

HOW TO MANAGE OPERATIONAL RISK



Venkatesan K

Operational Risk Management is a relatively new and complex concept that is fast evolving, particularly in the backdrop of several corporate scams and debacles in recent past. The article attempts to provide an overview of the concept and how such risks can actually be managed effectively.

Financial services and banking grow, mature and expand in size, spectrum of services and reach so grow the associated managerial complexities and risks. No risk no reward.

The raw material “money” is borrowed from smaller more risk averse lenders and investors and deployed in a portfolio of assets with varied risk exposures. The firm earns its reward for its capability to manage the risk. Traditionally, credit, market and interest rate risks are well understood by the industry and today we have to some extent very mature risk hedging mechanisms in place.

Take the case of Barings that collapsed in 1995. The Bank of England report identified unauthorized and concealed trading activities as the cause for losses. The positions were not detected earlier due to failure of systems and managerial confusion. This particular irregularity had caused the entire bank to down the shutters. This is a class example of a catastrophe that



the bank never foresaw.

We can also draw a number of parallels in our Indian context, starting from Harshad Mehta Scam to misappropriation of funds by NBFCs, to recent stamp paper scams. All have one thing in common, fail-

ure of control systems at different levels. The Chartered Accountants must take note of the Bank of England’s remark on the failure of external auditors and regulators to detect the irregularities before it had ultimately sunk the bank.

The concept of operational risk is not something that is happening today. Businesses were aware for long of the possible hazards of latest technologies, e-commerce and human greed among many other causes. However, its management as a separate risk type was not considered important. The fact that all these are today being deliberated at length under the banner of “Operational Risk Management (ORM)” implies the importance of these non-quantifiable loss events to the businesses and its managers. Operational risk in certain extreme situations threatens with a loss of magnitude not comparable with any other risks challenging a business enterprise just because the amount involved cannot be estimated and retraction and recovery is almost

The author is a Member of the Institute. He can be reached at venkatesh@scopeknowledge.com

impossible and also importantly happens in an unexpected quarter at an unexpected time.

Operational Risk Defined

Until the Bank for International Settlements (BIS), a bank originally created to manage war reparations of Germany, initiated reforms in banking supervision, the ORM had been least important concept predominantly because of its incapability of quantification. BIS made the first attempt toward this when it included Operational Risk for calculating minimum capital charge in its 1999 consultative paper.

The Operational Risk Management is all the more important today for internationally active banks because, the BIS's latest capital framework requires capital charge based on their operational risk exposure. This requirement has tremendous impact on the market competitiveness of the bank. A bank with low operational risk exposure is in a competitively advantageous position as compared to a similar sized bank with great risk as the former bank is required to have lower capital charge.

In line with the industry thinking, BIS opted to define 'operational' in broad terms. According to Para 644 of the International Convergence of Capital Measurement and Capital Standards issued by the Bank for International Settlements, popularly known as "Basel II Framework", Operational risk is defined as the risk of loss resulting from inadequate or failed internal processes, people and systems or from external events. This definition includes legal risk, but excludes strategic and reputational risk.

How Operational Risk is Different: One of the striking features is that they tend to be recurring, numerous and low in severity (and at times yield profits too as in the case of Barings). Traditionally, operational losses were thought of as an integral and unavoidable part of the game as most of the credit and market risks have an operational risk angle attached to them. A loan exposure turning bad can point to irregularities or failures at

In Indian context, what is common in Harshad Mehta's Stock Scam, misappropriation of funds by NBFCs and recent stamp paper scams? It is the failure of control systems at different levels. The Chartered Accountants must take note of it.



credit appraisal, sanction, documentation or lapses in post-disbursement review.

Operational risk issues are peculiar and specific to the facts and circumstances of each organization. They are dependent on the people, processes and systems and how these are affected by external events. External risk data of an organization of similar size in the same line of business may not be of great use for an organization's ORM strategy.

Even a small change in the business has its own implication on the operational risk profile. For example when a bank chooses to send chequebooks from a centralized back office, it changes risk dimensions of the process. Hence past losses data may not give a reliable estimation of future events. Hence the risk management system should be dynamic and continuously changing.

Identify and Measure Operational Risk

The standard accounting practices in many countries worldwide require a provision to be made in the books of account for all expected losses wherever quantifiable and a mention of known contingent losses. Provisions are made when loss has already arisen relating to operational matters. An example is a probable loss arising out of a lawsuit in a copyright infringement. There are certain unexpected costs that could bring the going concern to a grinding halt. Banking regulators are interested in ensuring adequate capital buffer for these costs. Here comes the need and challenge of identifying and measuring the operational risk.

Operational risk is conglomeration of risk categories that could not be properly classified into any other traditionally known, like credit, market and insurance risks. Operational risk encompasses events with too different frequencies, nature, patterns of occurrence, severity, etc. Hence aggregating them all into logical groups and making sensible predictions about their probability of occurrences and magnitude is a new and evolving study. A number of models varying in their

accuracy, focus and resources are being discussed and evaluated and some have also been implemented. We are yet to receive any reliable empirical evidence to rank them on ‘usefulness standard’.

Generally, the accuracy of risk measurement methods crucially depends on the soundness of risk model and the availability of data. Proper risk modeling requires a thorough understanding of recurrent patterns that underlie the risk under consideration. The appropriateness of those risk models is inherently linked to data availability and thus the occurrence of events. Not only do incidents help better understanding the underlying risk structures but they also provide the ground for statistical testing of risk models. The bottom line is “choose the best model for each risk and “one-size-fits-all” may not be always the best idea”.

Measurement Models

Some of the models that are being deliberated around the world are very briefly discussed here just to provoke a thought process of model selection in the reader and by no means can be an exhaustive listing or do-it-yourself guide.

A. Scalar Models: The operational risk in these models is calculated as a percentage of major business parameters like gross income, operating costs, asset base, borrowings, etc. The basic reasoning behind these models is that these parameters serve as proxies to the scale of business operations and hence risk exposure. The Basel Committee recommends two variants of this model. Under Basic Indicator Approach it recommends computation of operation risk as a percentage of the average of three years positive gross annual income. In Standardised Approach, bank’s activities are divided into eight business lines and the risk is calculated separately for each of the business line applying appropriate percentage.

These models, though simple to calculate, do not offer incentive for business managers to improve



internal checks and balances and reduce risk capital. Every rupee they earn has a part attributable to loss risk irrespective of how well they manage the business. They

Operational risk is defined as the risk of loss resulting from inadequate or failed internal processes, people and systems or from external events. This definition includes legal risk, but excludes strategic and reputational risk.

will tend not to be risk cautious.

B. Statistical Approaches: Pure statistical models rely on building historical internal loss databases and make predictions about their behaviour and loss influence using statistical tools. This method is scientific and is based on recorded facts. Operational risks are dynamic and even a small change in the process flow affects the risk profile of the business unit. Hence past loss data cannot be a true reflection of current state of affairs and measuring the risk using these approaches though are based on sound reasoning is like driving a vehicle looking only at the rear view mirror.

Use of Scorecards in combination with statistical approaches can effectively overcome this drawback. The operational risk capital estimated using statistical tools for the organization as a whole is allocated to constituent business units based on their relative scores. If the scorecards are designed correctly, business units will have sufficient incentive to take mitigating actions to control their risks, in order to improve their risk scores and hence reduce their capital allocation. The risk scores also provide a mechanism for internal benchmarking and identifying, and spreading best practice within the organisation. Business managers are able to see which unit has the best score and copy its approach, if it makes cost-effective sense for their business.

C. Fuzzy Logic Fuzzy logic or Fuzzy Set theory, a mathematical concept concerning existence of vague variables can be applied to an ORM scenario where by nature the contributing factors and end risk values tend to be highly subjective. This approach starts with identifying critical risks at the lowest level in the organizational hierarchy and consolidated at various levels upwards and finally organizational risks ranked in the order of severity is arrived at. In the next step Key Risk Indicators or KRIs are identified for each risk. KRIs are measurable operational (trend or

scaling) or financial variables, which provides a reasonable basis to estimate the risk. The KRIs should either be contributory or an indicator of the influence of the risk. Applying fuzzy logic techniques to KRIs, with the use of linguistic indicators (like Low/High/very high, poor/fair/good), allows for the development of a fundamental model relating an organisation's risks their key influences. This technique helps us to identify and interpret key risk drivers and underlying relationship, which may exist between KRIs.

D. Causal Modeling: A causal model is a description of the causes and effects of operational losses. In this method, a dynamic simulation model of operational processes is built, incorporating all relevant causal drivers, as well as the outputs in the form of operational losses. The model may be parameterised with available data (both internal and external) and/or expert judgment, and can then be used to measure risks, drive capital allocations and suggest mitigating actions. If successfully implemented, causal modeling would have a very positive behavioural impact, encouraging units to manage not just the final loss outcome, but also all the causal drivers that led to that outcome.

Mitigating Operational Risk

A firm has various options to encounter an operational risk. First and foremost, it can avoid the risk, for example keeping away from a particular line of business. Secondly, the firm can retain the risk but develop controls to reduce the frequency and severity of the losses. The firm may also choose to absorb these losses through earnings (as stated in Figure 1). Where the firm still incurs risk after introducing controls and self-financing through earnings, the firm may choose to either retain the risk of loss or transfer the risk through insurance or other mechanisms. Normally, low-severity high-frequency losses are preferred to be funded through earnings and low-frequency high-severity risks are spread through geographical diversification, recovery sites, insurance, etc. Some of the risk-mitigating mechanisms practiced are discussed hereunder:

A. Insurance

Risk transfers to an insurer is a new and emerging concept in the Operational risk arena for the simple reason that it is difficult to measure and far less research has been done in this area. The revised Basel II framework allows banks to take advantage upto 20% of the

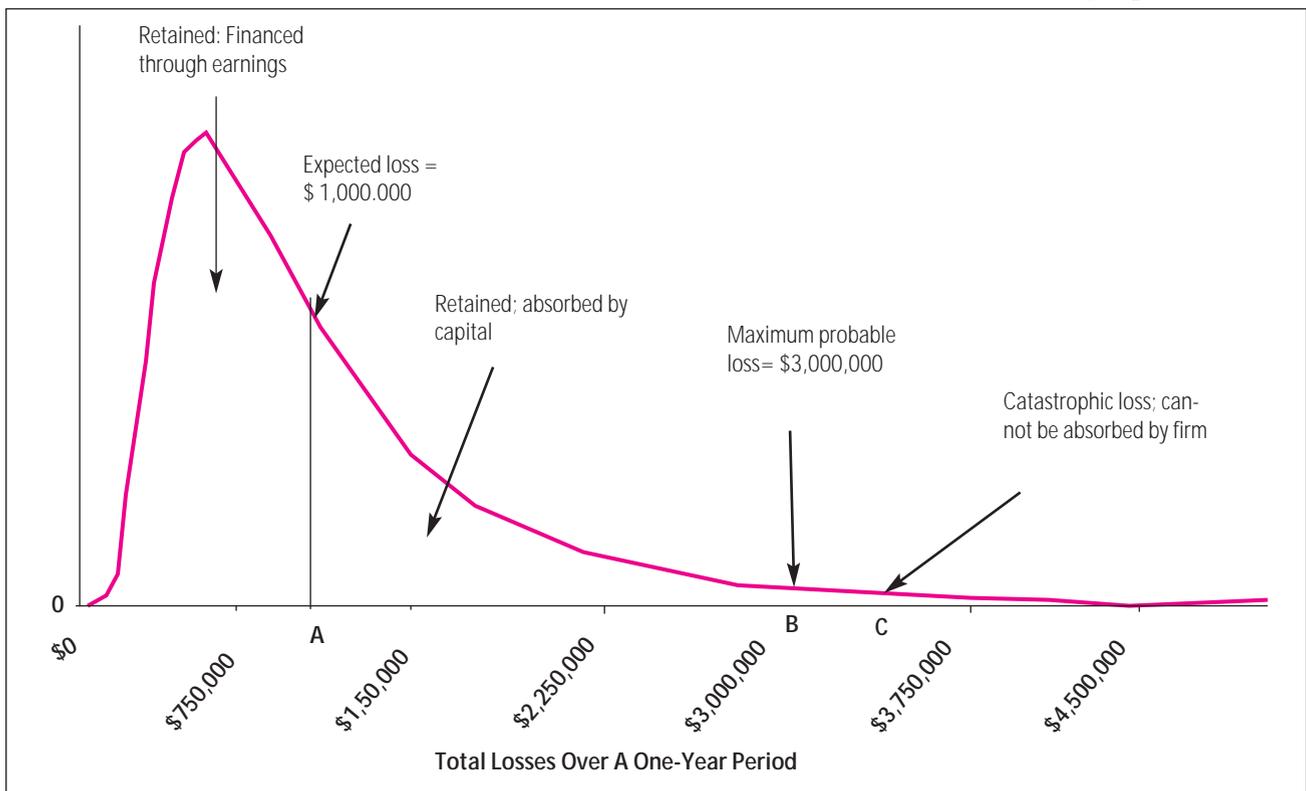


Figure 1: Financing Fraud Losses over a period of one year
 (Source: *Operational Risk transfer across financial sectors (Aug 2003), BIS*)

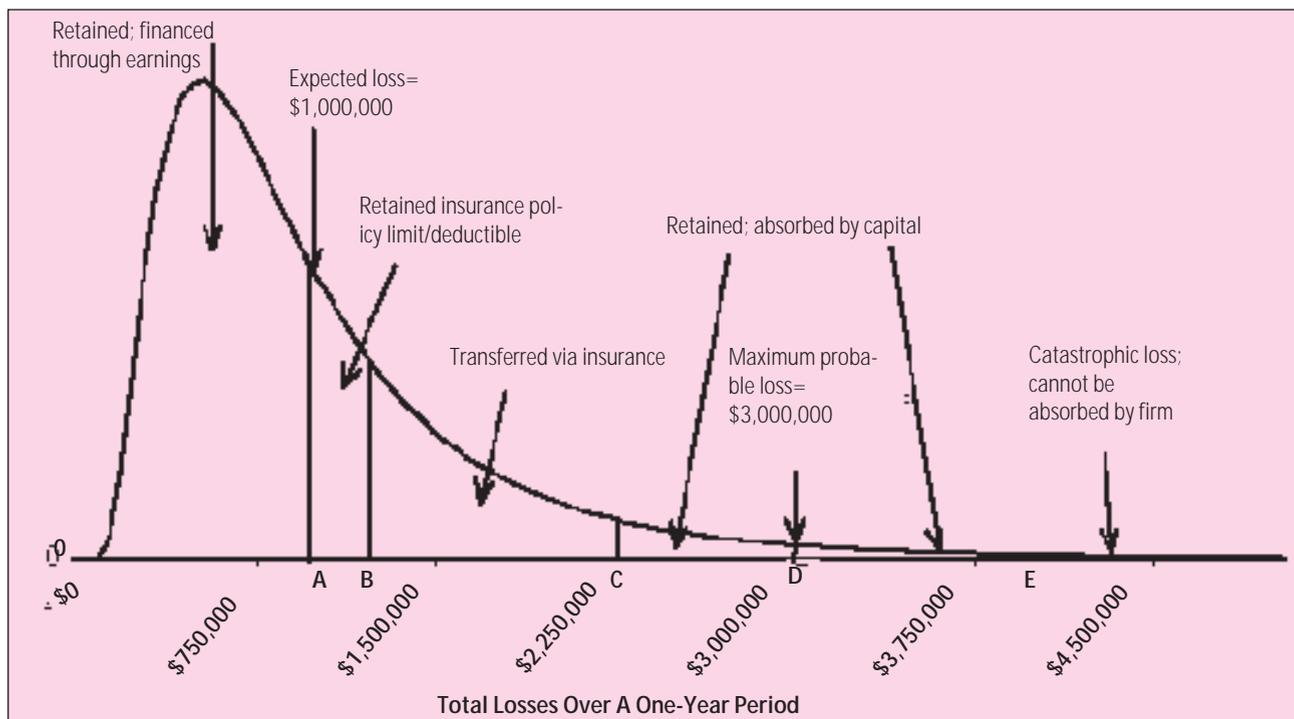


Figure 2: Financing Fraud Losses over a period of one year, with insurance

(Source: *Operational Risk transfer across financial sectors (Aug 2003), BIS*)

required capital requirement under Advanced Measurement Approach (AMA) through use of insurance.

The graph presented in Figure 1 shows hypothetical operational loss distribution of a firm for one year. Point A is the average expected loss. The firm typically makes provisions in the books to absorb the average loss. Point B represents maximum probable loss. The firm has to have enough capital base to absorb loss if such an extreme eventuality happens. Point C is a catastrophe, which the firm cannot provide for. If that event happens, the entire capital of the firm is exhausted and it is insolvent.

The next graph in Figure 2 illustrates a similar hypothetical loss distribution in a firm, which had taken an insurance cover.

In this example, the firm takes an insurance cover for losses between point B and C (ie, \$750,000). This extends the capability of the company to absorb losses upto 3,750,000 and similarly threshold for catastrophe is also extended.

Traditionally Insurers have been offering specialized products to address specific eventualities. Fidelity Covers protect the firm against direct finan-

cial loss (loss of money as well as assets) caused by any act of fraud on the part of any employee. Directors' and officers' liability coverage can protect against losses incurred by directors and officers for alleged wrongful acts and by the firm for money it paid to directors and officers to indemnify them for damages. Property insurance can protect firms against losses from fire, theft, inclement weather, etc.

B. Business Process Outsourcing

Outsourcing business processes to specialized service providers though made with sound business reasons of better cost, time and resources management, is fast emerging as a tool for operational risk transfer. For effective risk transfer, the relationship with the outsourcing partner should be managed through Service Level Agreements, which should clearly determine the rights, responsibilities and expectations of both the parties. When the outsourcing doesn't seem to reduce the risk, it is considered to outsource through a third party who has expertise in this line of activity.

C. Financial Hedging

Hedging provides another channel of reducing

risk exposures. The existence of an instrument (e.g. financial derivative) whose value depends to some extent on the fundamental exposure of a corporation is crucial for reducing the overall risk exposure through hedging. This idea has not only led to the search for existing hedging opportunities but also to the creation of new instruments as a response to growing concerns about the consequences of certain risk types

Catastrophe Bond is an example of such instrument. A catastrophe bond is a junk bond, but one in which the “default” is triggered by a specific and anticipated event. Upon its issue, the proceeds are placed in secure short-term assets to be liquidated at the time of the catastrophe. Interest is paid on the bond until a catastrophe occurs, at which time interest payments cease and the principal is forgiven. These instruments have the key feature that they allow an insurance company, whether a primary insurer or rein-

Operational Risk Management is more important today for internationally active banks because the Bank for International Settlements' latest capital framework requires capital charge based on their operational risk exposure. This requirement has tremendous impact on market competitiveness of bank.

surer, to transfer its risk directly to capital market investors. In Catastrophe Futures and options traded at the Chicago Board of Trade (CBOT), the pay-offs are triggered by the amount of industry losses related to a specific catastrophic event.

Conclusion

The existing capital adequacy norms applicable to businesses operating in financial and allied industries in India statutorily calculate their minimum capital on tangible and measurable exposures and off-balance sheet risks. Not much focus has been made on the hidden operational risk.

Understandably so, as these norms were designed based on the Basel Committee's 1988 recommendations. However, such time is not far off when the new Basel framework, which lays considerable emphasis on operational risks, is thrust on us with statutory force. Adopting new Basel framework means improving and strengthening internal business processes and maximizing business and capital competitiveness. ■

TAX INFORMATION NETWORK (TIN)

As you may be aware, NSDL is setting up Tax Information Network (TIN) for the Income Tax Department (ITD). Various services/facilities that are available to taxpayers, assessees, deductors, etc. are given below:

- (i) Receiving PAN application and Change Requests (e.g. address change) through TIN Facilitation Centres (FCs) and through Internet (on-line), processing and issue of PAN cards.
- (ii) Receiving TAN applications through TIN FCs, processing and communicating allotment of TAN.
- (iii) Receiving e-TDS returns from deductors through TIN FCs and through Internet (on-line) directly.
- (iv) Receiving challan data from banks through On-line Tax Accounting OLTAS).

The OLTA System mentioned above also facilitates tax-payers to view certain challan details through the internet based Challan Status Inquiry module. The website address is <http://tin.nsdl.com>. The taxpayer has to type the BSR code (bank branch code), date of deposit of cheque and challan serial number (mentioned on challan counterfoil) which together is called Challan Identification Number (CIN) on the web page to view the challan details. This enables the taxpayer to know that the challan data has indeed been transmitted by the bank to ITD (TIN).