

## CHAPTER 1

# Introduction

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**F**inancial market turmoil is not a new phenomenon. From the tulip mania of the 1630s to the housing price bubble of the 2000s, the financial markets have been regularly subjected to periods of irrational behavior by investors and company management. The turmoil has not been confined to one country or geography and has been driven by various factors, including greed. Each period of turmoil creates many economic casualties, including lost jobs, corporate bankruptcies, and destroyed economic wealth.

Notwithstanding government regulations and oversight, financial turmoil and asset bubbles will continue to develop. The onus rightly lies with corporate executives and their boards of directors to act in the best interest of shareholders. Internal corporate oversight includes actively managing the risk-reward trade-off offered to shareholders. Corporate risk can take on many forms, including market, credit, and operational. The successful management and control of internal processes will increase the value of the firm by reducing operational losses and providing a competitive advantage. The focus of this book is on corporate management of internal processes generally classified as operational risk.

Operational risk is typically viewed as a risk arising from the execution of an organization's business functions. It has become a very broad concept, including risks from fraud, legal, physical, and environmental areas. Operational risk became a catch-all concept in financial institutions for any risk not credit or market related. Basel II is the capital accord developed for the banking industry by the Bank for International Settlements (BIS). Basel II defines operational risk as the risk of loss resulting from inadequate or failed internal processes, people, and systems, or from external events. Basel II has also created a classification for operational risk that is applicable to all industries. Basel II describes seven categories of operational risk:

1. *Internal Fraud*—misappropriation of assets, tax evasion, intentional mismarking of positions, bribery
2. *External Fraud*—theft of information, hacking damage, third-party theft, and forgery
3. *Employment Practices and Workplace Safety*—discrimination, workers' compensation, employee health and safety
4. *Clients, Products, and Business Practice*—market manipulation, antitrust, improper trade, product defects, fiduciary breaches, account churning

5. *Damage to Physical Assets*—natural disasters, terrorism, vandalism
6. *Business Disruption and Systems Failures*—utility disruptions, software failures, hardware failures
7. *Execution, Delivery, and Process Management*—data entry errors, accounting errors, failed mandatory reporting, negligent loss of client assets

In the past, high profit margins have characterized the financial services and banking industries. With the advent of commoditized Internet trading and banking services, the high profit margins are disappearing. The control of costs and risks are a high priority in a low-profit-margin environment.

Manufacturing firms have successfully dealt with quality control issues for many decades. Although the beginning of statistical process control is often accredited to Walter Shewhart who developed the control chart in 1924, the acceptance and use of process control did not occur until World War II, when wartime needs attached a high premium to product quality. After World War II, Japanese manufacturing went through a quality revolution. The quality focus shifted from product inspection to total process improvement. All organizational processes were subjected to quality improvements. The total quality initiative transformed Japanese manufacturing from a low-cost-low-quality producer to a low-cost-high-quality producer. By the end of the 1970s, Japan was the leading manufacturer of autos and electronics. The Toyota Production System, developed by Taiichi Ohno, became the basis of all subsequent just-in-time process improvements, which strive for the elimination of all waste. The United States responded to the Japanese total quality initiative with programs such as ISO 9000, Total Quality Management (TQM), Lean Manufacturing, and Six Sigma.

Over the past 40 years, statistical process control has been commonly implemented in the manufacturing, health care, and automotive industries through programs such as Six Sigma, and Lean Six Sigma. Six Sigma helps companies improve product quality and reduce waste by producing products and services better, cheaper, and faster.

The global financial crisis of 2007–2009 is only the latest example of economic turmoil caused by failures in financial risk management. The full extent of the economic, political, and human damage from the current crisis will not be known for some time, but it will dwarf the losses from Enron in the 1990s, the U.S. savings-and-loan crisis in the 1980s, and the Japanese banking crisis that occurred two decades ago.<sup>1</sup> The irony of the current crisis is that it occurred in an industry with the most sophisticated risk management systems and technologies and under very close government oversight. The current crisis is especially troubling in that risk management failed on multiple levels. At the most sophisticated level, quantitative and qualitative modeling gave few warnings of the huge risks inherent in leveraging capital at 30 to 1 and in assuming that real estate values would never decline. At the most simple level, common sense failed among investors, corporate executives and boards, rating agencies, and government regulators. Common sense should have warned that real estate values were growing at unsustainable rates, that middle-class folks were assuming far too much debt, and that making zero-down loans without verifying creditworthiness violated the most basic of banking practices.

Because of the depth and global reach of the current crisis, risk management is now an area of intense scrutiny far beyond corporate executives and government regulators. The demands for greater oversight and more robust risk management are

nearly universal. The pendulum has swung away from a laissez faire mentality with minimal market oversight to one in which regulators and stakeholders (investors, customers, suppliers, and community) will demand much tighter regulation. Unfortunately, greater regulation will fail unless coupled with much enhanced financial risk management. Regulators and corporate executives typically have a financial background but often lack financial risk management expertise. One could argue that the current crisis was the result of risk transparency failures, and not financial transparency failures. Increased risk transparency would help expose the dysfunctional nature of many operational risk management regimes.

## **ORGANIZATION OF THIS BOOK**

The goal of this book is to provide an overview of some of the more exciting and effective techniques to improve financial risk management in operational areas. This is provided as a survey and not as an exhaustive treatment of every next-generation technique. We do cover the basics and include new and thought-provoking approaches that are applicable to all types and sizes of organizations, both public and private.

We begin with a survey of some of the foundations to financial risk management:

- Data Governance in Financial Risk Management
- Information Risk and Data Quality Control
- Total Quality Management
- Information Technology Risk
- Operational Risk Fundamentals
- Risk Management in Asia
- Risk Management in Latin America
- Risks in Migrating to the International Financial Reporting Standards (IFRS)
- Quantitative Operational Risk Methods

We follow with next-generation best practices to improve financial risk management:

- Statistical Process Control Integrated with Engineering Process Control
- Business Process Management Integrated with Lean Six Sigma
- Bayesian Networks for Root Cause Analysis
- Information Analytics
- Embedded Predictive Analytics
- Reducing Risk in Litigation and Legal Discovery
- The Circle of Trust
- Reducing Risk with Environmental Best Practices
- Next-Generation Techniques in Segregation of Duties
- Transaction Based Cross-Enterprise Risk Management
- Throughput Accounting
- Environmental Consistency Confidence
- Quality in the Front Office—Reducing Process Variation in Trading Firms
- Root Cause of the Global Financial Crisis and Corporate Governance Reforms to Prevent the Next Failure in Risk Management

## WHY READ THIS BOOK?

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The goal of this book is to aid financial professionals in implementing quality assurance systems for financial processes that will in turn enable data-driven decision making. The catastrophic failures of risk management behind the global financial crisis demonstrate the criticality of improving the quality and risk management processes in financial services.

The stakes are extremely high—the laggards are doomed to continue to suffer through enterprise-threatening risk failures. The leaders will never be free of risk failures, but will substantially increase their ability to successfully balance risk and reward opportunities.

## NOTE

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1. Carrick Mollenkamp and Mark Whitehouse, “Banks Fear a Deepening of Turmoil,” *Wall Street Journal*, March 17, 2008, pp. 1, 12.

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