such as internal audit ratings, generic operational data such as volume, turnover and complexity, and data on quality of operations such as error rate or measures of business riskiness such as revenue volatility. Banks incorporating risk factors into their measurement approach can use them to identify businesses with higher operational risk.

Ideally, the risk factors could be related to historical loss experience to come up with a comprehensive measurement methodology. A few banks have started collecting data on their historical loss experience. Since few firms experience many large operational losses in any case, estimating a historical loss distribution requires data from many firms, especially if

the low-probability, large-cost events are to be captured. Another issue that arises is whether data from several banks or firms come from the same distribution. Some banks interviewed had created a proprietary database of external loss experiences and other banks interviewed expressed interest in access to such data. Banks may choose different analytical or judgmental techniques to arrive at an overall operational risk level for the firm. Banks appear to be taking interest in how some insurance risks are measured as possible models for operational risk measures.

### **Risk monitoring**

More banks have some form of monitoring system for operational risk than have formal operational risk measures. Many banks interviewed monitor operational performance measures such as volume, turnover, settlement fails, delays and errors. Several banks monitor operational losses directly, with an analysis of each occurrence and a description of the nature and causes of the loss provided to senior managers or the board of directors.

Many banks interviewed are in the process of reviewing their current risk methodologies to accommodate improved measurement and reporting of operational risk and the development of an on-line monitoring system. The time lines for such efforts vary widely, with some banks currently implementing segments of new systems and other banks still in the planning stages. A significant number of other banks interviewed are not contemplating changes to their management information systems because the bank believes its current methodology serves it well. One bank has recently implemented a new risk policy framework but stated that it was too soon to assess its effectiveness. Contrary to most respondents, one bank stated that it was satisfied with its current information systems for capturing and reporting operational risk.

### **Control of operational risk**

A variety of techniques are used to control or mitigate operational risk. As discussed below, internal controls and the internal audit process are seen by virtually all banks as the primary means to control operational risk.

Banks touched on a variety of other possibilities. A few banks have established some form of operational risk limits, usually based on their measures of operational risk, or other exception reporting mechanisms to highlight potential problems. Some banks mentioned the importance of contingent processing capabilities as a means to mitigate operational risk.

Some banks surveyed cited insurance as an important mitigator for some forms of operational risk. Several banks have established a provision for operational losses similar to traditional loan loss reserves now routinely maintained. Several banks are also exploring the use of reinsurance, in some cases from captive subsidiaries, to cover operational losses. One

bank noted that the insurer would have to quantify the amount of risk in the policy and that could provide an approach to measuring operational risk.

### **Policies and Procedures**

Several banks noted that they were devoting substantial time to reviewing, revamping and developing new policies and procedures. A few banks appear to have the goal of developing a common architecture or framework to harmonise policies and procedures across businesses and make them more user-friendly. These policies and procedures may be based on common elements across business lines or across risks.

One process that received special mention was a formal new product review process involving business, risk management and internal control functions. Several banks noted the necessity of updating risk evaluation and assessments of the quality of controls as products and activities change and as deficiencies are discovered.

### **Internal Controls**

A positive result of more interest in operational risk has been a reinforcing of the value of internal controls and fresh potential for analysing the role of internal controls in reducing or mitigating risks. Most banks noted in the interviews that internal controls are seen as the major tool for managing operational risk. The controls cited include the full range of control activities described in the Basle Committee's paper on internal controls such as segregation of duties, clear management reporting lines and adequate operating procedures. Many banks expect most operational risk events to be associated with internal control weaknesses or lack of compliance with existing internal control procedures.

Interest in formalising an operational risk discipline appears to be coinciding with another development detected in the earlier survey of audit issues. Over the past several years, many banks have adopted some form of self-assessment program. Much of the data for monitoring operational risk, both currently and prospectively, is generated by the responsible business unit's techniques for self-assessment of its internal control environment. The results of such self-assessments can be among the factors used to evaluate operational risk, along with internal audit ratings and external audit or supervisory reviews. At least two banks described their efforts to further enhance the incentive to discover and report problems internally by penalising the discovery of problems by supervisors or internal audit more heavily than problems uncovered in the self-assessment process.

The activities of internal auditors were also seen as an important element of operational risk management. In particular, the identification of potential problems, the independent validation of business management's self-assessments and the tracking of

problem situations with the progress toward resolving the problems were cited by several banks as important to managing operational risk.

In addition to internal audit, important roles were ascribed to independent financial and internal control functions (including the audit committee). These may either be corporate-wide functions or units housed in individual business or product areas. These areas typically do not focus solely on operational risk. Moreover, some banks referred to additional resources such as external auditors and the various regulatory authorities as important stimuli in creating organisational risk controls.

### **View of Possible Role for Supervisors**

The comments on the possible role of bank supervisors reflected the relatively early stage of the development of operational risk measurement and monitoring. Most banks agreed that the process is not sufficiently developed for the bank supervisors to mandate guidelines specifying particular measurement methodologies or quantitative limits on risk. Preference was expressed, at this stage, for supervisors to focus on qualitative improvement in operational risk management. In this regard, many banks noted the potential for supervisors to raise the level of awareness of operational risk. The banks were more split on whether the supervisors should provide a forum to facilitate the identification of “best practices”, with some expressing reservations about the usefulness of best practices given the perceived institution-specific nature of operational risk.

The Basle Committee believes that publishing this summary of the results of its survey will provide banks with an insight into the management of operational risk. The Committee will continue to monitor developments in this area. Banks are encouraged to share with their supervisors new techniques for identifying, measuring, managing and controlling operational risk.