

The Operational Risk in the Outlook of the Basel II Accord Implementation



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Abstract. *The financial scandals in the last two decades have determined the Basel Committee to improve the risk controls for banks in general, and for operational risk in particular. Operational risk covers all non-market or credit risk, therefore including management risk, IT and fraud risk. By the Basel II Accord, the Committee proposes three risk measurement methods, which induce increasing costs, but also greater reductions in a bank's capital reserve, and thus in its operating costs.*

Key words: Basel II; operational risk; risk management; banking; risk assessment.



In the last decades, the banking community was shaken by several large scandals: in 1995, Daiwa New York lost \$1.1 billion, due to a stream of illegal activities. In the same year, Barings, the 233 year-old banking institution, collapsed, due to the actions of a single man who eluded the internal controls of the bank.

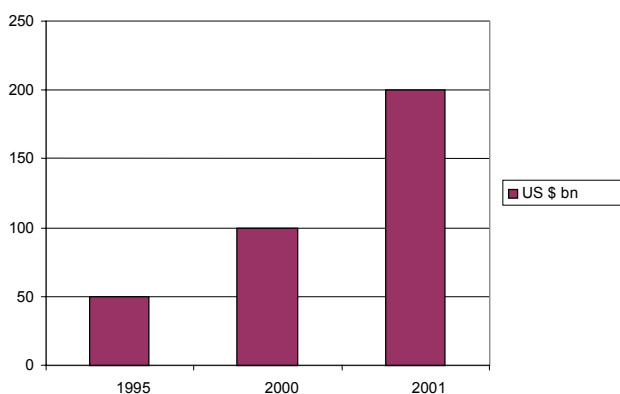


Figure 1: *In a single year, the amount of bad debt has doubled*

The Basel Committee on Banking Supervision, which is the regulatory body for banks, has taken into account

these scandals when issuing the 2001 Basel II Accord. This accord effectively increases a bank's capital requirements, unless it can control both "its credit and operational risk". Next we are going to show how these risks impact on the capital requirements of a bank, while paying special attention to Operational Risk.

According to the Basel II Capital Accord, operational risk is defined as "the risk of direct or indirect loss resulting from inadequate or failed internal processes, people and systems, and from external events". This covers the following new and growing risks faced by banks:

- The greater use of more highly automated technology has the potential to transform risks from manual processing errors to system failure risks, as greater reliance is placed on globally integrated systems;
- Growth of e-commerce brings with it potential risks (e.g. Internal and external fraud and system security issues) that are not yet fully understood. This is inherent with the complexity of the systems being used, in which security flaws are discovered and exploited every day;

- Large-scale acquisitions, mergers, de-mergers and consolidations test the viability of new or newly integrated systems;
- The emergence of banks acting as large-volume service providers creates the need for continual maintenance of high-grade internal controls and back-up systems;
- Banks might engage in risk mitigation techniques (e.g. collateral, credit derivatives, netting arrangements and asset securitisations) to optimize their exposure to market risk and credit risk, but which in turn might produce other forms of risk (e.g. legal risk);
- Growing use of outsourcing arrangements and the participation in clearing and settlement systems can mitigate some risks but can also present significant other risks to banks.

The meaning of operational risk

Operational risk covers all non-credit and market risks. This leaves a large palette, which includes the following:

Internal fraud. This can be defined as intentional misreporting of accounts, employee theft, and insider trading on an employee's own account.

External fraud. This category includes robbery, forgery, and damage from computer hacking.

Employment practices and workplace safety. For example, worker's compensation claims, violation of employee health and safety rules, organised labour activities, discrimination claims and general liability.

Clients, products and business practices. For example, fiduciary breaks, misuse of confidential customer information, improper trading activities on the bank's account, money laundering and sale of unauthorized products.

Damage to physical assets. For example, terrorism, vandalism, earthquakes, fires and floods.

Business disruptions and system failures. This includes hardware and software failures, telecommunication problems, and utility outages.

Execution, delivery and process management. For example, data entry errors, collateral management failures, incomplete legal documentation, unapproved access to given client accounts, non-client counterparty underperformance, and vendor disputes.

Management risk. This includes poor management, and risk of corporate governance exposure. According to Chorafas, management risk "is the No. 1 operational risk. It represents one out of six or seven op risk cases. Next in importance is event risk, including internal and external fraud."

Operational risk calculation methods

The Accord also proposes three methodologies for calculating operational risk:

1. Basic indicator approach;
2. Standardized approach – which is a matrix of seven risks and eight banking channels;
3. Advanced measurement approaches (AMA)

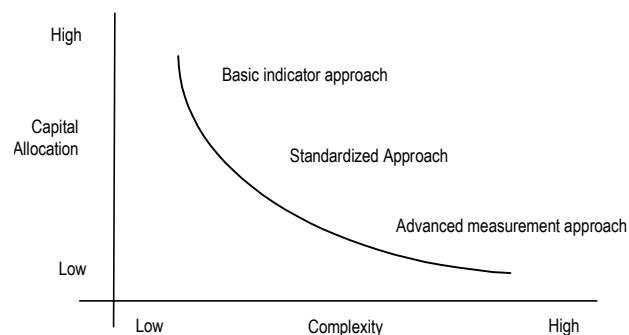


Figure 2. Capital allocation decreases as implementation complexity grows

The first methodology is the "easiest" to implement and involves the highest capital cost, while the last methodology is the most difficult to implement, but it involves the lowest capital costs. Therefore, banks have to show that they have a grip on their operational risks, in order to reduce their capital requirements, and therefore their cost of capital. To illustrate this, we will briefly describe these methodologies:

1. Basic indicator approach

Similar to the Basel I accord of 1988, Basel II allows a bank to use a single indicator (such as 20% of its average annual gross income) to determine its capital charge. There are no qualifying criteria associated with this approach, and it involves little change to current practices. In general, only small banks are expected to use this basic approach.

According to a Consultative Document issued by the Basel Committee, the indicator "...is based on the same proportion of capital (20%) for operational risk as the Standardized Approach and may need to be reviewed in the light of wider calibration. For instance, it may be desirable to set it at a higher level, although alternative means of generating such an incentive are also available, for example by making the Standardized Approach the entry point for internationally active banks. It is also worth noting that a sample of internationally active banks has formed the basis for this calibration. As it is anticipated that the Basic Indicator Approach will mainly be

used by smaller, domestic banks, a wider sample base may be more appropriate.”

2. Standardized approach

A bank that uses this approach must calculate a capital requirement using a risk indicator (such as annual average assets or gross income) for each one of its business lines. The savings in reserve charges, compared with the Basic Indicator Approach’s across-the-board 20% figure, could be large, and therefore the incentive for banks to move from the Basic to the Standard approach is clear. The banks must meet the following criteria to use this approach:

- Demonstrate that an operational risk management system is in place;
- Systematically track relevant operational risk data including material losses by business line;
- Regularly report operational risk exposures, including material operational losses, to business unit management, senior management and the board of directors;
- Have a process in place for ensuring compliance with a documented set of internal policies, controls, and procedures concerning the operational risk management system;
- Subject their operational risk management processes and assessment systems to validation and regular independent review.

The Basel Committee proposes business lines and units that mirror those developed by an industry initiative to collect internal loss data in a consistent manner. Working with the industry, regulators will specify in greater detail which business lines and activities correspond to the categories of this framework.

Within each business line, regulators have specified a broad indicator that is intended to reflect the size or volume of a bank’s activity in this area. The indicator is intended to server as a rough proxy for the amount of operational risk within each of these business lines.

Table 1

Business Units	Business Lines	Indicator
Investment Banking	Corporate Finance	Gross Income
	Trading and Sales	Gross Income
Banking	Retail Banking	Annual Average Assets
	Commercial Banking	Annual Average Assets
	Payment and Settlement	Annual Settlement Throughput
Others	Retail Brokerage	Gross Income
	Asset Management	Total Funds Under Management

3. Advanced measurement approaches (AMA)

This approach offers the most flexibility and self-discipline. To quote Basel II, “in the AMA, banks may use their own method for assessing their exposure to operational risk, so long as it is sufficiently comprehensive and systematic.” This involves the collection of historical data on losses, the analysis of this data, and the use of models to derive a probability of loss. It should be stressed that the most difficult part is the collection of the data, rather than the implementation of the models, because data might not be available for every type of risk.

Use of the AMA is subject to supervisory approval, and banks need to classify transaction incidents according to their impact on business. The Basel Committee has stated “it is prepared to provide banks with an unprecedented amount of flexibility to develop an approach to calculate operational risk capital that they believe is consistent with their mix of activities and underlying risks.”

In general, banks must first integrate an internal risk measurement methodology directly in their day-to-day operational procedures and decision-making processes. This can be very expensive to implement, and involve change in a lot of processes. But the bottom line is clear: with the AMA, the banks can use their internal loss data to demonstrate to regulators that they should qualify for reduced capital reserves. This is important because banks can innovate and implement sets of internal controls rather than single internal controls. These sets of controls can work together and reduce the operational risks, and therefore the banks should be evaluated on the historical losses rather than the choice of controls they chose to implement.

Under the Internal Measurement Approach, a capital charge for the operational risk of a bank would be determined using the following procedures:

- A bank’s activities are categorized into a number of business lines, and a broad set of operational loss types is defined and applied across business lines.
- Within each business line/loss type combination, the supervisor specifies an exposure indicator (EI) which is a proxy for the size (or amount of risk) of each business line’s operational risk exposure.
- In addition to the exposure indicator, for each business line/loss type combination, banks measure, based on their internal loss data, a parameter representing the probability of loss event (PE) as well as a parameter representing the loss given that event (LGE). The product of $EI \times PE \times LGE$ is used to calculate the Expected Loss (EL) for each business line/loss type combination.
- The supervisor supplies a factor (the “gamma term”) for each business line/loss type combination, which translates the expected loss (EL) into a capital charge. The overall capital charge for a particular

- bank is the simple sum of all the resulting products.
- To facilitate the process of supervisor validation, banks supply their supervisors with the individual components of the expected loss calculation (i.e. EI, PE, LGE) instead of just the product EL. Based on this information, supervisors calculate EL and then adjust for unexpected loss through the gamma term to achieve the desired soundness standard.

In conclusion:

1. The *Standardized Approach* involves little change from Basel I, but imposes the highest capital requirements;
2. The *Basic Approach* consists of a set of recommended controls which the banks must implement; adopting this approach involves higher costs than the first approach;
3. The *AMA* lets the banks demonstrate to regulators that their internal controls are sufficient to ensure adequate protection against risks.

This demonstrates that investment in operational risk control brings a gradual reduction in reserve capital requirements which directly impacts a bank's cost of doing business.

The actual stage of implementation

The initial effective date of the Accord was set to 1st December 2006; on the 4th January 2007, Alliance & Leicester is the first European bank to implement the Basel II Accord. In general, European banks are more advanced in the implementation, compared to those in America or Asia. For Asian banks, a postponing of the date is currently under discussion, and the general opinion is that the Accord will be completely implemented only in 2009.

One of the main benefits of the Accord is the creation of an „uniform risk landscape”. But small banks can only dedicate limited funds for the Accord's implementation, and so they will be obliged to raise their required capital, effectively raising their cost of doing business. Consequently, the small banks will be at a disadvantage com-

pared with their larger counterparts, which will reduce their costs due to the implementation of the more advanced methods of the Accord. This is currently a hot discussion topic, which slows down the implementation of the Accord. Moreover, the differences in legislation (as well as economic interests) between America, Asia and Europe, further slow down the implementation. And we should mention that in the US, the Accord overlaps with the Sarbanes-Oxley law – another negative impact.

Looking back, the Sarbanes-Oxley law was relatively quickly implemented in the US, as it was only applied to a single economy. The Basel Accord is global in its scope, and thus its implementation will prove to be a greater challenge.

Practical example

Let's assume an 100 Euro credit to a company without rating. Under the standardized method, how should the risk be treated under the following circumstances: (1) No collateral is available; (2) Collateral is available in the form of 100 Euro AAA sovereign bonds; (3) Collateral is available in the form of 125 Euro AAA sovereign bonds; (4) Collateral is available in the form of 100 Euro in cash; (5) 100 Euro in gold.

(1) The risk must be covered 100%; this rule can only be overridden by the national supervisor

(2) This type of collateral must be discounted by 20%. Therefore, we only need to cover 80 Euro, instead of the full 100 Euro. In conclusion, 80 Euro are treated as having zero risk, and 20 Euro have 100% risk, and thus the risk for this exposure is 20%

(3) In this case, the risk is zero. After discounting, the collateral is worth 100 Euro, which is enough to cover all the risk of the exposure.

(4) No discounting and no ceiling is required, so the risk is again zero;

(5) No discounting is necessary, but the 20% ceiling must be applied, so 80% of the 100 Euro has 100% risk.

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