

## Foreword

A bank can fail for a number of reasons. It can lose the faith of its depositors and be unable to meet the liquidity demands of such repayments/withdrawals. It can incur massive trading losses. Either by intent or through malfeasance, it can fail to manage interest rate risk. However, of all the possible causes of failure, the one that can be the most threatening is credit risk.

Banks throughout the world are constantly expiring or requiring government life support as a result of credit losses that eliminate capital. In most cases, these credit losses are a cumulative problem arising from general economic malaise. Sometimes they are the result of ill-advised lending concentrations in particular names, industries, or geographies. But all too often, the losses appear like lightning from a clear sky. All too often, several losses appear simultaneously.

The inevitable conclusion from this data is that banks are highly vulnerable businesses. The industry is highly competitive, but at the same time it must endure substantial national regulatory involvement because of its central position within the economy. The business is one of taking risk (with credit risk always highly significant). However, the amount of risk being taken is almost always unknown. Worse, it is often unknown (except in the broadest sense) by the managers of the institution.

### **Who Should Care?**

Something that threatens the very existence of the bank should be of significant interest to the owners and managers of the bank. As Matthew Barrett, former chairman and chief executive officer (CEO) of Bank of Montreal and now Chairman of Barclays Bank PLC, once said, “What interests my boss should fascinate me.” Everyone engaged in the profession of taking credit risk should be interested in ensuring that the CEO is not only engaged in, but also part of, the management of such risk, because it is crucial to the well being of every commercial bank.

One of the themes of this book is that if you can't measure risk then you can't be expected to manage it. There are two important proofs of the quality of measurement. The longer term proof is the performance of the institution ex post vs. the prediction of the measurement process. The short-term one is the ability to adequately inform the CEO of the risk, how it is being managed, and how it has changed. For this reason most chapters conclude with some thoughts for the CEO and for those who must try to keep the CEO informed — at least enough that he or she can sleep with some confidence that credit risk is understood and controlled to the extent possible, given the inherent randomness of risk.

### **Stability in Loan Portfolios**

Examining long-term, stable loan portfolios, three features are invariably present:

- *Measurement.* Credit risk is measured (and remeasured) with reasonable accuracy.
- *Pricing.* Credit risk is priced appropriately to ensure that risk is compensated for and that the price includes a sufficient margin over the funding cost to absorb all costs and produce a return on capital.
- *Diversification.* The portfolio is highly diversified.

Only when these three conditions exist does stability result. Avoiding any one (or incompetently applying any one) can have disastrous results, especially on organizations such as commercial banks, which have little room for error as they are highly leveraged.

The focus of this book is on managing these three aspects with a view of both the quantitative developments of recent years and the qualitative issues that are needed.

### **Book Structure and Coverage**

Any person or business takes risk only because the reward for doing so makes the risk worthwhile. A bank takes credit risk because it believes that the positive income benefit outweighs the risk that the borrower will

not repay the obligation. A bank making a sound decision must therefore consider risk and return. The first half of this book concentrates on the measurement and pricing of credit risk and the challenges that must be faced in doing so. After looking at the big picture in **Chapter 1**, we look at various aspects of risk/return measurement from several perspectives:

- **Chapter 1A** helps credit managers with a detailed discussion of how a loan committee should be structured and implemented.
- **Chapter 2** focuses on the concept and measurement of expected loss and unexpected loss.
- **Chapter 3** discusses how to evaluate (measure) the default risk of corporate borrowers. Here we find that there are many experts in the banking industry, entrepreneurs, and academics who are striving to find the means to produce the best possible calculation of this critical factor. The search is not for perfection or indeed to find the flaws in the models that exist, but rather to find the means or the combination of means that offer the best chance for good measurement.
- **Chapter 3A** discusses how the Allowance for Loan and Lease Losses (ALLL) can be used in the credit risk process.
- **Chapter 5** deals with the design and implementation of risk ratings scales that can enable like risks to be identified and aggregated. This topic has gained increased prominence since the completion of the revised (new) Basel Accord and is perhaps the area where a bank with the objective of upgrading its credit risk measurement should begin. Here I have tried to give advice not only on the range of ratings possible and on the debate over rating horizons, but also to provide practical advice on how existing rating systems can be adapted without the risk of radical surgery.
- **Chapter 6** covers capital allocations. It deals with the contrasting ideas of capital and the adoption of economic capital as the risk measurement standard. It links to but does not explicitly deal with the idea of enterprise risk management, which is a hot topic in banking but extends beyond the field of credit risk.

Measurement also involves creating conditions that affect the outcome of unexpected events. The issues and processes relating to the structure of loan agreements will be discussed in **Chapter 4** (Covenants and Collateral).

Today, quantitative means are supplementing older practices to ensure that banks and other builders of credit portfolios can understand and manage the outcome of the many credit risk decisions that take place, often through widely dispersed centers. These tools not only help in the measurement of individual transactions but also in the measurement and management of the asset portfolios that are thereby produced.

**Chapter 7** shows how models of risk-adjusted return on capital (RAROC) have become popular and the principles under which they are being constructed. **Chapter 8** covers the pricing of loans, both in the open market and in their design for specific transactions. **Chapter 9** looks at several of the models that are available today and examines how they can be used in the management of portfolios as well as in transactional decisions. In **Chapter 10**, we look at the concepts and principles that are important in the measurement and management of loan and other debt portfolios, including some of the models that have been designed for that purpose. In **Chapter 10A**, the importance of lending limits and credit approval authorities in the overall credit risk management process is discussed.

The third element is diversification. For corporate banking, diversification is absolutely essential. However, as demonstrated by the lesser developed country crisis between 1982 and 1986, diversification cannot be an end in itself — it must be linked with sound measurement and pricing practices. For retail banks, diversification is the key to stability, and there the measurement concepts are designed to ensure consistency and efficiency in decision making. Some of the aggregation and modeling issues for retail banking are covered in **Chapter 11**. **Chapter 11A** visits the theme of stemming the rising tide of loan losses resulting from the sub prime loan problem, loan quality control procedures can be implemented to better manage credit risks, while **Chapter 11B** includes credit risk management procedures for the following types of loans: Small Business Administration (SBA) Loans, Agricultural Loans, Loans to Non-Profit Organizations, Money Service

Businesses, Lending to Governmental Entities, and Credit Risk Management of ACH Loans.

Managing credit risk means building and managing sound portfolios. That does not mean that losses must be avoided. Taking risk means that some losses are inevitable, and they too must be managed. Today such management can be active. The variable is in the decisions made to maximize recovery. The ability to manage loans in distress and to maximize recoveries when borrowers have failed is an important skill, currently made more complex by the advent of many more options than the recovery of assets. This area is covered in **Chapter 12**.

Perhaps the most important trend of the past decade has been the emergence of traded markets that enable the separation of the underwriting or lending decision from the ownership decision. Banks and other investors have more and more options to restrict risk acceptance, to hedge risk, and to move risk into the hands of other portfolios with different diversification needs. Because an understanding of these options is critical to credit risk management, we discuss credit derivatives, structured notes, and the institutional loan market in **Chapters 14, 15, and 16**, respectively. Of course, these topics are of value not only to banks that operate within these markets. Banks throughout the world build credit portfolios, and many also build investment portfolios to add to their own diversification. The loan, credit derivative, and bond markets all provide a means by which banks worldwide can create sound and profitable portfolios to complement their core business. For that reason these chapters have been expanded significantly from the second edition to reflect the latest volume, pricing, and trend data.

Also critical is an understanding of the data, organizational, and regulatory issues that affect primarily banks but also every holder of these risks. Information systems and data are the subject of **Chapter 13**, and the organizational and human resource issues that tend to influence behavior are covered in **Chapter 17**. For banks, the issue of regulation cannot be overlooked, and major changes are expected. The new international accord on bank capital is therefore the subject of **Chapter 18**.

**Chapters 19** through **19C** have been included to heighten your BSA/AML awareness. Whether it's the creation of illegal shell companies that act as conduits for money laundering or the use of stolen identities, all banking employees must be alerted to these nefarious practices. The detection and combating of these crimes are ever more important in light of the possibility that they may be used by international terrorists. BSA/AML compliance responsibilities are covered in these chapters. All managers and employees must be aware of these responsibilities as they relate to the types of products, services, persons and entities that they come in contact with during their daily work routines.

What we omit from this book is consideration of the accounting treatment of credit risk — because there is no accounting treatment. The concept of risk (aside from the “going concern” statement) is absent from accounting, and, sadly, it is very often absent from any disclosure made by financial institutions. We also omit discussion of provisions against doubtful and defaulted loans, especially because many banks ignore them as economic indicators and often use them tactically or to “smooth out” earnings.

This book is not aimed at technicians. The Web sites of the model vendors we discuss contain the information and formulae the risk “quants” require. There are also a number of excellent specialist books that explore these aspects of credit risk measurement. That being said, it is necessary to provide descriptions of model structures, but further exploration of the technical details is left to the reader.

Measurement is never the end of a process; it is a beginning. No matter how good the models are, at some point a human must say “yes” or “no” in deciding whether to buy, hold, or sell. Credit risk management is concerned with how to reach that decision, how to manage the results of those decisions, and how to inform others, particularly the CEO and the board of directors (or its equivalent), about where risk lies and how it is changing through time.

This thought was the genesis of **Chapter 20**, which summarizes the most important credit risk management principles discussed throughout the book. This chapter focuses on how the risk manager must satisfy the information needs of the CEO, while also setting out the responsibilities

that a CEO should accept in the realm of credit risk. This does not mean direct leadership (e.g., chairing credit committees or making transactional decisions). Indeed, it may be best that these activities should not take place at all.

In the end, good management of credit risk must be perceived as good. When the CEO, the board, rating agencies, regulators, analysts, and investors are confident that credit risk volatility is well managed, they will not necessarily expect miracles — for after all this is a cyclical business with frequent unexpected events. But they will have confidence that the future of the business is as certain as a bank's can possibly be.