

Operational Risk Is Not Just “Other” Risks

Until very recently, it has been believed that banks are exposed to two main risks. In the order of importance, they are *credit risk* (counterparty failure) and *market risk* (loss due to changes in market indicators, such as equity prices, interest rates, and exchange rates). Operational risk has been regarded as a mere part of “other” risks.

Operational risk is not a new concept for banks. Operational losses have been reflected in banks’ balance sheets for many decades. They occur in the banking industry every day. Operational risk affects the soundness and operating efficiency of all banking activities and all business units.

Most of the losses are relatively small in magnitude—the fact that these losses are frequent makes them predictable and often preventable. Examples of such operational losses include losses resulting from accidental accounting errors, minor credit card fraud, or equipment failures. Operational risk-related events that are often more severe in the magnitude of incurred loss include tax noncompliance, unauthorized trading activities, major internal fraudulent activities, business disruptions due to natural disasters, and vandalism.

Until around the 1990s, the latter events have been infrequent, and even if they did occur, banks were capable of sustaining the losses without major consequences. This is quite understandable because the operations within the banking industry until roughly 20 years ago have been subject to numerous restrictions, keeping trading volumes relatively modest, and diversity of operations limited. Therefore, the significance of operational risk (whose impact is positively correlated with income size and dispersion of business units) has been perceived as minor, with limited effect on management’s decision-making and capital allocation when compared to credit risk and market risk. However, serious changes in the global financial markets in the last 20 years or so have caused noticeable shifts in banks’ risk profiles.

EFFECTS OF GLOBALIZATION AND DEREGULATION: INCREASED RISK EXPOSURES

In the course of the last two decades, the global financial industry has been highlighted by several pronounced trends, which have been in response to increased investors' appetites. The global financial system has been characterized by globalization and deregulation, accelerated technological innovation and revolutionary advances in the information network, and an increase in the scope of financial services and products. Globalization and financial deregulation have been working to effectively put together the world's dispersed financial markets into a unified complex network.

An example from Asia is the Japanese "Big Bang" financial deregulation reform, launched in 1998 by then Prime Minister Ryutaro Hashimoto, as a response to a prolonged economic stagnation that started with the burst of the bubble economy in late 1989 to early 1990. Financial reform was aimed at the liberalization of banking, insurance, and stock exchange markets and boosting the competition of the Japanese financial market relative to the European and American markets, and to regain the status of one of the world's major financial centers.

As for the United States, an example is the Financial Services Act of 1999. The bill repealed the 1933 Glass-Steagall Act's restrictions on bank and securities firm affiliations and allowed affiliations among financial service companies, including banks, registered investment companies, securities firms, and insurance companies—formerly prohibited under the Bank Holdings Act of 1956. It also called for the expansion of the range of financial services allowed by banks.

Several reforms have taken place in Europe. In October 1986, the London Stock Exchange underwent a radical change in organization, the *Big Bang* (a title later adopted for the Japanese financial reform). It eliminated fixed commissions on security trades and allowed securities firms to act as brokers and dealers. It also introduced automated screen-based trading, enabling the movement away from the traditional market floor. Another prominent example is the formation and expansion of the European Union, and adoption of a single currency, the euro. The purpose of the union is to relax financial barriers and break down trading constraints, and achieve integration on cultural, economic, and political levels. In Eastern Europe, the collapse of the Soviet regime in the early 1990s created a massive new market for capital flows.

Financial globalization due to financial liberalization has caused players in the financial and business sectors across the world economies to be subject to an unprecedented degree of competition, from both domestic and foreign counterparts. Liberalized trade has given customers and investors

choices and opportunities they did not have before. This has resulted in the development of new financial products, instruments, and services. Securitization has turned otherwise illiquid instruments into tradeable commodities. Privatization has turned thousands of former state enterprises into private ventures and competitors for risk capital. New derivative instruments have been offered to provide for powerful hedging tools against various market and credit-related risks.

Financial deregulation has coincided with (or, perhaps, in many cases has triggered) a number of remarkable technological innovations including the development of the Internet, leading to revolutionized banking activities such as online banking, growth of e-commerce, and e-mail services. An immediate consequence of this development is a breakthrough in the means and speed at which the financial information is obtained and shared by investors, calling for a higher degree of transparency and market disclosure about banks' business practices.

As a side-effect of these global financial trends and policies, outsourcing, expansion of the scope of financial services, and large-scale mergers and acquisitions (M&A) have become more frequent around the globe. These, in turn, inevitably result in an elevated exposure of the financial institutions to various sources of risk. As a simple example, increased use of computer-based banking services is vulnerable to viruses and computer failures, and credit card fraud. When business units expand, this requires additional employees—this may increase the number of errors committed and increase the hazard of fraudulent activities.

Newly developed and optimized financial products (such as derivatives and securitized products) now provide better protection against market risk and credit risk. Furthermore, previously nonexistent or insignificant risk factors have become a large (or larger) part of the complex risk profiles of financial institutions. Yet some of these risks have not been adequately addressed. Without exaggeration, operational risk is the most striking of all, and has been the subject of heated discussions among risk managers, regulators, and academics in the last few years. As Roger W. Ferguson, Vice Chairman of the Board of Governors of the Federal Reserve System, stated, “In an increasingly technologically driven banking system, operational risks have become an even larger share of total risk. Frankly, at some banks, they are probably the dominant risk.”¹ Major banks share the same view. As an example, a report by the HSBC Group (2004) states that “... regulators are increasingly focusing on operational risk ... This extends

¹From the 108th session on The New Basel Capital Accord Proposal, Hearing before the Committee on Banking, Housing and Urban Affairs, United States Senate, 2003.

to operational risk the principle of supporting credit and market risk with capital, since arguably it is operational risk that potentially poses the greatest risk.”²

Another important impact of globalization is the effect of culture. Culture is an important basis for trust. Internal control practices that prove effective in Asia may fail in Europe or the United States. Using an example from van den Brink (2002), while it is common in Europe and North America to give one staff member the code of the safe and another staff member the key, the same procedure in Indonesia would be perceived by senior management as being mistrusted. Or, as another example, in Japan it is uncommon to say no to or argue with senior management. As we will see later in this chapter, many large-scale operational losses are a result of misuse of trust and responsibility.

Sophisticated instruments and techniques have been developed to manage low- and medium-magnitude losses that are due to market-related and credit-related financial risks. However, recent experiences from the financial market suggest that cash-flow fluctuations of a larger scale, which are more likely to be incurred by the institution/bank’s operation practices rather than market or credit risk related factors, have not been well-managed.³ To support this view, in 1999 the Basel Committee pointed out “the growing realisation of *risks other than credit and market risks* which have been at the heart of some important banking problems in recent years.”⁴

EXAMPLES OF HIGH-MAGNITUDE OPERATIONAL LOSSES

The world financial system has been shaken by a number of banking failures over the last 20 years, and the risks that particularly internationally active banks have had to deal with have become more complex and challenging. More than 100 operational losses exceeding \$100 million in value each, and a number of losses exceeding \$1 billion, have impacted financial firms globally since the end of 1980s.⁵ There is no question that the cause is

²HSBC Operational Risk Consultancy group was founded in 1990, and is a division of HSBC Insurance Brokers.

³See King (2001).

⁴See BIS (1999, p. 15.), with reference to the BIS survey.

⁵According to de Fontnouvelle, DeJesus-Rueff, Jordan, and Rosengren (2003), large, internationally active banks typically experience between 50 and 80 losses exceeding \$1 million per year.

unrelated to market or credit risks, which we noted earlier are the two major risk factors that banks had been believed to face. Such large-scale losses have resulted in bankruptcies, mergers, or substantial equity price declines of a large number of highly recognized financial institutions. Here are a few examples of such losses that occurred in the 1990s.⁶

Orange County, 1994, United States

On December 6, 1994, a prosperous district in California, Orange County, surprised the markets by declaring bankruptcy. The treasurer, Robert Citron, was entrusted with a \$7.5 billion commingled portfolio managed on behalf of the county schools, cities, districts, and the county itself. Investors perceived Citron as a financial wizard who could deliver high returns on their funds during a period of low short-term interest rates by investing in mortgage derivative products that had a substantial exposure to interest rate changes (i.e., securities with a high effective duration). The portfolio performed well when interest rates were declining; however, when rates increased in early 1994, the portfolio blew up. Losses reaching \$1.7 billion, forcing Orange County into bankruptcy.

Citron either did not understand the interest rate exposure of his portfolio because he was unacquainted with the risk/return of the securities in the portfolio or he ignored the magnitude of the risk exposure, believing he could correctly forecast the direction of interest rates. In any case, there were no systems in place to monitor the portfolio's exposure to changes in interest rates. Orange County illustrates combination of lack of expert risk oversight and incompetence.⁷

Barings Bank, 1995, United Kingdom

In February 1995, Barings Bank declared bankruptcy. Barings Bank was the United Kingdom's oldest merchant bank, founded in 1762. Nick Leeson, who was appointed the general manager of the Barings Futures subsidiary in Singapore in 1993, was assigned to exploit low-risk arbitrage opportunities

⁶Other well-known examples from the financial industry include losses incurred by Bank of Credit and Commerce International (1991, fraud), Bankers Trust (1994, fraud), NatWest Markets (1997, error, incompetence), and Nomura Securities (1997, fraud). Some individual case studies are discussed in Cruz (2002), Adams and Frantz (1993), Beaty & Gwynne (1993), FDIC (1995), Shirreff, (1997), Crouhy, Galai, and Mark (2001), as well as daily periodicals and various Internet sites.

⁷For a more detailed description of the Orange County fiasco, see Jorion (1998), Jorion and Roper (1995), and Irving (1995).

that would leverage price differences in similar equity derivatives on the Singapore Money Exchange (SIMEX) and the Osaka exchange markets. However, due to a lack of higher supervision, he was given control over both the trading and back-office functions. He began taking much riskier positions by trading different amounts on contracts of different types on the two exchanges. The derivatives contracts on the Singapore and the Japanese foreign exchange markets were highly dependent on the market conditions in 1993 to 1994.

When the market became volatile, losses in Leeson's trading account began to accumulate, forcing him to increase his bets in an attempt to recover losses. He created a special secret account to keep track of his losses, account 88888. This account had originally been set up to cover up a mistake made by an inexperienced member of the trading team, which led to a loss of £20,000. Leeson then used this account to cover his mounting trading losses.

Finally, the Nikkei index dropped sharply after the January 17, 1995, Kobe earthquake in Japan, and the losses exceeded \$1 billion. The fraud was only exposed when Nick Leeson failed to show up at work at his Singapore office in February 1995; he was attempting to flee from Kuala Lumpur to England in order to escape the tough Far Eastern justice system. The bank was unable to sustain the loss and announced bankruptcy. Here is an extract from Leeson's book *Rogue Trader* (1997, pp. 2–3), about his last trading day:

I knew I'd still lost millions of pounds, but I didn't know how many. I was too frightened to find out—the numbers scared me to death. . . . I'd gone in trying to reduce the position and ended up buying another 4,000 contracts. . . . Traders looked at me and knew I'd done an amazing volume of trade; they marvelled at the sheer amount of business I'd got through. They wondered whether I was dealing for myself or for clients, and whether I'd hedged, protected my position. But they knew—as the whole of Asia did—that I'd built up an exposure to over £11 billion worth of Japanese shares. They were doing their sums and they reckoned I was well long: it was hard to conceal it when you stand for over 40 percent of the Singapore market. The rest of the market had smelled what Barings back in London were completely ignoring: that I was in so deep there was no way out.

A month later, in March 1995, the bank was purchased by the Dutch Bank ING for £1 sterling! In November 1995 Nick Leeson was sentenced to 6.5 years in a Singaporean jail. This is another example of the dramatic

consequences of internal fraud, unauthorized trading, and poor internal surveillance and control.⁸

Daiwa Bank, 1995, New York

On July 13, 1995, the executive vice president of Japan’s Daiwa Bank’s New York branch, Toshihide Iguchi, confessed (in a 30-page letter to the president of Daiwa Bank in Japan) that he had lost around \$1.1 billion trading U.S. Treasury bonds. At the time of the incident, Daiwa was one of Japan’s top 10 banks and one of the world’s top 20 banks in terms of asset size. An astonishing part of the incident is that Iguchi’s illegal trading had been taking place over an 11-year period. Daiwa’s New York branch managed the custody of the U.S. Treasury bonds that it bought, as well as those that it bought on behalf of its customers, via a sub-custody account held at Bankers Trust. Through this account, interest on the bonds was collected and dispersed, and bonds were transferred or sold according to the wishes of either customers or the bank’s own managers.

When Iguchi lost a few hundred thousand dollars in his trading activities, he began selling off bonds in the Bankers Trust subcustody account to pay off his losses, falsifying Bankers Trust account statements so that they would not indicate that the securities had been sold. Throughout the 11 years he forged about 30,000 trading slips and other documents. When customers needed to be paid interest on bonds that had been sold without their knowledge, Iguchi would settle their accounts by selling off more securities and further altering more records. In total, Iguchi sold off roughly \$377 million of Daiwa’s customers’ securities and \$733 million of Daiwa’s own investment securities to cover his trading losses. Shortly after the incident came to surface in November 1995, the Federal Reserve ordered Daiwa Bank to end all of its U.S. operations within 90 days; by January 1996 Daiwa agreed to sell most of its U.S. assets of \$3.3 billion to Sumitomo Bank and to sell off its 15 U.S. offices.

In December 1996, Iguchi was sentenced to four years in prison and fined \$2.6 million. The scandal led to Standard & Poors downgrading Daiwa from A to BBB and to Japan’s Ministry of Finance imposing restrictions on the bank’s activities for a year. In September 2000, a Japanese court in Osaka ordered 11 current and former Daiwa board members and top

⁸Detailed reports on the case include “Not Just One Man—Barings” by L. Chew, Bank of England (1995a), Bank of England (1995b), and Koernert (1996). A number of books have been written about the case: Rawnsley (1995), Fay (1997), Gapper and Denton (1996), Leeson (1997), and Leeson and Tyrrell (2005). The case was turned into a movie, *Rogue Trader*, released in June 1999.

executives to pay the bank \$775 million as a compensation to shareholders' damages. This is yet another example of internal fraud and illegal trading.⁹

Allied Irish Banks, 2002, Ireland

On February 6, 2002, Allied Irish Banks (AIB), Ireland's second-biggest bank, discovered a large-scale and what the bank described as a "complex and very determined fraud" in its Baltimore-based subsidiary Allfirst. Total losses to AIB/Allfirst are estimated to have exceeded \$700 million. A report stated that around 1997, John Rusnak, a trader, had lost a large amount of money on a misplaced proprietary trading strategy, repeatedly falsifying bank statements in an attempt to recoup losses. Rusnak did this by writing nonexistent options and booking the fictitious premium income as revenue, thereby getting himself into a loop of accruing even bigger losses. One weekend he failed to show up at work on Monday morning. As a result of his disappearance, the details of his fraudulent activities came to light. Rusnak, a U.S. citizen, was nicknamed a second Nick Leeson, and entered the league of the infamous rogue traders, together with Toshihide Iguchi. He was sentenced to 7.5 years in federal prison, and was barred for life from working in any financial services company. Amazingly, this case demonstrates how the lessons from Barings Bank's collapse of almost a decade earlier had not been properly learned.¹⁰

The Enron Scandal, 2001, United States

The collapse of Enron Corporation has been the largest bankruptcy in U.S. history. The Enron Corporation was one of the world's largest energy commodities and services companies. Enron was formed in July 1985 in Houston, Texas, by a merger of Houston Natural Gas and InterNorth of Omaha, Nebraska. Initially a natural gas pipeline company, Enron quickly entered the energy futures as energy markets were deregulated. It entered the European energy market in 1995.

On January 25, 2001, the stock price of Enron had reached its peak at \$81.39 per share, and began to drop. Just two days earlier, on January 23, Enron's CEO since 1985, Kenneth Lay, resigned. By the middle of August 2001, it fell to \$43. At the same time, the new CEO, Jeffrey Skilling, quit his

⁹More on Daiwa's case can be found in FDIC (1995) and Lectric Law Library (1995). A 1997 interview with Iguchi appeared in *Time* magazine (1997). Iguchi also wrote a memoir from prison titled *The Confession*.

¹⁰Detailed case studies on AIB can be found in Leith (2002) and various Internet sources.

new job after six months, for “purely personal” reasons. In November the price per share fell below \$10, and Enron announced \$600 million in losses from 1997 to 2000. On December 2, when the share price finally hit zero, Enron filed for bankruptcy protection, making it the largest bankruptcy case in U.S. history. In the middle of January, Enron’s stock was formally delisted from the New York Stock Exchange.

The board of directors of Enron blamed the failure on poor information from the accountants and the management. An investigation into the case conducted by the Securities and Exchange Commission in 2002 suggested that Enron may have overstated its assets by up to \$24 billion due to poor accounting practices.

A number of financial institutions were involved in the Enron case. Arthur Andersen, which was Enron’s auditing firm for 16 years, was charged with obstruction of justice for destroying some of the Enron’s documents in order to protect the firm, while on notice of a federal investigation, and were ordered to cease auditing publicly traded companies on August 31, 2002. Their losses due to the case were estimated at over \$750 million. Merrill Lynch has been accused of a conspiracy to help Enron hide its true state of financial affairs, and estimated its losses due to the involvement at over \$80 million. Other banks involved in the scandal include NatWest (losses over \$20 million), Citibank, JPMorgan Chase & Co., and Salomon Smith Barney, among others, were accused of lending Enron billions of dollars with the full knowledge that Enron was not reporting these loans as debt on its balance sheet. This is an example of losses due to legal liability in combination with fraudulent activities.¹¹

MasterCard International, 2005, United States

In June 2005, MasterCard International Inc. in the United States announced that the names, banks, and account numbers of up to 40 million credit card holders were feared to have been accessed by an unauthorized user. It was revealed that a computer virus captured customer data for the purpose of fraud and may have affected holders of all brands of credit cards. This was one in a series of recent incidents involving security failures and external fraud. In the same month, Citigroup said United Parcel Service lost computer tapes with sensitive information from 3.9 million customers of CitiFinancial, a unit that provides personal and home loans. As of 2006, the final impact (and possible losses) have not been estimated yet.

¹¹Reviews of the Enron scandal include books such as Eichenwald (2005), Swartz and Watkins (2003), Bryce (2002), Fox (2003), McLean and Elkind (2003). Daily periodicals are a good source of updates on the issue.

Terrorist Attack, September 11, 2001, New York and Worldwide

On September 11, 2001, the heart of the U.S. financial center, New York's World Trade Center, and the Pentagon became the targets of large-scale terrorist attacks. On the morning of September 11, two American Airlines jets were hijacked and used to crash into the Twin Towers of the World Trade Center, causing them to collapse about an hour later. Two other airlines were hijacked and one hit Pentagon; the other crashed in Pennsylvania. This dramatic unprecedented incident (referred to as 9/11), apart from its devastating civilian loss (for example, Cantor Fitzgerald alone lost 700 of its employees), resulted in tremendous property loss. The Bank of New York's losses alone were estimated at \$140 million. The financial losses due to 9/11 have been reported to be the costliest insured property loss in history, with current estimates of \$40 billion to 70 billion. Other consequences have been business disruptions of the affected financial service companies, and a tremendous economic and political impact worldwide. This is a striking example of the damage to physical assets, business disruptions, and losses inflicted by external causes.

OPERATIONAL LOSSES IN THE HEDGE FUND INDUSTRY

In the financial industry, banks are not the only ones concerned with operational risk. In recent years, numerous hedge fund failures have been linked to operational risk. Approximately \$600 billion is invested in 6,000 or so hedge funds worldwide. In hedge funds, operational risk is defined as "risks associated with supporting the operating environment of the fund; the operating environment includes middle- and back-office functions such as trade processing, accounting, administration, valuation and reporting."¹²

In 2002, Capco (the Capital Markets Company) studied the causes of hedge-fund failures based on 20 years of data on hedgefund failures. The results of the study showed that approximately 50% of the failures were due to operational risk, 38% to investment risk, 6% to business risks, and 6% to multiple risk sources.

The most common operational losses that caused the failures follow:¹³

- Misrepresentation of fund investments (creating or causing the generation of reports and valuations with false and misleading information)

¹²See Kundro and Feffer (2003a).

¹³See Kundro and Feffer (2003a) and Kundro and Feffer (2003b) for more details of the study.

- Misappropriation of investor funds (investment managers who knowingly move money out of the fund for personal use, either as an outright theft or to cover preexisting trading losses)
- Unauthorized trading (making investments outside of the stated fund strategy or changing the investment style of the fund without the approval of investors)
- Inadequate resources (technology, processes, or personnel that are not able to properly handle operating volumes or the types of investments and activities that the fund engages in)

These four sources, according to the study, account for 41%, 30%, 14%, and 6% of all hedge fund failures, respectively.

Table 1.1 lists examples of prominent hedge funds that have had enforcement action taken against them in 2005, with a brief description of the alleged misdemeanors.

TABLE 1.1 Examples of hedge fund failures due to operational risk

Hedge Fund Name	Country	Amount	Alleged Misdemeanor
KL Group LLC	U.S.	\$81 million	Sending false account statements to investors showing similar gains while suffering tremendous trading losses since 1999
Phoenix Kapitaldienst	Germany	\$800 million	Manipulating account statements, feigning assets
Vision Fund LP/DEN Ventures	U.S.	\$22.8 million	Falsifying investment returns and taking unearned incentive payments based on inflated results and extracting capital for personal use since 2002
Ardent Domestic/Ardent Research	U.S.	\$37 million	Diverting funds to invest them in illiquid securities of entities in which they had a stake and made loans to, entities in which principals had an interest
Portus Alternative Asset Management	Canada	\$590 million	Unconventional sales and compliance practices as well as allocation of assets and promises of principal-backed guarantees

Source: Banga (2005, p. 3). Reprinted with permission from EDHEC Risk and Asset Management Research Centre.

SUMMARY OF KEY CONCEPTS

- Financial institutions bear various operational losses on the daily basis. Examples are losses resulting from employee errors, internal and external fraud, equipment failures, business disruptions due to natural disasters, and vandalism.
- Operational risk affects the operational efficiency in all business units.
- Until recently, credit risk and market risk have been perceived as the two biggest sources of risk for financial institutions. Operational risk has been regarded as a mere part of “other” risks.
- The weight of operational risk in banks’ risk profiles has been elevated substantially as a side effect of financial deregulation and globalization policies.
- Serious banking failures in the last 20 years have demonstrated serious dangers of operational risk. More than 100 operational losses exceeding \$100 million in value each and a number of losses exceeding \$1 billion have occurred globally since the end of 1980s. Operational risk is also the source of approximately 50% of all hedge-fund failures. The task of managing operational risk has moved from being a minor issue to becoming a matter of survivability of financial institutions.

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