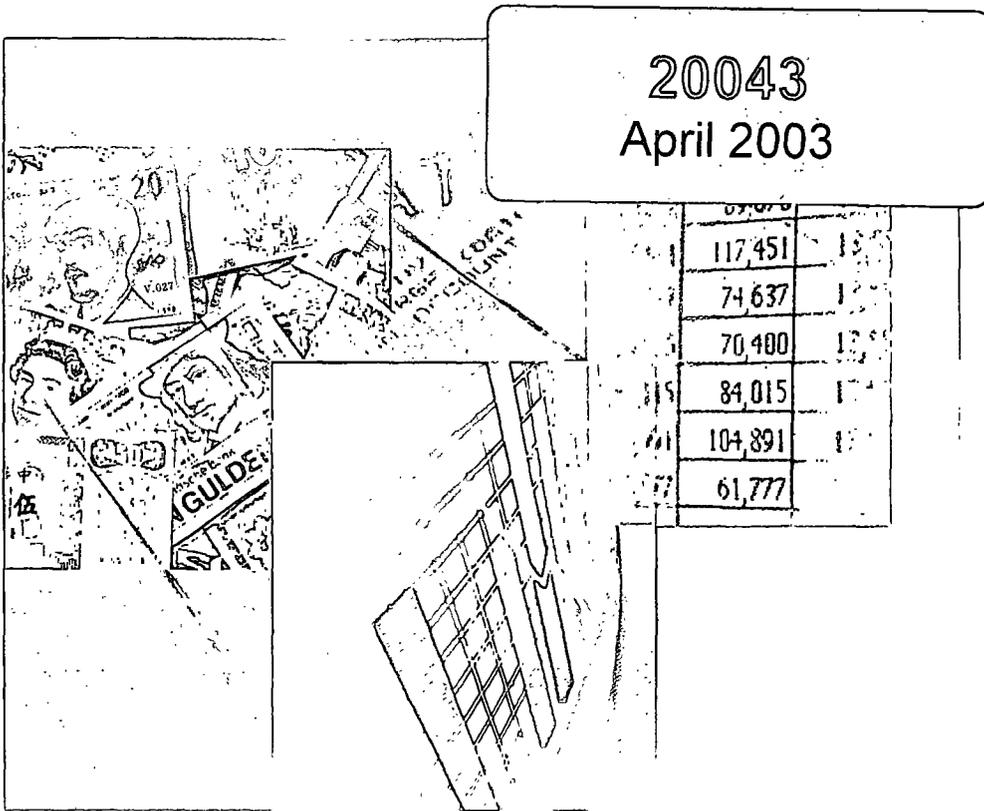


Analyzing and Managing Banking Risk

A Framework for Assessing Corporate Governance and Financial Risk

SECOND EDITION



Analyzing and Managing Banking Risk

*A Framework for Assessing
Corporate Governance
and Financial Risk*

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Corporate Governance
and Financial Risk*

Second Edition

Hennie van Greuning
Sonja Brajovic Bratanovic

*With Technical Advice on Treasury Management
by Jennifer Johnson-Calari*



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Foreword to the Second Edition

Many models exist for the analysis of banks and other corporate entities. This publication aims to complement existing methodologies by establishing a comprehensive framework for the assessment of banks, not only by using financial data but also by considering corporate governance. It is argued that each of the key players in the corporate governance process (such as shareholders, directors, executive managers, and internal and external auditors) is responsible for some component of financial and operational risk management.

Financial risks are portrayed by using graphs to initiate the trend analysis and diagnostics process at a macro level. This approach assists the non-specialist executive or analyst in integrating various risk areas and ensures that the interrelationships between different risk categories are clearly portrayed. The proposed framework also accommodates the fact that some risks might be immaterial in less sophisticated environments.

Several analytical tools are incorporated into the text, and access is also provided to a web-site that contains a spreadsheet-based diagnostic model to assist in structuring bank data into graphs, ratio analyses, and statistical tables. A detailed questionnaire assists persons involved in performing due diligence or other investigative work on banks.

This second edition—*Analyzing and Managing Banking Risk*—has remained faithful to the objectives of the original publication. It includes new chapters on the management of the treasury function and management of the stable liquidity investment portfolio. These changes made it necessary to reorganize the chapters related to market risk (to highlight the issue of proprietary trading activities), interest rate risk, liquidity risk, and currency risk management. In addition, the book incorporates the advances

made by the Basel Committee on Banking Supervision, as reflected in the chapters on capital adequacy, transparency, and banking supervision.

Because this publication emphasizes risk management principles, a wide body of users (analysts) of bank financial data should find the discussion useful. The target audience remains persons responsible for the analysis of banks and for the senior management or organizations directing their efforts. Since the publication provides an overview of the spectrum of corporate governance and risk management, it is not aimed at the narrow technical specialist who focuses on only one particular risk management area.

Acknowledgments

The authors are grateful to Ken Lay, past chairman of the World Bank Financial Sector Board, who funded the later stages of the initial project. Without his support, this project would not have been completed. Mr. Lay has also been instrumental in ensuring publication of this second edition. In his current role as deputy treasurer of the World Bank, he has provided guidance regarding the greater emphasis on treasury risk management.

Jennifer Johnson-Calari of the World Bank Treasury provided technical assistance for the chapters relating to treasury risk management and contributed chapter 10. Her experience as a bank supervisor at the Office of the Comptroller of the Currency and Board of Governors of the U.S. Federal Reserve System, as well as her current position as head of the World Bank Reserve Asset Management Program for central banks, was invaluable in ensuring that the manuscript remained both theoretically accurate and practical. Other colleagues in the World Bank Treasury contributed significantly to the enhancements contained in this second edition by agreeing to the adaptation of material developed by them and by reviewing written material; thereby ensuring that the manuscript mirrored the actual processes followed in commercial and central bank treasury environments.

Jason George of the Financial Stability Institute in Basel reviewed chapter 6 and provided the example used in the annex to that chapter. We thank him for his substantive comments. Marius Koen of the Bank's Africa Region provided significant inputs into chapter 14, while Faten Hatab of the World Bank's Europe and Central Asia Region has provided ongoing assistance with the graphs and prototype software resulting from the diagnostic model used in this publication.

The first edition was reviewed by a working group of FSVC (Financial Services Volunteer Corps) volunteers and management. Their constructive

input contributed greatly to a closer alignment with commercial banking practice. This book was originally based on a doctoral thesis that was submitted to the University of Pretoria, South Africa.

Despite the extent and quality of the inputs that we have received, we are solely responsible for the contents of this publication.

Hennie van Greuning
Sonja Brajovic Bratanovic

CHAPTER 1
ANALYZING AND MANAGING
BANKING RISK

KEY MESSAGES

Banks are exposed to financial, operational, business, and event risks.

A series of key players are accountable for corporate governance and various dimensions of financial risk management.

This publication will discuss the assessment, analysis, and management of financial risks.

Analytical tools provided in this publication consist of a risk management questionnaire and access to a web-site containing data input tables that can be processed using spreadsheet software. Ratios and graphs provide high-level management information.

1.1 Introduction: The Changing Bank Environment

This publication provides a comprehensive overview of topics related to the assessment, analysis, and management of financial risks in the field of banking. It is an attempt to provide a high-level framework (aimed at non-specialist executives) attuned to the current realities of changing economies and financial markets. This approach emphasizes the accountability of key players in the corporate governance process in relation to the management of different dimensions of financial risk.

In the past decade, rapid innovations in financial markets and the internationalization of financial flows have changed the face of banking almost beyond recognition. Technological progress and deregulation have both provided new opportunities for and increased competitive pressures

among banks and non-banks alike. In the late 1980s, margins attained from traditional banking business began to diminish and capital adequacy requirements began to increase. Banks have responded to these new challenges with vigor and imagination by forging ahead into new arenas.

The growth in international financial markets and a greater diversity of financial instruments have allowed banks wider access to funds. At the same time, markets have expanded, and opportunities to design new products and provide more services have arisen. While the pace of these changes appears to be quicker in some countries than in others, banks everywhere are generally becoming more involved in developing new instruments, products and services, and techniques. Traditional banking practice — based on the receipt of deposits and the granting of loans — is today only one part of a typical bank's business, and is often its least profitable.

New information-based activities, such as trading in financial markets and income generation through fees, are now the major sources of a bank's profitability. Financial innovation has also led to the increased market orientation and marketability of bank assets, in particular through the introduction of concepts such as loan swaps and sales. This process has been achieved using assets such as mortgages, automobile loans, and export credits as backing for marketable securities, a process known as securitization.

A prime motivation for innovation has been the introduction of prudential capital requirements, which has in turn led to a variety of new "off-balance-sheet" financial instruments. Financial substitutes such as guarantees and letters of credit, as well as derivative instruments such as futures and options, are not always shown as assets or liabilities even though they expose banks to certain risks. Some instruments are technically very complicated and are poorly understood except by market experts, while many others pose complex problems in terms of risk measurement, management, and control. Moreover, profits associated with some of these instruments are high, and like the financial markets from which they are derived are also highly volatile, and they thus expose banks to new or higher degrees of risk.

Today, more general concern exists that financial innovation in banking, especially with regard to off-balance-sheet instruments, may have the effect of concentrating risk and increasing volatility within the banking

system as a whole. This is particularly true in the case of currency and interest rate risk. The correlation between different types of risk, both within an individual bank and throughout the banking system, has increased and become more complex. Internationalization and deregulation have increased the possibilities for contagion, as evidenced by the spread of financial crises from Thailand to the rest of Southeast Asia, to East Asia, Eastern Europe, and South America in the late 1990s, and by their effect on banking systems in the rest of the world. The evolution of banking systems and markets has also raised important macroprudential concerns and monetary policy issues.

These developments have increased the need for and complicated the function of risk measurement, management, and control. The quality of corporate governance of banks has become a much debated topic, and the approach to regulation and supervision has changed dramatically. Within an individual bank, the new banking environment and increased market volatility have necessitated an integrated approach to asset-liability and risk management techniques.

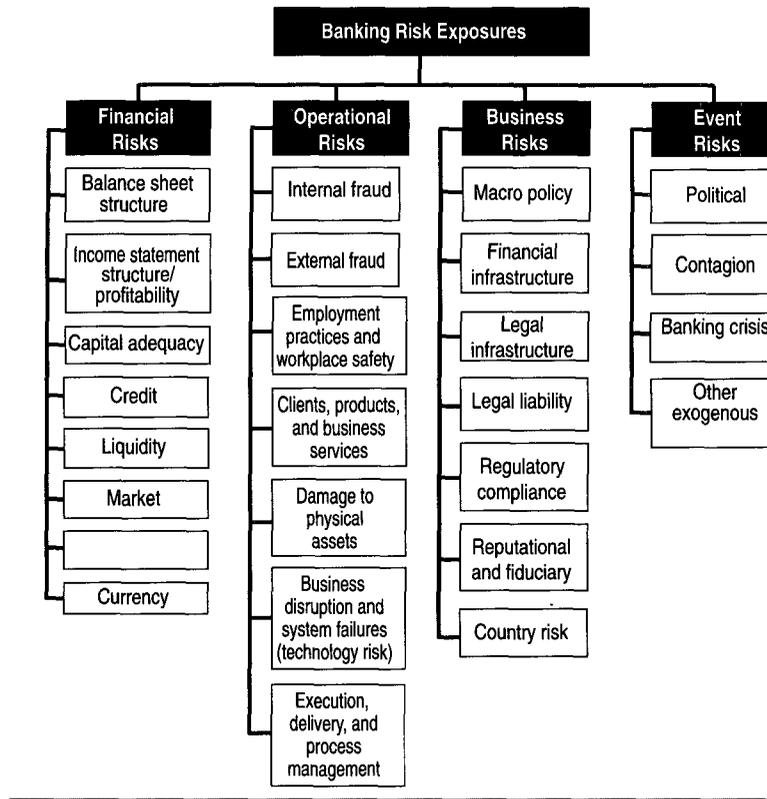
1.2 Bank Exposure to Risk

Banks are subjected to a wide array of risks in the course of their operations, as illustrated by Figure 1.1. In general, banking risks fall into four categories: financial, operational, business, and event risks. Financial risks in turn comprise two types of risk. Pure risks — including liquidity, credit, and solvency risks — can result in loss for a bank if they are not properly managed. Speculative risks, based on financial arbitrage, can result in a profit if the arbitrage is correct, or a loss if it is incorrect. The main categories of speculative risk are interest rate, currency, and market price (or position) risks.

Financial risks are also subject to complex interdependencies that may significantly increase a bank's overall risk profile. For example, a bank engaged in the foreign currency business is normally exposed to currency risk, but will also be exposed to additional liquidity and interest rate risk if the bank carries open positions or mismatches in its forward book.

Operational risks are related to a bank's overall organization and functioning of internal systems, including computer-related and other tech-

FIGURE 1.1 THE BANKING RISK SPECTRUM



nologies); compliance with bank policies and procedures; and measures against mismanagement and fraud. (Although these types of risk are extremely important and are covered by a bank's risk management systems, they are not emphasized in this publication, which focuses on financial risks.) Business risks are associated with a bank's business environment, including macroeconomic and policy concerns, legal and regulatory factors, and the overall financial sector infrastructure and payment system. Event risks include all types of exogenous risks which, if they were to materialize, could jeopardize a bank's operations or undermine its financial condition and capital adequacy.

1.3 Corporate Governance

As discussed, liberalization and the volatility of financial markets, increased competition, and diversification expose banks to new risks and challenges, requiring the continuous innovation of ways to manage business and its associated risks in order to remain competitive. The increasing market orientation of banks has also necessitated changes in the approach to regulation and supervision. The responsibility for maintenance of the banking system and markets is being redefined, in one country after another, as a partnership among a number of key players who manage various dimensions of financial and operational risks. This approach reconfirms that the quality of bank management, and especially the risk management process, are the key concerns in ensuring the safety and stability of both individual banks and the banking system as a whole.

Figure 1.2 portrays a risk management partnership in which each key player has a clearly defined accountability for a specific dimension of every risk area. Following a holistic overview of bank analysis in Chapter 2, the importance of banking supervision in the context of corporate governance is discussed in Chapter 3. This chapter also considers the partnership approach and the emerging framework for corporate governance and risk management, as well as the identification and allocation of tasks as part of the risk management process. The framework for risk management is further discussed in Chapters 4 through 13.

The workings of the risk management partnership may be summarized as follows:

Bank regulators and supervisors cannot prevent bank failures. Their primary role is to act as facilitators in the process of risk management and to enhance and monitor the statutory framework in which risk management is undertaken. By creating a sound enabling environment they have a crucial role in influencing the other key players.

Shareholders are in a position to appoint the people in charge of the corporate governance process and should be carefully screened to ensure that they do not intend to use the bank solely to finance their own or their associates' enterprises.

Ultimate responsibility for the way in which a bank's business is conducted lies with the **board of directors** (sometimes called the **superviso-**

FIGURE 1.2 PARTNERSHIP IN CORPORATE GOVERNANCE OF BANKS

Financial and Other Risk Management Areas	
Key Players and Responsibilities	<i>Balance sheet structure</i>
	<i>Income statement structure and profitability</i>
	<i>Solvency risk and capital adequacy</i>
	<i>Credit risk</i>
	<i>Liquidity risk</i>
	<i>Market risk</i>
	<i>Interest rate risk</i>
	<i>Currency risk</i>
	<i>Operational risk</i>
Systemic (key players):	Accountability (dimension of risk for which key player is responsible)
Legal and Regulatory Authorities	Set regulatory framework, including risk exposure limits and other risk management parameters, which will optimize risk management in the banking sector
Supervisory Authorities	Monitor financial viability and effectiveness of risk management. Check compliance with regulations
Institutional (key players):	
Shareholders	Appoint "fit and proper" boards, management, and auditors
Board of Directors	Set risk management and other bank policies . Ultimate responsibility for the bank
Executive Management	Create systems to implement board policies, including risk management, in day-to-day operations
Audit Committee/ Internal Audit	Test compliance with board policies and provide assurance regarding regarding corporate governance, control systems and risk management processes
External Auditors	Express opinion on financial statements and evaluate risk management policies
Public/Consumer (key players):	
Investors/Depositors	Understand responsibility and insist on proper disclosure. Take responsibility for own decisions
Rating Agencies and Media	Inform the public and emphasize ability to service debt
Analysts	Analyze risk-based information and advise clients

ry board). The board has to set the strategic direction, appoint management, establish operational policies, and, most importantly, take responsibility for ensuring the soundness of a bank.

Executive management of a bank has to be "fit and proper," meaning not only that managers subscribe to standards of ethical behavior, but also that they have the competence and experience necessary to run the bank. Because the management is responsible for the *implementation* of the board's policies through its running of the bank on a day-to-day basis, it is vital that it has intimate knowledge of the financial risks that are being managed.

The **audit committee** and the **internal auditors** should be regarded as an extension of the board's risk management policy function. The internal auditors traditionally performed an independent appraisal of a bank's *compliance* with its internal control systems, accounting practices, and information systems. Most modern internal auditors would, however, describe their task as providing assurance regarding the bank's corporate governance, control systems, and risk management processes. Although audit committees play a valuable role in assisting management in identifying and addressing risk areas, the prime responsibility for risk management cannot be abdicated to them, but rather should be integrated into all levels of management.

External auditors have come to play an important *evaluative* role in the risk-based financial information process. Since bank supervisors neither can nor should repeat the work done by external auditors, proper liaison mechanisms are necessary between these two parties, particularly on a trilateral basis that includes bank management. The audit approach should be risk-oriented, rather than based on a traditional balance sheet and income statement audit. Over-reliance on external auditors would weaken the partnership, especially if it leads to a weakening of the management and supervisory roles.

The **public/consumers** as market participants have to accept responsibility for their own investment decisions. In order to do so, they require transparent disclosure of financial information and informed financial analyses. The public can be assisted in its role as risk manager if the definition of public is widened to include the financial media, financial analysts such as stockbrokers, and rating agencies. The small or unsophisti-

cated depositor would normally need more protection than simply transparent disclosure.

1.4 Risk-Based Analysis of Banks

Banking supervision, which is based on an ongoing analytical review of banks, continues to be one of the key factors in maintaining stability and confidence in the financial system. Chapter 15 explores bank supervision arrangements, the supervision process, and the role of supervisors in ensuring that banks operate in a safe and sound manner, that they understand and adequately manage risks associated with their operations, and that they hold sufficient capital and reserves to support these risks. The methodology used in an analytical review of banks, during the off-site surveillance and on-site supervision process, is similar to that of private sector analysts (for example, external auditors or a bank's risk managers), except that the ultimate objective of the analysis is somewhat different. The analytical framework for the risk-based bank analysis advocated in this publication is therefore universally applicable.

Bank appraisal in a competitive and volatile market environment is a complex process. In addition to effective management and supervision, other factors necessary to ensure the safety of banking institutions and the stability of financial systems and markets include sound and sustainable macroeconomic policies and well-developed and consistent legal frameworks. Adequate financial sector infrastructure, effective market discipline, and sufficient banking sector safety nets are also crucial. To attain a meaningful assessment and interpretation of particular findings, estimates of future potential, a diagnosis of key issues, and formulation of effective and practical courses of action, a bank analyst must have extensive knowledge of the particular regulatory, market, and economic environment in which a bank operates. In short, to be able to do the job well, an analyst must have a holistic perspective on the financial system even when considering a specific bank.

The practices of bank supervisors and the appraisal methods practiced by financial analysts continue to evolve. This evolution is necessary in part to meet the challenges of innovation and new developments, and in part to accommodate the broader process of convergence of international

supervisory standards and practices, which are themselves continually discussed by the Basel Committee on Banking Supervision. Traditional banking analysis has been based on a range of quantitative supervisory tools to assess a bank's condition, including ratios. Ratios normally relate to liquidity, the adequacy of capital, loan portfolio quality, insider and connected lending, large exposures, and open foreign exchange positions. While these measurements are extremely useful, they are not in themselves an adequate indication of the risk profile of a bank, the stability of its financial condition, or its prospects. The picture reflected by financial ratios also largely depends on the timeliness, completeness, and accuracy of data used to compute them. For this reason, the issue of usefulness and transparency is critical, as discussed in Chapter 14. Chapter 14 also attempts to add another dimension to the issue of transparency, i.e., accountability, which has become an important topic due to both the increasing importance of risk management for modern financial institutions and the emerging philosophy of supervision (considered in Chapters 3 and 15).

The central technique for analyzing financial risk is the detailed review of a bank. Risk-based bank analysis includes important qualitative factors, and places financial ratios within a broad framework of risk assessment and risk management and changes or trends in such risks, as well as underscoring the relevant institutional aspects. Such aspects include the quality and style of corporate governance and management; the adequacy, completeness, and consistency of a bank's policies and procedures; the effectiveness and completeness of internal controls; and the timeliness and accuracy of management information systems and information support.

It has been said that risk rises exponentially with the pace of change, but that bankers are slow to adjust their perception of risk. In practical terms, this implies that the market's ability to innovate is in most circumstances greater than its ability to understand and properly accommodate the accompanying risk. Traditionally, banks have seen the management of credit risk as their most important task, but as banking has changed and the market environment has become more complex and volatile, awareness has developed of the critical need to manage exposure to other operational and financial risks. The elements of the risk-based analytical review covered in

this publication are summarized in Figure 1.2. Chapter 4 discusses the overall structure of a bank's balance sheet and focuses on the imbalances and mismatches in balance sheet structure that expose a bank to financial risk. Aspects of profitability, including management of a bank's income and expenses, is elaborated in Chapter 5. Chapter 6 considers capital adequacy and the quality of a bank's capital, while Chapter 7 covers credit risk management, including aspects of portfolio composition and quality and related policies and procedures. Organization of the treasury function is discussed in Chapter 9. Components of the asset-liability management process (liquidity risk, interest rate risk, and currency risk) are discussed in Chapters 8, 12 and 13, management of the stable liquidity investment portfolio in Chapter 10 and market risk / proprietary trading in Chapter 11. Understanding of these subjects is facilitated by numerous graphs and tables. Although the discussions and information contained in the graphs and tables in Chapters 4 through 13 refer to individual institutions, the same type of analysis can be conducted at the industry level.

This publication pays special attention to risk exposures and the quality and effectiveness of a bank's risk management processes. Risk management normally involves several steps for each type of financial risk and for the overall risk profile. These steps include the identification of an objective function, or the risk management target and/or measure of performance. Also important is the identification and measurement of specific risk exposures in relation to the selected objective function, including assessment of the sensitivity of performance to expected and unexpected changes in underlying factors. Decisions must also be made on the acceptable degree of risk exposure and on the methods and instruments to hedge excessive exposure, as well as on choosing and executing hedging transactions. In addition, the responsibilities for various aspects of risk management must be assigned, the effectiveness of the risk management process assessed, and the competent and diligent execution of responsibilities ensured.

Where appropriate, a bank should be analyzed as both a single entity and on a consolidated basis, taking into account exposures of subsidiaries and other related enterprises at home and abroad. A holistic perspective is necessary when assessing a bank on a consolidated basis, especially in the case of institutions that are spread over a number of jurisdictions and/or

foreign markets. A broad view serves to accommodate variations in the features of specific financial risks that are present in different environments.

A risk-based bank analysis should also indicate whether an individual institution's behavior is in line with peer group trends and/or industry norms, particularly when it comes to significant issues such as profitability, structure of the balance sheet, and capital adequacy. A thorough analysis can indicate the nature of and reasons for such deviations. A material change in risk profile experienced by an individual institution could be the result either of unique circumstances that have no impact on the banking sector as a whole, or could be an early indicator of trends that might be followed by other banks.

1.5 Analytical Tools Provided

While each analysis may be unique, the overall analytical process has many consistent aspects with regard to off-site surveillance, on-site examination, a bank's own risk management, or evaluation by technical professionals. This publication provides tools to assist with the bank analysis, including a questionnaire (Appendix 1) and a model (accessed through a web-site, <http://treasury.worldbank.org>) consisting of a series of spreadsheet-based data input tables to enable an analyst to collect and manipulate data in a systematic manner. This publication is not a manual on how to use the tools, but a conceptual framework to explain the background to the tools.

Questionnaire to facilitate the risk-based analysis of banks. The questionnaire to facilitate the risk-based analysis of banks and data tables should be completed by the bank being evaluated. The questions (see Appendix 1) are designed to capture management's perspective on and understanding of the bank's risk management process. The background and financial information requested in the questionnaire should provide an overview of the bank, as well as allow for assessment of the quality and comprehensiveness of bank policies, management and control processes, and financial and management information. Questions fall into several categories, as follows:

- ☐ institutional development needs;
- ☐ overview of the financial sector and regulation;

- overview of the bank (history and group and organizational structure);
- accounting systems, management information and internal controls;
- information technology;
- corporate governance, covering certain key players and accountabilities;
- financial risk management, including asset-liability management, profitability, credit risk and the other major types of financial risk, discussed in Chapters 4 through 13.

Data input tables. The model contains a series of input tables for financial data collection. The data can be manipulated into either ratios or graphs. The tables are related to the major financial risk management areas. The balance sheet and income statements serve as anchor schedules, with detail provided by all the other schedules. The output of the model (tables and graphs) can assist executives in the high-level interpretation and analysis of a bank's financial risk management process and its financial condition.

Output summary report. The framework enables the production of tables, ratios, and/or graphs based on manipulated input data. The report allows an analyst to measure a bank's performance and to judge the effectiveness of its risk management process. Combined with the qualitative information obtained from the questionnaire, these statistical tables and graphs make up the raw material needed to carry out an informed analysis, as required in off-site (or macro-level analysis) reports. The ratios cover the risk management areas in varying degrees of detail, starting with balance sheet and income statement schedules. The graphs provide a visual representation of some of the analytical results and give a quick snapshot of both the current situation in banks (such as financial structure and the composition of loan portfolios) and comparisons over time.

Ratio analysis. Ratios are a basic tool for financial analysts and are essential to examine the effectiveness of a bank's risk management process. They are normally the initial points that provide clues for further analysis. Changes in ratios over time offer a dynamic view of bank performance. The outputs of the framework include ratios on balance sheet structure, profitability, capital adequacy, credit and market risk, liquidity,

and currency risk. These comprise a complete set of a bank's ratios that are normally subject to off-site surveillance. The framework therefore serves as an effective tool to be used in bank supervision.

Graphs. Graphs are powerful tools for analyzing trends and structures. They facilitate comparison of performance and structures over time, and show trend lines and changes in significant aspects of bank operations and performance. In addition, they provide senior management with a high-level overview of risk trends in a bank. Samples of graphs illustrate discussions on risk exposure and risk management in Chapters 4 through 13 of this publication. These pertain to asset and liability structures, sources of income, profitability and capital adequacy, composition of loan portfolios, major types of credit risk exposures, and exposure to interest rate, liquidity, market, and currency risk. The graphs produced by the model may also be used during off-site surveillance. In this context, they can serve as a starting point to help with on-site examination and to succinctly present the bank's financial condition and risk management aspects to senior management. They can also help to illustrate points made by external auditors in their presentation to management or by other industry professionals who intend to judge a bank's condition and prospects.

Table 1.1 illustrates the more general use of the tools provided with this publication. Such a table could provide a useful tool for analysts when the effectiveness of financial risk management is assessed. In principle, the tools provided can be used during the entire bank analysis cycle. They can help an analyst make a thorough diagnosis of a bank's financial condition, risk exposures, and risk management, as well as to evaluate trends and make projections about future developments.

TABLE 1.1 POSSIBLE USES OF TOOLS PROVIDED

<i>Analytical Phase</i>	<i>Source and Tools Available</i>	<i>Output</i>
Data collection	Questionnaire Financial data tables	Completed input data, questionnaires, and financial data tables
Manipulation of data	Completed input data, questionnaires, and financial data tables	Data manipulated by the model
Analysis and interpretation of both manipulated and original input data	Manipulated data	Analytical results (output summary report, tables, and graphs)
Off-site analysis of a bank's financial condition	Analytical results	Report on a bank's financial condition and risk management and/or terms of reference for on-site examination
Focused follow-up through an on-site examination, audit, or review engagement	Off-site examination report and/or terms of reference for on-site examination	On-site examination report
Institutional strengthening	On-site examination report	Well-functioning financial intermediary

CHAPTER 2

A CONTEXT FOR THE RISK-BASED REVIEW OF BANKS

KEY MESSAGES

Banks are key providers of financial information on the economy.

The analysis of banks must take place in the context of the current status of a country's financial system.

Financial sector development encompasses several steps that must be taken to ensure that institutions operate in a stable and viable macropolicy environment with a solid legal, regulatory, and financial infrastructure.

Risk-based financial analysis requires a framework for transparent disclosure.

2.1 Introduction: Why Banks Are Analyzed

The changing environment in which banks find themselves presents major opportunities for banks, but also entails complex, variable risks that challenge traditional approaches to bank management. Consequently, banks must quickly gain financial risk management capabilities in order to survive in a market-oriented environment, withstand competition by foreign banks, and support private sector-led economic growth.

An external evaluation of the capacity of a bank to operate safely and productively in its business environment is normally performed once each year. All annual assessments are similar in nature, but have slightly different focuses depending on the purpose of the assessment. Assessments are performed as follows:

- By supervisory authorities, which assess if the bank is viable, meets its regulatory requirements, and is sound and capable of fulfilling financial commitments to its depositors and other creditors. Supervisory authorities also verify whether or not the bank's operations are likely to jeopardize the safety of the banking system as a whole.
- By external auditors, who seek to ensure that financial statements provide a true and fair view of the bank's actual condition. In addition, external auditors (who are normally retained by the bank's board of directors) are requested to assess whether or not management meets the objectives established by the board and to evaluate whether or not it exposes the bank's capital to undue risks. Banks are normally required to undergo an external audit that involves at least year-end financial statements and that is considered satisfactory to supervisory authorities.

The financial viability and institutional weaknesses of a bank are also evaluated through financial assessments, extended portfolio reviews, or limited assurance review engagements. Such evaluations often occur when the third party evaluates credit risk that the bank poses, for example, in the context of:

- participation in a credit-line operation of an international lending agency or receipt of a credit line or loan from a foreign bank;
- establishment of correspondent banking relationships or access to international markets;
- equity investment by an international lending agency, private investors, or foreign banks;
- inclusion in a bank rehabilitation program.

The bank appraisal process normally includes an assessment of the institution's overall risk profile, financial condition, viability, and future prospects. The appraisal comprises off- and on-site examinations to the extent considered necessary. If serious institutional weaknesses are found to exist, appropriate corrective actions are recommended. If the institution is not considered viable in its current condition, actions are presented

which may lead to its viability being reasonably assured, or to its liquidation and closure. The bank review also assesses if the condition of the institution can be remedied with reasonable assistance or if it presents a hazard to the banking sector as a whole.

The conclusions and recommendations of a bank appraisal are typically expressed in a letter to shareholders, a memorandum of understanding, or as an institutional development program. The most common objective of the latter is to describe priorities for improvement, as identified in the analyst's review, that would yield the greatest benefit to the institution's financial performance. To the extent considered necessary, such recommendations are accompanied by supporting documentation, flow-charts, and other relevant information about current practices. The institutional development program often serves as the basis for discussions among the institution's management, government officials, and international lending agencies, which in turn launch implementation of recommended improvements and decide what technical assistance is needed.

The process of bank analysis also occurs within the context of monetary policymaking. Central banks have a mission to maintain a stable currency and economy. Three interrelated functions are critical to monetary stability: the implementation of monetary policy, the supervision of banks, and monitoring of the payments system. All three functions must take place to ensure stability. Banking supervision therefore cannot be divorced from the wider mission of monetary authorities. Although the attention of central banking policy focuses on the macroeconomic aspect of general equilibrium and price stability, micro-considerations of individual banks' liquidity and solvency are key to attaining stability.

2.2 Banks as Providers of Financial Information

The compilation and analysis of risk management information from banks is a key task of bank supervisors and financial analysts. For bank management, financial analysts, bank supervisors, and monetary authorities, a risk-based analytical review of individual banks' financial data provides information on the banking sector as a whole, since market trends and relationships are highlighted.

Sectoral analysis is important because it allows norms to be established for either the sector as a whole or for a peer group within the sector. The performance of individual banking institutions can then be evaluated on the basis of these norms. Deviations from expected trends and relationships may be analyzed further as they may disclose not only the risk faced by individual banks, but also changes in the financial environment of the banking sector as a whole. By examining sector statistics, an analyst can gain an understanding of changes that are occurring in the industry and of the impact of such changes on economic agents and/or sectors.

Because banks participate in both the domestic and international financial systems and they play a key role in national economies, banking statistics can provide an insight into economic conditions. Financial innovation normally results in changes to measured economic variables, and as a result of this dynamism in the financial system macroeconomists may find themselves in a situation where their monetary models no longer reflect reality.

The impact of banking activities on monetary statistics, such as money supply figures and credit extension to the domestic private sector, is also of concern to policymakers. Reviews of banks can serve as a structured mechanism to ensure that monetary authorities recognize and quantify non-intermediated funding and lending, as well as other processes that are important to policymakers in the central bank. The advantage of a structured approach to evaluating banks is that banking sector behavior is considered in a systematic and logical manner, making sector statistics readily available for macroeconomic monetary analysis. Bank supervisors are thereby placed in a position where they are able to meaningfully assist monetary authorities whose policies are influenced by developments in the banking sector.

2.3 A Framework for Financial Sector Development

Bank appraisal in a competitive and volatile market environment is a complex process. The assessment of a bank's financial condition and viability normally centers around the analysis of particular aspects, including ownership structure, risk profile and management, financial statements, port-

folio structure and quality, policies and practices, human resources, and information capacity. In order to interpret particular findings, estimate future potential, diagnose key issues, and formulate effective and practical courses of action, an analyst must also have thorough knowledge of the particular regulatory, market, and economic environment in which a bank operates. In sum, in order to do his or her job well, an analyst must have a holistic view of the financial system.

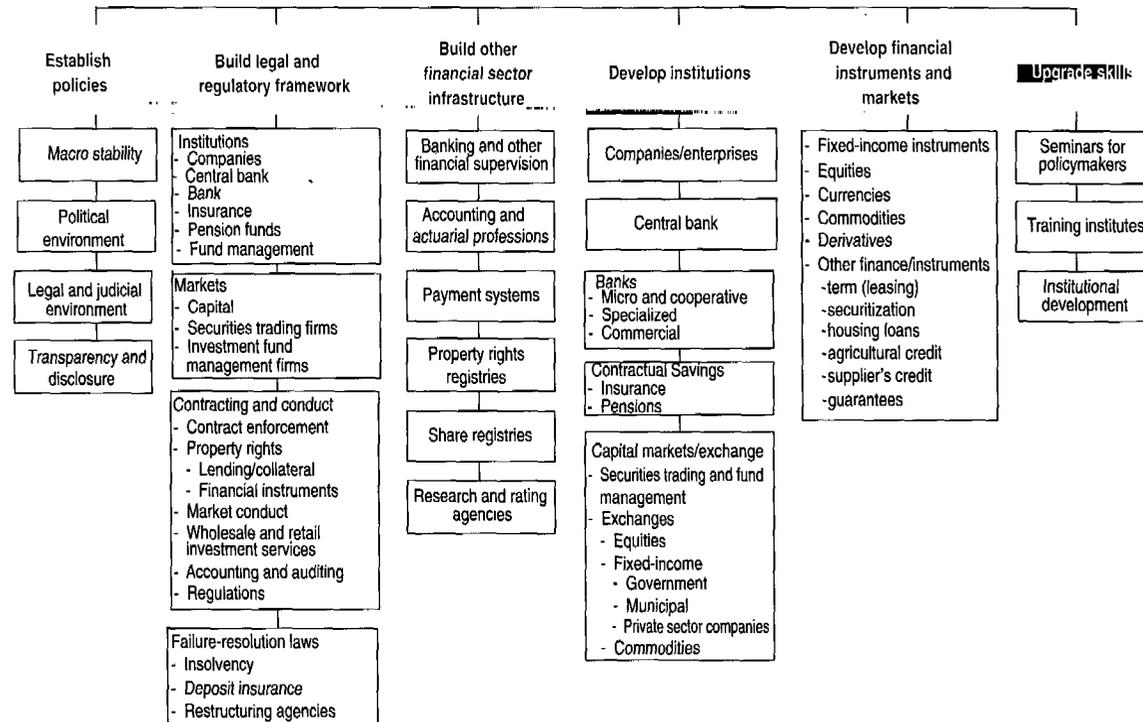
An environment that includes a poor legal framework, difficulties with the enforcement of financial contracts, and/or unstable macroeconomic conditions presents a higher level of credit risk and makes risk management more difficult. For example, an unstable domestic currency that lacks external convertibility presents a high level of risk. A bank's overall business strategy and its specific policies and practices must both accommodate the economic and regulatory environment within which the bank operates and be attuned to market realities.

Figure 2.1 illustrates the building blocks that are required for sustainable financial sector development. In Figure 2.2, the same theme is presented in matrix format in order to provide an overview of the financial system as a whole, and a context for assessing financial risk and risk management.

An unstable macroeconomic environment, with uneven economic performance and volatile exchange rates and asset prices, is a principal cause of instability in the financial system. Such an environment makes the realistic valuation of a bank's assets and the accurate evaluation of financial risks very difficult. The political environment is also important because it influences both the principles and the reality under which the financial sector functions. For example, under centrally planned financial systems, markets were greatly limited and banks, as well as their clients, did not have autonomy. Legal and judicial environments directly impact many aspects of a bank's operations, such as the exercising of contractual rights to obtain collateral or to liquidate nonpaying borrowers; while a transparent accountability framework establishes the foundation for a well-functioning business environment for banks and other institutions in the financial sector, as well as for their clients.

The legal and regulatory framework for institutions, markets, contracting and conduct, and failure resolution spells out the rules of

FIGURE 2.1 A FRAMEWORK FOR FINANCIAL SECTOR DEVELOPMENT



the game for financial institutions and markets. Before appraising a bank, an analyst should understand the philosophical basis for pertinent laws and regulations and ascertain if the legal and regulatory framework is complete and consistent. The analyst should be thoroughly familiar with the framework not only because bank operations must comply with it, but also because it provides a context for a bank's business, including the objectives and scope of allowed activities. In addition, knowledge of laws and regulations can prompt measures and actions that can be taken in crisis situations.

Key elements of the institutional legal framework of the banking system include the central bank law and the banking law. The former defines the central bank's level of autonomy, systemic and functional responsibilities (which often include prudential supervision), and regulatory prerogatives and enforcement powers. The banking law defines the type of financial intermediation to be performed by banks (e.g., universal banking), the scope of banking business in the particular country, conditions of entry and exit from the banking system, and capital and other minimum requirements that must be met and maintained by banks. In addition, the banking law specifies the corporate organization and the relationship between banks and the central bank.

Another important element of the legal and regulatory framework involves prudential regulations issued by the regulatory authorities. The objectives underlying such regulations include maintenance of the safety and stability of the banking system, depositor protection, and the minimal engagement of public funds. The most important prudential regulations include bank licensing, corporate governance, closure and exit mechanisms, capital adequacy, and financial risk management. Financial risk management regulations (as elaborated in Chapters 4 through 13) aim to limit the degree of a bank's risk exposure, such as through foreign exchange and liquidity. Such measures serve to ensure that a bank has sufficient capital to support its exposure to risk (also known as "capital adequacy requirements") and that it has adequate procedures or systems to assess and hedge and provide against risks, such as asset classification and provisioning procedures, and value-at-risk models for market price fluctuations.

A legal framework also encompasses other sections of the financial sector through laws pertaining to insurance companies, pension funds,

capital **market authorities**, and the wholesale and retail investment services industry. A body of laws also exists to regulate contracting and market conduct and behavior, in order to protect consumers.

Other relevant laws relate to failure resolution — for example, to insolvency, deposit insurance, and restructuring agencies — and to the technical capacity of the judiciary. The mechanisms for **failure resolution** and the banking sector safety net are intended to enhance the stability of and confidence in the banking system; however, if they are poorly designed, they can undermine market discipline. Elements of the banking safety net include the “lender-of-last-resort” function and deposit-insurance facilities. The specific form of a banking safety net has significant implications for risk management. For example, the existence of lender-of-last-resort facilities — the main purpose of which is to provide temporary liquidity support to illiquid but solvent institutions — may weaken risk management incentives for banks, which tend to maintain less liquidity and lend more when these facilities are in place. Likewise, the existence of deposit insurance, especially where the cost is underwritten by the state, may engender situations of moral hazard, such as the automatic bailout of banks, regardless of the quality of corporate governance or the status of financial risk management.

Financial sector infrastructure strongly impacts the quality of bank operations and risk management. Apart from the **supervisory authorities** (which will be discussed in Chapter 3), the **payment system**, a key element of such infrastructure, may be organized and managed by the central bank, by members of the banking system, or as an arrangement between individual banks and the central bank. The specific organization of the payment system determines the mechanisms for payment transactions and the cost and risks borne by the banks. An inefficient payment system can result in significant cost and settlement risk to the banks.

Infrastructure also encompasses various professions that are central to the financial sector, such as **accounting and auditing**, the actuarial profession, and investment advising. An adherence to international standards of accounting and auditing, coupled with a well-trained cadre of professionals in these fields, can make a significant difference to the fairness and transparency of financial statements. Fair, transparent statements greatly contribute to the facilitation of risk management, bank supervision, and consumer protection.

Property registries are also a part of risk management infrastructure. Such registers define fixed and movable assets and marketable securities, and effectively protect property rights. They also facilitate the registration and collection of collateral, and subsequent credit risk management. Risk reference registers serve the same purpose through the collection and maintenance of information on the credit history of individuals and firms, as well as its ready distribution to interested parties.

In addition, **rating agencies** help with risk management by systematically researching banks, companies, and markets and making findings available to both financial professionals and the general public. In many countries, financial infrastructure may also include research institutes, financial advisory services, and similar establishments.

The next block of Figure 2.1 illustrates the **institutionalization of the financial system**. This includes forms and rules under which a particular financial institution can be incorporated, and, on a broader scale, identifies its potential competitors. Increased competition in banking and finance and the trend toward homogenization of banking business have been major factors that influence changes in national banking systems. The concept of universal banking and the reality of financial markets have, however, increasingly blurred the lines between various institutions. In the context of risk management, the structure and concentration of ownership are of key importance. A banking system dominated by state-owned banks or financial institutions is prone to moral hazard situations, such as implicit guarantees, and tends to have competitive distortions in its markets. A high concentration of ownership or assets also increases risk by subjecting the system to political pressures, since some banks are considered by government entities to be “too big to fail” and may therefore be artificially supported. In exceptional cases where systemic risk is at stake, a supervisory authority may choose to support the too-big-to-fail approach. In addition, the absence of foreign ownership typically indicates closed and inefficient financial markets.

The **financial markets and instruments** block of Figure 2.1 depicts the markets operating in the financial system, their *modi operandi*, and the terms of their operations. As mentioned previously, modern banks have moved beyond traditional deposit and credit markets to establish a direct presence in practically all aspects of the financial system. Originally

established as specialized institutions, banks have sought new customers in wider geographical areas and have come to offer increasingly similar types of accounts, credit, and financial services.

In addition to more intense competition among the different types of bank, the number and diversity of nonbank financial intermediaries have also increased. As a result, effective substitutes for banking products now exist and a broader range of services is available. The threat that non-banking institutions will expand into banking services has likely been another stimulus to banks to adopt market-oriented behavior. Secondary markets have also grown in importance, which has reduced market segmentation and created more uniform cost structures for different financial institutions.

Each type of market deals with specific financial products. Innovation has brought about a greater variety of financial instruments, the respective markets of which are continuously increasing. In financial risk management terms, the understanding of the risk involved in key products offered by a bank and of the implications of specific markets, for example, in terms of liquidity or price stability, is key to being able to adequately appraise a bank.

As the last block of Figure 2.1 shows, the availability and quality of **banking skills** is a central concern in the risk-based appraisal of banks. It is essential that banks have good personnel management and that they are able to systematically develop banking skills within their organization. A good bank should be able to acquire the appropriate skills and to develop a suitable work culture. It should also have a process to optimize the mix of staff skills and experience and to develop staff performance levels in concert with its business and institutional goals.

2.4 A Holistic View of the Entire Financial System

Building on the concepts explained in the previous section, Figure 2.2 provides a holistic view of the financial sector, including a detailed look at the regulatory and supervisory aspects of financial sector development. Different segments of the financial system focus on the delivery of specific types of services. While the boundaries between these segments have become less rigid in recent years, most, if not all, are covered by particular

legislation and regulations that are enforced by a supervisory authority. Several modalities of organizing the supervisory function of different types of institutions exist, but financial systems in most countries are subject to regulations and supervision that delimit the authorized activities and conduct of financial institutions. The assessment of the pertinent regulatory environment is therefore a major component of bank analysis.

The starting point for analyzing the regulatory environment and its impact on banks is the identification of key laws and regulations and the time at which they were enacted or changed. Many key regulations attempt to encourage banks to manage certain types of risk, such as those related to large loans, currency exposures, investment limits, and related party lending. (A more thorough analysis of such regulations, in the context of various types of financial risk, including a discussion of policies adopted by banks in the risk management process, is provided in Chapters 4 through 13.)

As the financial sector has become more complex, regulators have started to pay more attention to qualitative aspects, since rules — particularly those based on simplistic quantitative measures — have become easier to circumvent and are more likely to be less than optimal for certain banks. Modern, risk-oriented prudential regulations therefore also include a host of requirements regarding the quality, experience, and skills of bank owners and management (see Chapter 3 for more detail).

It should also be noted that the assessment of whether a particular bank meets a regulator's standards has increasingly become a matter of judgment. Another new area of interest to some regulators involves prudential regulations pertaining to key processes in a bank, such as internal audit and internal controls, asset-liability management, and operational risk management. However, in contrast to the control approach taken with prudential ratios, in these areas regulators avoid being overly prescriptive. Instead, regulations usually specify the philosophy and functional requirements that have to be met by a bank carrying out a particular process.

Changes in market conditions have also altered regulators' attitudes toward the impact of portfolio structure regulations and other controls on the stability of the financial system. For example, by requiring that portfolios contain certain proportions of liquid and/or low-risk assets, regulators have attempted to moderate the negative effects of bank competition

FIGURE 2.2 HOLISTIC VIEW OF THE FINANCIAL SYSTEM: A TEMPLATE FOR FINANCIAL SECTOR REVIEW

I. Enabling Environment	1. Macro Trends		2. Political Environment			3. Transparency and Disclosure		4. Key Statistics and Charts				
	i. Fiscal management/public debt management ii. Balance of payments/currency reserves iii. Financial sector trends		i. Legislative branch policies ii. Judiciary iii. Central bank iv. Corporate policies v. Public opinion			i. Net reserves ii. IFI reports iii. Financial statements						
II. Infrastructure	1. Legal and Regulatory Infrastructure					2. Financial Sector Infrastructure						
	i. Scope of activities and basis of transacting defined	ii. Licensing	iii. Corporate governance	iv. Financial risk management principles and prudential requirements	v. Failure and problem resolution and closure	i. Banking and other financial supervision	ii. Professions –Auditors –Actuaries –Investment advisers –Securities traders	iii. Payments and settlement system	iv. Property registries and depositories –lending/collateral –financial instruments	v. Information and research (rating agencies)		
III. Financial Intermediaries	1. Banks			2. Contractual Savings (insurance and pensions)			3. Capital Markets/Exchanges					
							Securities Trading and Fund Management		Exchanges			
	i. Cooperative a. Microfinance	ii. Specialized a. Savings c. Housing d. Leasing	iii. Commercial a. Mutual b. Credit unions b. Equity banks	i. Long-term insurance b. Agriculture	ii. Pension funds banks	iii. Short-term insurance	i. Securities trading firms (equities and interest-bearing) ii. Investment fund management firms		i. Capital ii. Commodities exchange			
IV. Financial Instruments and Markets	i. Fixed-income markets a. Money –short-term bills –commercial paper b. Capital		ii. Equities a. Listed b. Unlisted		iii. Currencies		iv. Commodities		v. Derivatives		vi. Other investment funds	
V. Supervision	1. Supervisory Authority			2. Consolidated Supervision			3. Supervisory Capacity and Monitoring Systems					
	Central bank	Ministry of Finance	Other –SROs	Systemic risk Consumer protection Consolidated financial statements Synchronization of philosophy			i. Administrative and technical structure		ii. Quality of off-site risk-based monitoring systems and analysis		iii. On site examination and institution building	iv. Enforcement capability

on the financial system and/or to increase the system's ability to withstand shocks. However, given numerous options and the capacity for innovation, banks have been in a good position to circumvent regulations and to choose the risk and return profile that they are comfortable with. Moreover, when banks are prevented from providing financial services for which there is a demand, unregulated institutions, the soundness of which is frequently more questionable than that of banks, may dominate the market, thereby reducing the overall stability of the financial system.

Various authorities often supervise banks and other types of financial institutions. A common arrangement exists whereby banks are supervised by the central bank, the insurance sector and pension funds by the ministry of finance, and capital market institutions by the securities and exchange commission. The various sectors of the financial system interact with the banking system, and vice versa. This sometimes results in the spillover of disturbances from other areas into the banking system. It is therefore important that regulatory approaches and supervisory practices be coordinated to reduce the probability of negative consequences and regulatory arbitrage.

To be effective in their assessments, analysts and supervisors should not only be able to apply sophisticated analytical tools, but should also be aware of potentially risky developments in other sectors of the financial system and of new trends in foreign banking and supervisory systems. In addition, they should be able to judge the capability and integrity of bank management. Such qualitative evaluations are most effective when they are based on personal contacts and the frequent exchange of views. To this end, a detailed, accurate understanding of bank management can best be obtained through the continuous use of a group of skilled personnel that deals with the same banks over a considerable period of time.

2.5 Disclosure and Transparency of Bank Financial Information: A Prerequisite for Risk-Based Analysis

A reliable assessment of the financial condition of banks requires well-trained analysts and supervisors, since many bank assets are illiquid and lack an objectively determined market value. New financial instruments make it even more complex to assess the net worth of banks and other financial institutions in a timely manner. The liberalization of banking and

capital markets has substantially increased the level of information required to achieve financial stability, while the provision of useful, adequate information on participants and their transactions has become essential for maintaining orderly and efficient markets. For a risk-based approach to bank management and supervision to be effective, useful and timely information must be provided that meets the needs of each key player (see Chapter 3). In principle, market participants, depositors, and the general public have no less a need for information than do supervisory authorities.

In theory, the disclosure of information can be gradually improved indirectly through peer pressure from powerful parties in the marketplace. During normal times, such pressure might show banks that disclosure is to their advantage in raising funds, for example, if it prompts potential investors and depositors to provide capital. The desire to hide information — especially that which conveys poor results — unfortunately often translates into a lack of transparency, which is evident even in economies with advanced banking systems. Furthermore, given the sensitivity of bank liquidity to a negative public perception, the information with the strongest potential to trigger sudden and detrimental market reactions is generally disclosed at the last possible moment, usually involuntarily.

Calls for greater transparency often indicate a failure to provide useful and timely information, and this is most acute when the information sought or provided is negative. Regulatory authorities have a responsibility to address the availability of information. While banking legislation has traditionally been used as a way to force disclosure of information, this process has historically involved the compilation of statistics for monetary policy purposes, rather than the provision of information necessary to evaluate financial risks.

A more direct approach, now practiced by most regulatory authorities, involves mandating minimum disclosure, including a requirement that banks publish specified portions of their prudential reports (which do not reveal information that can be used by competitors) and other pertinent information. The value of disclosure depends largely on the quality of the information itself. However, because the provision of information can be costly, information needs have to be examined closely in order to ensure that the detriments of disclosure are fully justified by its benefits.

Financial disclosure requirements normally focus on the publication of quantitative and qualitative information in a bank's annual financial report, prepared on a consolidated basis and made available to all market participants. The format for disclosure typically mandates a complete, audited set of financial statements, as well as qualitative information such as a discussion of management issues and general strategy. It provides the names, interests, and affiliations of the largest shareholders and nonexecutive board members and information on corporate structure and also clarifies which parts of the financial statements have been audited and which, in supplementary disclosures, have not. Financial statements also contain information on off-balance-sheet items, including quantitative estimates of exposure to shifts in interest or exchange rates.

In addition to minimum disclosure requirements, financial sector disclosure can be improved by the formulation of standards on the quality and quantity of information that must be provided to the public. Given the increasing internationalization of banks and the increasing penetration of national banking systems, there is a strong need for minimum standards to ensure the cross-border comparability of financial statements. This responsibility has been taken by the International Accounting Standards Committee, which has developed a set of international standards to facilitate transparency and the proper interpretation of financial statements. (Full discussion of transparency and related accountability issues, including details on international standards, is provided in Chapter 14.)

Disclosure requirements have to be reviewed periodically to ensure that users' current needs are being met and that the burden on banks is not unnecessarily heavy. Since financial innovations and international influences are likely to expand information requirements, demands made on banks show no sign of diminishing in the future. However, a reliance on full disclosure as a means of monitoring banks requires too much of depositors, who would need an increasing level of analytical sophistication to be able to evaluate the complex business of financial institutions. Furthermore, economies of scale exist in the processing and interpretation of financial information. In the future, professional financial market analysts, rating agencies (which are capable of handling sophisticated financial information), and the highly influential media are expected to play an increasingly important role in applying market discipline to influence or to correct bank behavior.

CHAPTER 3

KEY PLAYERS IN THE CORPORATE GOVERNANCE AND RISK MANAGEMENT PROCESS

KEY MESSAGES

Corporate governance provides a disciplined structure through which a bank sets its objectives and the means of attaining them, as well as monitoring the performance of those objectives.

Effective corporate governance encourages a bank to use its resources more efficiently.

Financial risk management is the responsibility of several key players in the corporate governance structure. Each key player is accountable for a dimension of risk management.

The key players are regulators / lawmakers, supervisors, shareholders, directors, executive managers, internal auditors, external auditors, and the general public.

To the extent that any key player does not, or is not expected to, fulfill its function in the risk management chain, other key players have to compensate for the gap created by enhancing their own role. More often than not, it is the bank supervisor who has to step into the vacuum created by the failure of certain players.

3.1 Introduction: Corporate Governance Principles

Corporate governance relates to the manner in which the business of the bank is governed, including setting corporate objectives and a bank's risk profile, aligning corporate activities and behaviors with the expectation

that the management will operate in a safe and sound manner, running day-to-day operations within an established risk profile, while protecting the interests of depositors and other stakeholders. It is defined by a set of relationships between the bank's management, its board, its shareholders, and other stakeholders.

The key elements of sound corporate governance in a bank include:

- a) A well-articulated corporate strategy against which the overall success and the contribution of individuals can be measured.
- b) Setting and enforcing clear assignment of responsibilities, decisionmaking authority and accountabilities that are appropriate for the bank's risk profile.
- c) A strong financial risk management function (independent of business lines), adequate internal control systems (including internal and external audit functions), and functional process design with the necessary checks and balances.
- d) Corporate values, codes of conduct and other standards of appropriate behavior, and effective systems used to ensure compliance. This includes special monitoring of a bank's risk exposures where conflicts of interest are expected to appear (e.g., relationships with affiliated parties).
- e) Financial and managerial incentives to act in an appropriate manner offered to the board, management and employees, including compensation, promotion and penalties. (i.e., compensation should be consistent with the bank's objectives, performance, and ethical values).
- f) Transparency and appropriate information flows internally and to the public.

This chapter discusses the roles and responsibilities of key players in the corporate governance process of a bank. The discussion is placed within the context of financial risk management and takes a market-based approach. The players directly involved in corporate governance and risk management are considered, as are those parties who determine the regulatory and public policy environment within which a bank operates and who have a major influence on risk management. The activities of third

parties, such as bank customers and market participants, are also addressed.

Table 3.1 summarizes the responsibilities of the key players involved in bank governance and risk management. This chapter also provides guidance on how to assess whether or not the players who are directly involved in corporate governance at the policy and operational level are “fit and proper,” and whether or not they can effectively carry out their responsibilities.

3.2 Regulatory Authorities: Establishing a Corporate Governance and Risk Management Framework

A regulatory framework comprises more than just regulations designed to meet specific objectives. The regulatory environment embodies a general philosophy and principles that guide both the content and the implementa-

TABLE 3.1 KEY PLAYERS AND THEIR RESPONSIBILITIES IN BANK GOVERNANCE AND RISK MANAGEMENT

Key Players	Responsibility for Risk Management	Importance	
		Policy Level	Operational Level
Systemic			
Legal and Regulatory Authorities	Optimize	Critical	n/a
Bank Supervisors	Monitor	Indirect (monitoring)	Indirect
Institutional			
Shareholders	Appoint key players	Indirect	Indirect
Board of Directors	Set policy	Critical	Indirect
Executive Management	Implement policy	Critical (implementation)	Critical
Audit Committee/ Internal Audit	Test compliance with board policies and provide assurance regarding corporate governance, control systems and risk management processes	Indirect (compliance)	Critical
External Auditors	Evaluate and express opinion	Indirect (evaluation)	
Consumer			
Outside Stakeholders/Public	Act responsibly	n/a	Indirect

tion of specific regulations. In general, regulators may take either a prescriptive or a market-oriented approach to their task. This choice is often determined by the philosophical underpinnings of the economy as a whole.

A **prescriptive approach** usually limits the scope of activities of financial institutions, and often results in attempts to promulgate regulations for all risks known to the regulators. The danger of such an approach is that regulations quickly become outdated and cannot address the risks stemming from financial innovation.

In contrast, bank regulators who subscribe to a **market-oriented regulatory approach** believe that markets, by definition, function effectively, are capable of managing related financial risks, and should therefore be allowed to operate as freely as possible. With a market-oriented approach, the role of the regulator is focused on facilitating the improvement of risk management. The regulator and the regulated entity should agree on common objectives in order to ensure an efficient and effective process. In other words, when designing regulations, the regulator should take into account the views of market participants in order to avoid impractical or ineffective regulations. In practice, regulations in most major countries combine both approaches, leaning one way or another depending on individual circumstances.

Developments since the 1980s have seen a shift toward a market-oriented approach. Regulations address a broad spectrum of risks, and provide principles on how to assess and manage risk without unnecessarily detailed rules and recommendations. In addition, since it is based on principles rather than rules, a market-oriented approach can adapt to changing market conditions. Regulators should therefore concentrate on creating an environment in which the quality and effectiveness of risk management can be optimized, and should oversee the risk-management process exercised by the boards and management personnel of individual banking institutions.

At the system level, regulators' efforts are typically focused on maintaining public confidence in the banking sector and on creating an equitable market for financial institutions and providers of financial services. Regulators also aim to establish a free-market attitude toward bank supervision and professional supervisory functions, as well as to facilitate public understanding of the bank management's responsibility in the risk

management process. In terms of financial risk management, regulators' responsibilities center around improving quality at entry through strict licensing and minimum capital requirements and capital adequacy rules; toughening the fiduciary responsibilities and standards regarding bank owners, directors, and management personnel; providing guidelines on risk management and related policies; setting statutory guidelines with respect to risk positions; and evaluating compliance and overall risk management in a bank or banking system. Most regulators also conduct research on the latest developments in the field of risk management.

Since regulators are best positioned to act in the interest of depositors, they should maintain a flexible legal framework and move swiftly and decisively when banking problems are identified. For example, the legal framework in the United States establishes several grounds for intervention by regulatory authorities. These include critical under-capitalization or expected losses great enough to deplete capital, insufficient assets or the inability to meet obligations, substantial dissipation of assets, unsafe and unsound conditions, concealment of books and records, misuse of managerial position, and violation of the law.

Once consensus has been reached that a problem exists which cannot be effectively addressed by bank management, the typical recourse (pioneered in the United States) has been the removal of responsible managers and directors, fines, and where fraud is involved, criminal prosecution. Unfortunately, situations also arise in which regulators fail to identify problems at an early stage, sometimes as a result of unfavorable laws. Other factors include the highly technical nature of financial machinations, and undue political influence or even corruption because of the large profits or losses at stake. Fraud may also span institutions supervised by multiple regulatory authorities.

3.3 Supervisory Authorities: Monitoring Risk Management

Bank supervision is sometimes incorrectly applied as a legal/administrative function largely focused on regulations related to the business of banking. Such regulations have often been prescriptive in nature and have imposed onerous requirements on banks, which have sought to circumvent them through innovative product developments.

Since transactions of large banks are extremely complex and therefore hard to trace and evaluate, supervisors depend to a substantial degree on internal management control systems. The traditional approach to regulation and supervision has at times caused distortions in financial markets by providing negative incentives for the evasion of regulations, rather than encouraging the adequate management of financial risk. Since the late 1980s, there has been increasing recognition that the old approach to bank supervision does not live up to challenges of a modern banking environment and turbulent markets. In some jurisdictions, this realization has laid the groundwork for an extensive process of consultation between regulators and banks seeking to establish the legal framework for a shift to a market-oriented, risk-based approach to bank supervision. To establish such a framework, the responsibilities of the different players in the risk management process have to be clearly delineated.

Once regulators and supervisors understand that they cannot bear sole responsibility for preventing bank failures, they need to clearly identify what they are capable of achieving, and then focus their attention on that specific mission. This process is currently taking place in most OECD countries. The role of a bank's supervisory authority is moving away from the monitoring of compliance with banking laws and old-style prudential regulations. A more appropriate mission statement today would be: **“To create a regulatory and legal environment in which the quality and effectiveness of bank risk management can be optimized in order to contribute to a sound and reliable banking system.”**

The task of bank supervision can therefore be viewed as monitoring, evaluating, and when necessary strengthening the risk management process that is undertaken by banks. However, the supervisory authority is only one of the many contributors to a stable banking system. Other players have risk management responsibilities, and prudential regulations increasingly stress top-level management accountability. Recognizing the high cost of voluminous reporting requirements without corresponding benefits, many countries are moving toward a system of reporting that encourages and enables supervisors to rely more extensively on external auditors in the ordinary course of business — subject to external auditors having a clear understanding of their role in the risk management chain.

BOX 3.1 A NEW PHILOSOPHY OF BANK SUPERVISION

The Reserve Bank of New Zealand provides a leading example of a regulatory environment that reflects the new philosophy of banking supervision. In the words of its Governor:

A further concern we have with on-site examinations or the off-site collection of detailed private information on banks, at least in the New Zealand context, is the risk that these approaches can blur the lines of responsibility for the management of banks. If the banking supervisor has responsibility for regular on-site examinations, it presumably follows that the supervisor also has responsibility for encouraging or requiring a bank to modify its risk positions or make other adjustments to its balance sheet where the supervisor has concerns in relation to the bank's risk profile. This has the potential to erode the incentives for the directors and management of banks to take ultimate responsibility for the management of banking risks, effectively passing some of this responsibility to the banking supervisor. It also has the potential to create public perceptions that the responsibility for the banking risks is effectively shared between a bank's directors and the banking supervisors. In turn, this makes it very difficult indeed for a government to eschew responsibility for rescuing a bank in difficulty. . . . I acknowledge that any system of banking supervision creates a risk for the taxpayer in the event that a bank gets into difficulty. However, in order to minimize these risks, the Reserve Bank of New Zealand prefers to keep the spotlight clearly focused on the directors and management of a bank, rather than risk a further blurring of their accountability.

— D.T. Brash, 1997

Another important development has been the toughening of public information disclosure requirements to facilitate the relegation of monitoring responsibilities to the public at large. The new approach to banking regulation and supervision also corresponds, in its essential elements, to the traditional style of regulation and supervision of nonbank financial intermediaries, and thereby contributes to making the regulatory environment for financial institutions more consistent and homogenous. One might easily argue that these changes have occurred in reaction to and as an inevitable consequence of the increasing lack of distinctions between banks and nonbanking financial intermediaries.

3.4 The Shareholders: Appointing the Right Policymakers

Shareholders play a key role in the promotion of corporate governance. By electing the supervisory board and approving the board of directors, the audit committee, and external auditors, shareholders are in a position to determine the direction of a bank. Banks are different from other companies in that the responsibilities of management and the board are not only to shareholders but also to depositors, who provide leverage to owners' capital. Depositors are different from normal trade creditors because the entire intermediation function in the economy, including payments and clearance (and therefore the stability of the financial system), is at stake.

Bank regulators recognize the importance of shareholders. In the modern market-oriented approach to bank regulation, the emphasis on the fiduciary responsibility of shareholders has increased significantly. This is reflected in several ways, including more stringent bank licensing requirements and standards that a bank's founder and larger shareholders must meet to be considered fit and proper. Actions that may be taken against shareholders who fail to properly discharge their responsibilities to ensure the appointment of fit and proper persons for the corporate governance process have also become broader. Bank licensing procedures normally include the mandatory identification of major shareholders and a requirement for a minimum number of shareholders (which varies among jurisdictions).

Explicit approval of the central bank is required for a person to become a bank's founder or "larger" shareholder, which normally implies owning a certain percentage of the bank's shares (typically in the range of 10–15 percent). Such approval is based on the ability of shareholders to meet a certain set of predefined criteria. These criteria are designed to reassure the public that shareholders are able and willing to effectively exercise their fiduciary responsibilities, are able to provide additional capital to the bank in times of need, and do not see the bank as a provider of funds for their favorite projects. The central bank normally approves all changes in the shareholding structure of a bank. The central banks in most jurisdictions also review and approve a bank's charter and the key bylaws that determine the specific relationship of a bank with its shareholders.

Shareholders should play a key role in overseeing a bank's affairs. They are normally expected to select a competent board of directors

whose members are experienced and qualified to set sound policies and objectives. The board of directors must also be able to adopt a suitable business strategy for the bank, supervise the bank's affairs and its financial position, maintain reasonable capitalization, and prevent self-serving practices among themselves and throughout the bank as a whole.

In reality, shareholders may not be able to exercise the oversight function in the case of large banks with dispersed ownership structure. While the founders of a bank must meet certain standards, as a bank becomes larger and shares are more widely held, the shareholding may become so diffused that individual shareholders have no effective voice in the bank's management and have little recourse but to sell their shares if they don't like the way the bank is being managed. In such cases, effective supervisory oversight becomes critical.

The assessment process. Determining a bank's ownership and control structure and the status of its capital are key elements of bank assessment. This process should include a review of the ownership register, where all shareholders holding more than 2 percent of a bank's capital should be identified by name. The likelihood of a bank engaging in imprudent practices is higher if it is owned by the state than if it is owned by the private sector. An ownership review should therefore also include an assessment of the percentage of direct or indirect shareholding by the state, by the cooperative sector, and by management and employees, and should state any special rights or exemptions attached to shares. The majority shareholders and therefore the effective owners of the bank can be determined by using a tailored version of Table 3.2.

Other valuable information concerns the main focus of the larger shareholder businesses and of the people who control them. The bank's corporate charter, any other documents of incorporation, and corporate bylaws should be reviewed to determine the exact nature of the relationship between shareholders and the bank. Special attention should be paid to any situations where more than 50 percent of the votes of shareholders and directors is required to pass a motion. A key question to ask is whether or not resolutions require greater than a simple majority to be accepted, and if so, under what circumstances. In addition, the existence of provisions that either limit voting rights or that allow voting rights to individual shareholders or classes of shareholders that are disproportionate to

TABLE 3.2 SHAREHOLDER INFORMATION

<i>A. Shareholding Summary</i>				
Shareholders (as of ———)	Number of shareholders	Shares held		% of shares
		Number	Unit size	
Private companies				
Private individuals				
Public sector and government companies (<51% private)				
Total shareholding				
Names of shareholders who — directly or indirectly — control more than 2% of the bank's shares				

their shareholding should be considered, as well as whether or not options exist to acquire more capital.

Another critical issue is whether shareholders are effectively carrying out their fiduciary responsibilities and whether they have taken advantage of their ownership position in the bank. In practical terms, this can be concluded by reviewing selected aspects, including the frequency of shareholder meetings, the number of shareholders who are normally present, and the percentage of total shares they represent. The level of direct involvement, if any, that the shareholders have with the bank, the supervisory board (directors), and the management board (executive management) should also be taken into account. Such an assessment should also include a review of the current composition of the management and supervisory board, their remaining terms of office, and connections between board members, shareholders, and customers of the bank. In the case of shareholders with more than 1 percent of holdings who are also the bank's customers, a review should be made of the bank's level of exposure to them, including an examination of instruments such as loans and deposits that specify the amounts, terms, conditions, and funding extended to shareholders.

3.5 The Board of Directors: Ultimate Responsibility for a Bank's Affairs

According to most banking laws, ultimate responsibility is typically placed with the board of directors (supervisory board). The board is

answerable to depositors and shareholders for the safeguarding of their interests through the lawful, informed, efficient, and able administration of the institution. The members of the board usually delegate the day-to-day management of banking business to officers and employees, but cannot abdicate responsibility for the consequences of unsound or imprudent policies and practices concerning lending, investing, protecting against internal fraud, or any other banking activity.

Unfortunately, it is often found in practice that outside board directors are effectively selected by the bank's management, with little, if any, dissent from shareholders. Shareholders are almost always supportive of management, and very rarely do nonexecutive directors exercise any effective influence on a bank's risk-taking activities. In effect, they usually endorse management's decisions.

A board of directors attracts significant interest from regulators, since a risk-based approach to bank supervision emphasizes a board's fiduciary responsibilities and seeks to ensure that its directors are qualified and able to effectively carry out such responsibilities. Laws and regulations typically govern the election, required number, qualifications, liability, and removal of board members and officers, as well as disclosure requirements for outside business interests. Other laws and regulations address restrictions, prohibitions, purchases from and sales to board members, commissions and gifts for procuring loans, embezzlement, abstraction, willful misapplication, false entries, penalty for political contributions, and other matters.

Composition of the board. The composition of a board of directors is crucial. Studies have found that nearly 60 percent of failed banks had board members who either lacked banking knowledge or were uninformed and passive regarding supervision of the bank's affairs. A strong managing director and a weak board are a recipe for disaster. A board with a strong nonexecutive chairman is more likely to be able to provide objective inputs than a board whose chairman is also the chief executive. A banking institution needs a board that is both strong and knowledgeable. It is essential that the board encourages open discussion and, even more important, that it tolerates conflict well, since conflict indicates that both sides of the coin are being considered.

Failed banks almost invariably suffer from deficiencies in their board and senior management. The leadership provided by the boards of direc-

BOX 3.2 THE ROLE OF THE BOARD

The board of directors of any financial institution holds the ultimate responsibility for consumer protection and the management of that institution's financial risks.

A bank's board of directors is ultimately responsible for the conduct of the bank's affairs. The board controls the bank's direction and determines how the bank will go about its business. The board hires management and establishes the policies under which it will operate. The board may delegate day-to-day operations to management, but remains accountable for making sure that these operations are carried out in compliance with applicable laws and regulations and are consistent with safe and sound banking practices. The board monitors the bank's operations and makes sure its management can meet the challenges presented as the bank grows, its operations become more complex, and its goals change.

— U.S. Comptroller of the Currency, 1987

tors of many troubled institutions has often been found to be ineffective. One of the chief functions of independent (nonexecutive) directors should therefore be the avoidance of economic and legal mistakes that may threaten the life of their bank. When a properly functioning board of directors exists, problems discovered by internal controls or external auditors should be immediately brought to its attention.

The required number of board members varies among jurisdictions, but in all cases should include more than one executive member. In banking systems that use the supervisory board model, all members are usually nonexecutives. Despite the strengths of this approach, the lack of involvement in policy setting by wholly nonexecutive boards is a major deficit. Boards with only one executive member typically view the bank in the way that the managing director does. If a board of directors instead includes more than one executive member, board members will have a broader perspective and will be able to look at the company through the eyes of more than one senior executive.

Board responsibilities. A board must be strong, independent, and actively involved in its bank's affairs. Both the bank directors and the executive management must adhere to high ethical standards and be fit

and proper to serve. Although the bank's directors will not necessarily be experts on banking, they should have the skills, knowledge, and experience to enable them to perform their duties effectively.

The most important duty of the board is to ensure that the management team has the necessary skills, knowledge, experience, and sense of judgment to manage the bank's affairs in a sound and responsible manner. The management team should be directly accountable to the board, and this relationship should be supported by robust structures. During good times, a board sets tone and direction. It oversees and supports management efforts, testing and probing recommendations before approving them, and makes sure that adequate controls and systems are in place to identify and address concerns before they become major problems. During bad times, an active, involved board can help a bank survive if it is able to evaluate problems, take corrective actions, and when necessary keep the institution on track until effective management can be reestablished and the bank's problems resolved.

An effective board should have a sound understanding of the nature of the bank's business activities and associated risks. It should take reasonable steps to ensure that management has established strong systems to monitor and control those risks. The board's risk management responsibilities are summarized in Box. 3.3. Even if members of the board are not experts in banking risks and risk management systems, they should ensure that such expertise is available and that the risk management system undergoes appropriate reviews by suitably qualified professionals. The board should in a timely manner take the necessary actions to ensure a capitalization of the bank that reasonably matches its economic and business environment and business and risk profile.

The board should ensure that the bank has adequate internal audit arrangements in place, and that risk management systems are properly applied at all times. Directors need not be experts in these control and audit mechanisms, but they should consult experts within and if necessary outside the bank to ascertain that such arrangements are robust and are being properly implemented.

The board should also ensure that the banking laws and regulations applicable to a bank's business are followed. It should take all reasonable steps to ensure that the information in the bank's disclosure statements is

BOX 3.3 THE BOARD'S FINANCIAL RISK MANAGEMENT RESPONSIBILITIES

Legal principles in banking laws and regulations leave no room for doubt that the board of directors should be regarded as the primary player in the risk management process. The board's primary responsibilities are to:

- Formulate a clear philosophy for each risk management area.
- Design or approve structures that include clear delegation of authority and responsibility at each level.
- Review and approve policies that clearly quantify acceptable risk, and that specify the quantity and quality of capital required for the safe operation of the bank.
- Ensure that senior management effectively takes the steps necessary to identify, measure, monitor, and control the bank's financial and operational risks.
- Periodically review controls to ensure that they remain appropriate, and make periodic assessment of the long-term capital maintenance program.
- Obtain explanations where positions exceed limits, including reviews of credit granted to directors and other related parties, significant credit exposures, and adequacy of provisions made.
- Ensure that the internal audit function includes a review of adherence to policies and procedures.
- Formally delegate to management the authority to formulate and implement strategies. (The board should, however, critically appraise and ultimately approve the strategic plan.)
- Specify content and frequency of reports.
- Ensure sound staffing and remuneration practices and a positive working environment.
- Perform an annual evaluation of the performance of the chief executive officer.
- Elect a committee, primarily made up of nonexecutive directors, to determine the remuneration of executive directors.

transparent and accurate and that adequate procedures are in place, including external audits or other reviews where appropriate, in order to ensure that the disclosed information is not false or misleading.

The assessment process. Table 3.3 provides a mechanism for the collection of background information on the role played by directors.

TABLE 3.3 SUPERVISORY BOARD/BOARD OF DIRECTORS

Name	Representing	Private sector?	Qualifications	Experience	Responsibility

Particular attention is given to nonexecutive responsibilities for various functions in the bank, including administration, corporate banking, the international division, the domestic treasury, retail banking, internal control, finance and accounting, information systems, and branch management.

A bank appraisal always includes assessment of the structure and effectiveness of the board. Major objectives are to determine whether the board is staffed with competent and experienced officers who are able and willing to effectively carry out their responsibilities, who fully understand their duties, and who have developed adequate objectives and policies. The appraisal should include review of the minutes of board meetings and, for each functional area, a complete set of reports provided regularly to the relevant director. The follow-up actions undertaken by the directors can be assessed to determine if the board is effectively fulfilling its responsibility to supervise the affairs of the bank and to stay informed of the bank's condition.

A particularly important part of the appraisal is the review of the bank's compliance with laws and regulations, and assessment of whether or not conflicts of interest or self-serving practices exist. A self-serving board is a dangerous board, and when decisions involve a conflict of interest, the director in question should fully disclose the nature of the conflict and abstain from voting on the matter. Such transactions should be scrutinized carefully for the potential of self-serving behavior.

Other self-serving practices of which supervisors and analysts should be aware include the use of a bank's credit potential by directors, officers, or shareholders to obtain loans or to transact other business. The issuance of unwarranted loans to a bank's directors or to their business interests is

a serious matter from the standpoints of both credit and management. Losses that develop from such unwarranted loans are bad enough, but the weakening effect on the bank's general credit culture is likely to be even worse. Attention should also be paid to the possibility of gratuities being given to directors for the purpose of obtaining their approval of financing arrangements or of the use of particular services.

3.6 Management: Responsibility for Bank Operations and the Implementation of Risk Management Policies

As summarized in Box 3.4, the financial soundness and performance of a banking system ultimately depend on the boards of directors and on the senior management of member banks. The strategic positioning of a bank, the nature of a bank's risk profile, and the adequacy of the systems for identifying, monitoring, and managing the profile reflect the quality of both the management team and the directors' oversight of the bank. For these reasons, the most effective strategy to promote a sound financial system is to strengthen the accountability of directors and management and to enhance the incentives for them to operate banks prudently. The role of senior management is therefore a fundamental component of a risk-based approach to regulation and supervision. Regulators increasingly aim to strengthen the participation and accountability of senior management to accept key responsibility for the maintenance of a bank's safety and soundness.

Quality and experience. The quality and experience of the individuals involved in a senior management team are of great importance. In a financial institution, the process of risk management does not start at the strategy meeting, or the planning process, or in any other committee; it starts when a prospective employee is screened for appointment to the organization or for promotion to a senior position.

Regulators take several different approaches to ensuring that management is fit and proper. Most regulators have established standards that have to be met by a manager, as illustrated in Box 3.5. Jurisdictions with such standards often require that the central bank confirm the experience, technical capacity, and professional integrity of senior management before

BOX 3.4 ACCOUNTABILITY OF BANK MANAGEMENT

The Comptroller of the United States Currency made a study of bank failures between 1979 and 1988 in an effort to determine the root causes of those failures. The ultimate message of this study was that not all banks in a depressed environment fail — the banks with weak management were the ones that succumbed when times became difficult. The final word on this trend is spoken by a governor of the U.S. Federal Reserve System:

It is important to recognize that bank stockholders suffer losses on their investments, and senior bank management is almost always replaced, regardless of the resolution technique used.

— E. W. Kelley, 1991

its members assume their duties. However, some jurisdictions do not, as a matter of policy, get involved in the appointment of senior management unless a bank is deemed unsafe due to incompetent management.

Management responsibilities. While the board and management need to support each other, each has its own distinct role and responsibilities to fulfill. The chief executive officer and the management team should run the bank's day-to-day activities in compliance with board policies, laws, and regulations, and should be supported by a sound system of internal controls. Although the board should leave day-to-day operations to management, it should retain overall control. The dictation of a board's actions by management indicates that the board is not fulfilling its responsibilities, ultimately to the detriment of the institution.

Management should provide directors with the information they need to meet their responsibilities, and should respond quickly and fully to board requests. In addition, management should use its expertise to generate new and innovative ideas and recommendations for consideration by the board. A bank should have adequate policies in place to increase the accountability of its managers. As the persons with responsibility for bank stewardship, managers should be given incentives to maintain a well-informed overview of business activities and corresponding risks. The duties and responsibilities of a bank's senior management include appoint-

BOX 3.5 "FIT AND PROPER" STANDARDS FOR BANK MANAGEMENT

Regulators in certain jurisdictions require banks' majority shareholders, directors, and managers to furnish information or adhere to standards regarding the following:

- Previous convictions for any crime involving fraud, dishonesty, or violence.
- The contravention of any law that, in the opinion of the regulator, is designed to protect the public against financial loss due to the dishonesty or incompetence of or malpractice by the person concerned. This standard applies when the person is involved in the provision of banking, insurance, investment, and financial services or in the management of juristic persons.
- The indication of a director as the effective cause of a particular company's inability to pay its debts.
- Whether or not, in the opinion of the regulator, the person concerned has ever been involved in any business practice that was deceitful, prejudicial, or that cast doubt on his competence and soundness of judgment.
- Whether or not any previous application by the person concerned to conduct business has been refused, or whether or not any license to conduct business has been withdrawn or revoked.
- Whether or not, while filling the role of a director or an executive officer of an institution, the institution was censured, warned, disciplined, or made the subject of a court order by any regulatory authority locally or overseas.
- Whether or not the person concerned has been associated with an institution that has been refused a license or has had its license to conduct business revoked.
- Any dismissal or barring of or disciplinary proceedings toward any professional or occupation, as initiated by an employer or professional body.
- The nonpayment of any debt judged due and payable locally or elsewhere.
- Whether or not the person concerned has ever been declared insolvent.
- Convictions of any offenses, excluding traffic violations, political offenses, or offenses committed when the person in question was under the age of 18 years.
- Any litigation that the person in question has been involved with, related to the formation or management of any corporate body.
- Any related party transactions with the institution concerned.

ment to middle-level management positions of persons with adequate professional skills, experience, and integrity; the establishment of adequate performance incentives and personnel management systems; and staff training. Management should ensure that the bank has an adequate management information system and that the information is transparent, timely, accurate, and complete.

The key managerial responsibility is to ensure that all major bank functions are carried out in accordance with clearly formulated policies and procedures, and that the bank has adequate systems in place to effectively monitor and manage risks. Managerial responsibilities for financial risk management are summarized in Box 3.6.

Management's role in identifying, appraising, pricing, and managing financial risk is described well by the Basel Committee on Banking Supervision. The Basel Committee has stated that any corporation that uses new financial instruments has a critical need for all levels of management to acquire knowledge and understanding of inherent risks, and to adapt internal accounting systems to ensure adequate control. Risk management should be an integral part of the day-to-day activities of each and every line manager in a bank, in order to ascertain that risk management systems are properly applied and that procedures are duly followed. Management should also ensure that the bank has adequate internal controls, including appropriate audit arrangements, because risk management failures are often due not to unanticipated or extraordinary risks, but to an ineffective decisionmaking process and weak controls.

Recent changes in international banking have made the management process considerably more demanding. Financial innovation transfers price or market risk from one agent to another, but does not eliminate the risk itself. The pace of innovation, the growth of off-balance-sheet transactions, and the unbundling of different types of risk have rendered the analysis of financial statements and the management of a bank's financial position more complex. Management increasingly faces important questions about how best to account for, monitor, and manage risk exposure and how to integrate off-balance-sheet activities into other exposures.

Assessment process. It is also important that the quality of management be appraised. The main objective of such an appraisal is to evaluate whether a bank's senior management personnel have:

BOX 3.6 FINANCIAL RISK AND MANAGEMENT RESPONSIBILITIES**Management's responsibilities with regard to financial risk are to:**

- Develop and recommend strategic plans and risk management policies for board approval.
- Implement strategic plans and policies after approval by the board.
- Establish an institutional culture promoting high ethical and integrity standards.
- Ensure development of manuals containing policies, procedures, and standards for the bank's key functions and risks.
- Implement an effective internal control system, including continuous assessment of all material risks that could adversely affect the achievement of the bank's objectives.
- Ensure the implementation of controls that enforce adherence to established risk limits. Ensure immediate reporting of noncompliance to management.
- Ensure that the internal auditors review and assess the adequacy of controls and compliance with limits and procedures.
- Develop and implement management reporting systems that adequately reflect business risks.

- adequate technical capacity, experience, and integrity to manage a bank. These aspects can be evaluated based on the bank's personnel practices in the area of management continuity.
- systems in place to monitor and control the bank's material risks, including credit, exposure concentration, interest rate, currency, solvency, liquidity, and other risks. Whether or not these systems are being properly applied and whether or not management takes appropriate actions, if and when necessary, should also be evaluated.
- provided proper managerial guidance and made adequate decisions in all key aspects of the bank's business.
- complied with all conditions of registration applicable to the bank.
- Maintained contact with those persons who are capable of controlling or significantly influencing the bank in a manner that is

contrary to the bank's interests. Policies should also have been established that call for the disclosure of directors' conflicts of interest.

3.7 The Audit Committee and Internal Auditors: An Extension of the Board's Risk Management Function

While the board of directors is the ultimate risk manager, the audit committee can be regarded as an extension of the board's risk management function. An audit committee is a valuable tool to help management with the identification and handling of risk areas in complex organizations. The mission statement of an audit committee that is organized according to modern principles should be "to enhance the management of operational risks on a group-wide basis." Following from this, the goals of an internal audit function are to:

- ❑ enable management to identify and manage business risks;
- ❑ provide an independent appraisal;
- ❑ evaluate the effectiveness, efficiency, and economy of operations;
- ❑ evaluate compliance with laws, policies, and operating instructions;
- ❑ evaluate the reliability of information produced by accounting and computer systems;
- ❑ provide investigative services to line management.

Contrary views exist regarding the value of audit committees, as summarized in Box 3.7. Such committees have been likened to a straw of hope that boards cling to in an attempt to show that they are aware of risk management. It is logical that a board facing risk management problems will rush to the historical source of information about problems in the company, namely the auditors. The proponents of this view often point out that the auditors are simply checklist experts, while risk management has never been such a simple pursuit and should not be delegated to any committee, department, or team.

Audit committee and internal audit responsibilities (see also Chapter 9, Section 6). The monitoring and directing of the internal audit

function is an integral part of the audit committee's overall responsibilities. Both the board and management must have a tool to help ensure that policies are being followed and risks are being managed. Under a market-oriented approach, an audit extends beyond matters directly related to administrative controls and accounting. It comprises all methods and measures adopted within the business to safeguard the business' assets and manage its risks, check accuracy and reliability of accounting and management information, promote operational efficiency, and encourage adherence to management policies. In short, the internal audit can be described as an independent appraisal function and, since it is established within an organization to examine and evaluate its activities, as a valuable service to the organization.

The most important duties of internal auditors are to "provide assurance regarding corporate governance, control systems and risk management processes." Internal auditors should also review annual financial statements prior to their submission to the board of directors, and ensure that appropriate accounting policies and practices are used in the development of financial statements. The review of financial statements must be

BOX 3.7 INTERNAL AUDIT CONTROVERSIES

Internal audit and audit committees may be the object of unflattering comment, as follows:

Audit committees are as effective in handling risk management as external auditors. They have no hope of ensuring timely and well-informed risk management decisions in a company. Their value lies in retrospective risk control.

Auditing committees create the impression that risk management is something that can be audited until it becomes right. By and large, auditors focus on numbers and figures, while risk management failures are often due to internal and individual shortcomings or bad decisions.

Audit committees are ineffective because risk management is a dynamic process. The complex nature of present-day financial risks makes it impossible for audit committees to do anything more than look after auditable risks, and these are only one part of total risk.

— Van der Merwe, 1991

detailed enough to allow internal auditors to be able to report on a range of aspects, including the fairness of balance sheet and income statement presentation. The internal auditors also consider compliance with regulatory and legislative requirements, identify all significant discrepancies and disclosure problems, highlight differences between the annual report and management accounts, point to major fluctuations, and check management's compliance with statutory and other requirements.

Internal auditors and audit committees therefore have a very important contribution to make in the risk management process. In general terms, risk management responsibilities include monitoring of the institution's financial risk profile and review of management procedures. Further details regarding the internal auditing function and audit are summarized in Box 3.8.

Internal auditors are also expected to evaluate the external audit function and to ensure follow-up by management of problems identified in auditors' reports. One should, however, appreciate the difficulty of meeting the expectations of the public and regulatory entities. In reality, the ability of internal auditors and committees to satisfy all these requirements is limited.

3.8 External Auditors: A Reassessment of the Traditional Approach of Auditing Banks

The primary objectives of an audit are to enable the auditor to express an opinion on whether or not the bank's financial statements fairly reflect its financial condition, and the results of its operations for a given period. The external audit report is normally addressed to shareholders, but is used by many other parties, such as supervisors, financial professionals, depositors, and creditors. The traditional approach to an external audit according to the requirements of generally accepted auditing standards (International Standards of Auditing, or ISA) typically includes a review of internal control systems. This assessment is undertaken to determine the nature and extent of substantive testing, provide an analytic review, or trend analysis, and to undertake a certain amount of detailed testing. Apart from the audit of the income statement, certain line items on the balance sheet are audited through the use of separate programs, for example, fixed assets, cash,

BOX 3.8 THE RESPONSIBILITIES OF AUDIT COMMITTEES AND INTERNAL AUDITORS

The responsibilities of audit committees and internal auditors in financial risk management are to:

- review management's adherence to board policies and procedures;
- provide assurance regarding corporate governance, control systems and risk management processes
- verify the adequacy and accuracy of the information reported to the board by management;
- report periodically to the board regarding adherence to policies and procedures;
- improve communication between the board and management;
- evaluate risk management measures for their appropriateness in relation to exposures;
- test all aspects of risk activities and positions;
- ensure effective management controls over positions, limits, and actions taken when limits are exceeded;
- ensure that managers fully understand the established policies and procedures and have the necessary expertise to implement them;
- assess operations and suggest improvements.

investments, or debtors. For example, external auditors have traditionally looked for fraud and mismanagement in the lending function. Audits rarely include a detailed credit analysis of borrowers, as this has traditionally been performed by bank supervisors.

A risk-based approach to financial regulation also requires a reassessment of the conventional approach to external audits. External auditors, as an integral part of the risk-management partnership, have a specific role to fulfill. If market discipline is to be used to promote banking system stability, markets must first be provided with information and the capacity to hold directors and management accountable for the sound operation of a bank. External auditors play a key role in improving the market's ability to determine which banks to do business with.

It is clear that the philosophy of and the approach to external auditing are crucial to the success or failure of a coordinated strategy of risk management. The work of the external auditor is, of course, an added protection

for the consumer. It is therefore important that the profession shift from a mere balance-sheet audit to an evaluation of the risks inherent in the financial services industry. When such an approach has been fully adopted by all auditors of financial institutions, the risk management process will be significantly enhanced and all users of financial services will benefit. Box 3.9 summarizes the risk management responsibilities of external auditors.

The role of the accounting and auditing profession has also gained importance as part of the bank supervision process. Management letters and long-form reports submitted by auditors can provide supervisors with valuable insights into various aspects of a bank's operations. This is especially important in situations when auditors become aware of facts that may endanger the stability of a particular bank or of the banking system. In many countries, especially those where supervisory resources are scarce, supervisors may try to avoid repeating the work that external auditors have already performed for client banks. In such situations, auditors have a broader mandate prescribed by law, but at a minimum it is important to establish adequate liaison mechanisms.

3.9 The Role of the General Public

Perhaps the greatest disservice that authorities have done to investors — particularly in jurisdictions where explicit deposit insurance does not exist

BOX 3.9 FINANCIAL RISK MANAGEMENT RESPONSIBILITIES OF EXTERNAL AUDITORS

External auditors have the responsibility to:

- ☐ evaluate risks inherent in the banks they are auditing;
- ☐ analyze and evaluate information presented to them to ensure that such information makes sense;
- ☐ understand the essence of transactions and financial engineering (structures) used by the client bank;
- ☐ review management's adherence to board policies and procedures;
- ☐ review the information supplied to the board, shareholders, and regulators;
- ☐ review adherence to statutory requirements;
- ☐ report to the board, shareholders, and regulators on the fair presentation of information submitted to them.

— is to create the illusion that regulators can guarantee the safety of the public's deposits. When all is said and done, investors must understand that no amount of management or regulatory protection can take away their own responsibility for decisions regarding their investments. Investors and depositors retain responsibility for applying sound principles in the diversification of risk and in the assessment of a financial institution. In those situations where consumers cannot protect themselves, a limited deposit insurance scheme for banks and simplified contractual disclosure for insurance companies and other portfolio managers may be considered.

The only way in which the public can be protected is if it understands who is taking the risk — individuals as investors acting through agents (investment managers and brokers), or the financial intermediaries pooling their funds and acting as principals (banks). When this distinction is clearly established and the public more clearly understands the risks that investment entails, the principal role of financial intermediaries will be to ensure that consumers are protected. This will be particularly true if the “fit and proper” requirement described above is applied to all providers of financial services.

Investors can be assisted in their roles as risk managers if the concept of “public” is broadened to include the **financial media and analysts, such as stockbrokers, other advisors, and rating agencies**. In addition, the market's ability to provide a basis for informed decisions must be improved through full disclosure of the financial statements of banks, as well as by informed and competent analysis in the media. Investors' interests can be safeguarded in more than one way, but disclosure of what is actually happening is essential.

As a general principle, much of the justification for banking regulation rests on alleged imperfections in information disclosure. A policy of adequate information provision would help to mitigate this underlying problem, and possibly allow for the removal of many of the quantitative constraints that are prevalent in banking today. Emphasis on transparency and accountability of management would also reduce the compliance cost and regulatory distortions that are often associated with conventional approaches to banking regulation.

Probably the most promising solution to these problems is legally mandated public disclosure. Louis Brandeis, a U.S. Supreme Court justice, observed in 1913 that sunlight is said to be the best of disinfectants

and electric light the most efficient policeman. This quaint-sounding aphorism still holds true. Brandeis made another crucial point: to be effective, disclosure must be made to the public. One of the most important benefits of mandating public disclosure is that the knowledge that information has to be publicly disclosed affects the conduct of financial institutions. Boards of directors and management know that, after having been assimilated by the financial press and competitors, even the most highly technical information will filter through to the public. In the United States and other countries with strict information disclosure requirements, the threat of private litigation engendered by public disclosure increases the incentive to management and boards to avoid problems.

Another form of public disclosure occurs when entities such as Standard & Poor's, Moody's Investors Service, and AM Best publish their ratings of companies. Ideally, these private rating agencies balance the needs for public disclosure and confidentiality, since they receive a great deal of information that is made public only in the form of ratings. Through published ratings, they have the ability to act more quickly and have a more subtle effect than regulators commonly do. If rating agencies can build a reputation for reliability among financial analysts, senior management in banking institutions, and the broader public, they can also provide an additional form of risk management for banks.

Market discipline could, therefore, be encouraged as an effective means of reducing the burden on regulators with regard to large, sophisticated investors. The role of financial analysts in assisting the public with risk management should not be underestimated. Financial analysts provide investment advice to clients and are therefore accustomed to presenting financial data from the perspective of investment risk. Investors who buy bank-negotiable certificates of deposit and other wholesale money market instruments should bear risk along with the creditors of bank holding companies. Faced with the possibility of losing their investments, such investors will police banks in order to protect their interests. Although all regulation can be left to the market, a policy of sharing resources between authorities and the private sector is bound to be more effective than one of the parties acting alone.

Nonetheless, ratings of institutions are sometimes downgraded only when problems have already extensively developed and when substantial,

sometimes fatal, damage has been done. The question remains whether the market at large could have recognized deterioration or excessive risk-taking at a sufficiently early stage if more information had been available. It will likely take a long time to develop techniques for the evaluation of risk and to standardize them in such a way as to be adequately captured in published data. Market players are therefore limited in their ability to see credit problems as they develop. The experience of the 1980s, when each major credit problem caused surprise in the market, is likely to remain the general pattern for the foreseeable future.

If market analysts cannot identify and properly evaluate credit and other problems until substantial harm has already been done, market discipline will be insufficient to protect the overall safety of the banking system or of deposit-insurance funds. In fact, the belated imposition of market pressure may complicate the task that supervisors have in dealing with problems. Consequently, the need for mechanisms to protect small and less-sophisticated investors will continue to exist.

CHAPTER 4

BALANCE SHEET STRUCTURE AND MANAGEMENT

KEY MESSAGES

The composition of a bank's balance sheet is one of the key factors that determines the risk level faced by the institution.

Balance sheet structure lies at the heart of the ALCO (asset-liability management) process.

Growth in the balance sheet and changes in the structure of assets or liabilities impact the risk management process.

Changes in the relative structure of assets and liabilities should be a conscious decision of a bank's policymakers — the board of directors.

Monitoring key balance sheet components may alert the analyst to negative trends in relationships between asset growth and capital retention capability.

It is important to monitor the growth of low, non-earning, and off-balance-sheet items.

4.1 Introduction: Composition of the Balance Sheet

Until the 1970s, the business of banking primarily consisted of the extension of credit. In other words, a simple intermediation of deposits that had been raised at a relatively low cost, and bank managers faced fairly simple decisions concerning loan volumes, pricing, and investments. The key managerial challenges of the past were controlling asset quality and result-

ing loan losses, as well as managing of overhead expenditures. With the background of recession, volatile interest rates, and inflation during the late 1970s and early 1980s, the management of both assets and liabilities has become necessary in order to maintain satisfactory margin performance. The complexity of balance sheet management continued to increase due to the deregulation in the 1980s, with growing competition for funds becoming a primary management concern.

The era of deregulation and increased competition continued in the 1990s, including involvement by financial institutions other than banks. This environment underscored the need for competitive pricing and, in practical terms, for an increase in and engagement of liabilities in a manner that results in spread maximization, as well as in controlled exposure to related risks. Due to the inverse relationship of these two goals, a balancing act between maximizing the spreads versus controlling risk exposures has become a focal point in the financial management, and in the regulation and supervision of banks.

The goal of financial management is to maximize the value of a bank, as determined by its profitability and risk level. Since risk is inherent in banking and unavoidable, the task of financial management is to manage it in such a way that the different types of risk are kept at acceptable levels and profitability is sustained. Doing so requires the continual identification, quantification, and monitoring of risk exposures, which in turn demands sound policies, adequate organization, efficient processes, skilled analysts, and elaborate computerized information systems. In addition, risk management requires the capacity to anticipate changes and to act in such a way that a bank's business can be structured and restructured to profit from the changes, or at least to minimize losses. Supervisory authorities should not prescribe how business is conducted, but should instead maintain prudent oversight of a bank by evaluating the risk composition of its assets and by insisting that an adequate amount of capital and reserves is available to safeguard solvency.

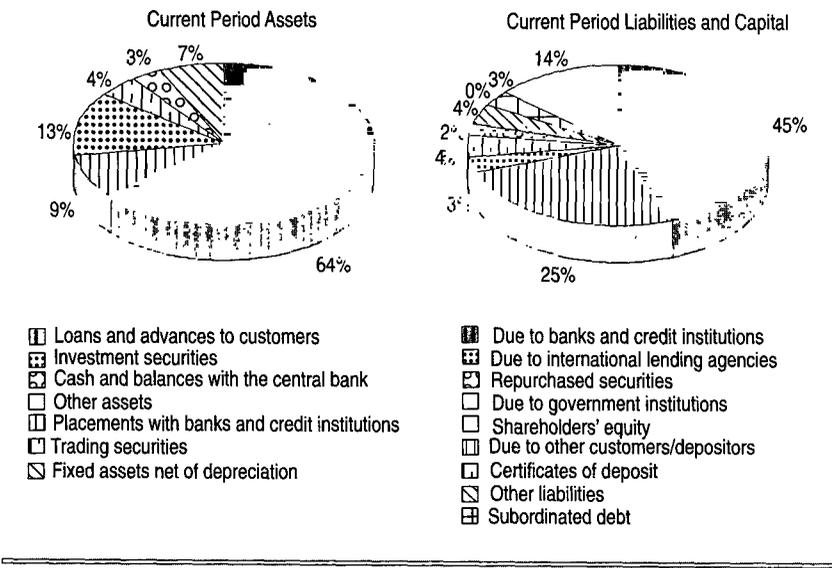
Asset-liability management, which involve the raising and utilization of funds, lie at the financial heart of a bank. More specifically, asset-liability management comprises strategic planning and implementation and control processes that affect the volume, mix, maturity, interest rate sensitivity, quality, and liquidity of a bank's assets and liabilities. The primary

goal of asset-liability management is to produce a high-quality, stable, large, and growing flow of net interest income. This goal is accomplished by achieving the optimum combination and level of assets, liabilities, and financial risk. Asset-liability management is further discussed in Chapters 9 through 13.

This chapter discusses the various elements contained in bank balance sheets and highlights the importance of the structure and composition of liabilities and assets. In addition, the chapter illustrates the ways that a bank's risk managers and analysts can analyze the structure of balance sheets, as well as individual balance sheet items with specific risk aspects, such as liquidity in the case of deposit liabilities or market risk in the case of traded securities. In this process, the interaction between various types of risk must be understood to ensure that they are not evaluated in isolation. Finally, the key principles of effective risk management are discussed.

Figure 4.1 and Table 4.1 both illustrate the composition of a bank's balance sheet. An evaluation of the balance sheet structure requires under-

FIGURE 4.1 BALANCE SHEET COMPONENTS



standing not only of the bank, but also of its business and competitive environment; the overall regulatory, economic, and policy environment; and the customer mix. The structure of a typical balance sheet, with deposits from customers on the liability side and loans and advances to customers on the asset side, is also reviewed. This pattern reflects the nature of banks as intermediaries, with ratios of capital to liabilities at such a low level that their leverage would be unacceptable to any business outside the financial services industry.

4.2 Asset Structure: Growth and Changes

Assets. The banking sector's assets comprise items that are a reflection of individual banks' balance sheets, although the structure of balance sheets

TABLE 4.1 A BANK'S BALANCE SHEET STRUCTURE

<i>Assets as percentage of total assets</i>	<i>Period 1</i>	<i>Period 2</i>	<i>Period 3</i>	<i>Current Period</i>
Cash and balances with the central bank	0.73	2.64	6.82	3.37
Investment securities — stable liquidity portfolio	0.32	8.20	15.87	12.61
Proprietary trading securities at market value	0.56	7.33	6.35	4.48
Placements with banks and credit institutions	39.14	27.20	20.21	9.28
Loans and advances to customers	58.06	52.38	45.62	63.28
Other investments — subsidiaries, etc.	0.00	0.00	0.00	0.00
Fixed assets net of depreciation	1.19	2.21	5.11	6.96
Other assets	0.00	0.03	0.02	0.02
Total	100.00	100.00	100.00	100.00
<i>Liabilities as percentage of total liabilities and capital</i>				
Due to other banks and credit institutions	40.45	34.40	40.35	44.12
Funding for the trading portfolio (investment portfolio) — repurchased securities	2.05	3.78	3.25	2.45
Due to other customers/depositors	42.84	32.29	34.79	25.44
Certificates of deposit	0.64	4.11	4.48	4.23
Other liabilities	0.04	0.59	1.87	4.06
Amounts owed to government institutions	0.04	0.09	0.08	0.03
Due to international lending agencies	0.00	5.35	0.56	3.04
Subordinated debt	0.00	5.35	0.56	3.04
Shareholders' equity	13.94	14.04	14.06	13.58
Total	100.00	100.00	100.00	100.00

may vary significantly depending on business orientation, market environment, customer mix, or economic environment. The composition of a bank's balance sheet is normally a result of asset-liability and risk management decisions. Figures 4.2 and 4.3 illustrate the structure and growth of the asset components of a bank over time.

The analyst should be able to assess the risk profile of the bank simply by analyzing the relative share of various asset items and the changes in proportionate share over time. For example, if the loan portfolio jumps from 58 percent to 64 percent of on-balance-sheet assets (Figure 4.3), one would question if the bank's credit risk management systems are adequate to enable handling of the increased volume of loan transactions and of the loan portfolio. In addition, such a change would disclose a shift from another risk area. Likewise, an increase or decrease in trading securities would indicate a change in the level of market risk to which the institution is exposed. Such observations are possible prior to a detailed review of either the credit or the market risk management areas. When linked to the amount of net income yielded by each category of assets, this analysis increases in importance, enabling a challenging assessment of risk versus reward.

Overall liquidity of assets. Liquid assets are needed to accommodate expected and unexpected balance sheet fluctuations. In environments where markets are not developed and the liquidity of different claims still depends almost exclusively on their maturity rather than on the ability to sell them, banks tend to keep a relatively high level of liquid assets that bear little or no interest. In such environments, liquid assets typically account for at least 10 percent, or in extreme situations as much as 20 percent, of total assets. Increasing market orientation, the growth of financial markets, and the greater diversity of financial instruments worldwide entails greater short-term flexibility in liquidity management, which in turn reduces the need to hold large amounts of liquid assets. In banking environments with developed financial markets, liquid assets typically account for only about 5 percent of total assets. An appraisal of whether the level of liquid assets is satisfactory must be based on a thorough understanding of money market dynamics in the respective country, as certain assets that appear liquid in good times may not be liquid in more difficult periods.

Cash and balances with the central bank represent the holdings of highly liquid assets, such as bank notes, gold coin, and bullion, as well as

FIGURE 4.2 STRUCTURAL CHANGE AND ASSETS GROWTH

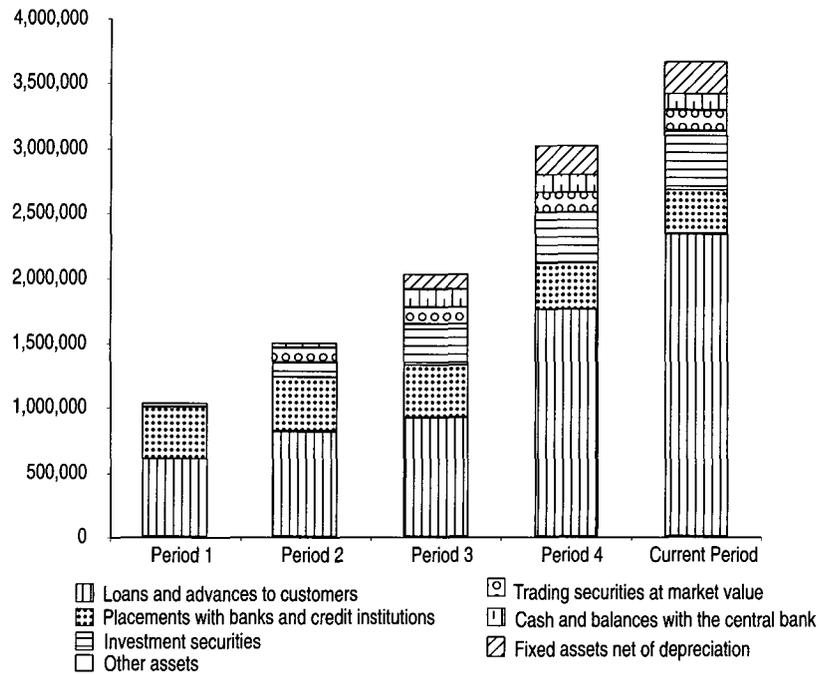
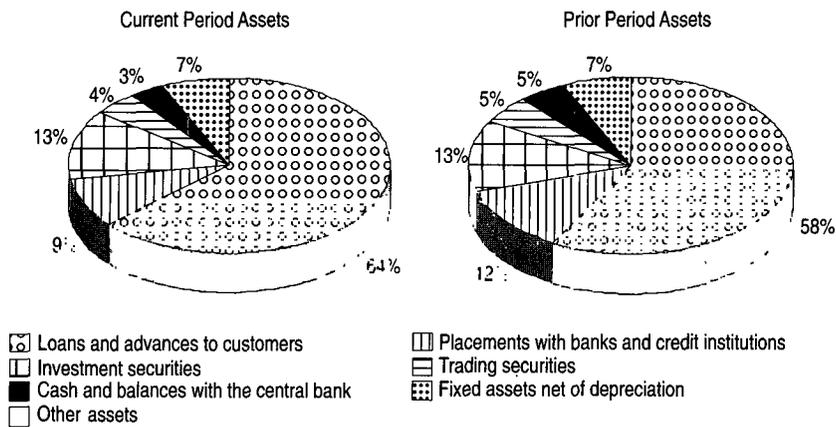


FIGURE 4.3 CHANGES IN THE STRUCTURE OF A BANK'S ASSETS PORTFOLIO



deposits with the central bank. A percentage of deposits is normally required to be held in order to meet the central bank's reserve requirements and serve as a monetary policy tool. Flat-rate reserve requirements are used to control the amount of money that a bank is able to extend as credit. However, when banks are required to hold excessive reserve assets, particularly when the assets do not pay interest, the cost to banks increases. This creates incentives for banks to devise instruments that are not subject to reserve requirements, encourages intermediation through new channels, and may give a competitive advantage to institutions that are not subject to reserve requirements. Such practices tend to reduce the effectiveness and the importance of reserve requirements as a monetary policy tool.

Regulators have tried to make reserve requirements more difficult to circumvent, and to reduce the incentives for doing so. For example, changes in reserve requirements that have been introduced by regulators include a reduction of the level, type, and volatility of reserve holdings, and/or an increase in the various types of compensation made to banks for maintaining reserves.

Stable liquidity/investment and trading portfolios. These assets represent the bank's investment and proprietary trading books in securities, foreign currencies, equities, and commodities.

Although similar securities are involved, the investment portfolio (Chapter 10) must be distinguished from the proprietary trading portfolio (discussed in Chapter 11). Proprietary trading is aimed at exploiting market opportunities with leveraged funding (for example, through the use of repurchase agreements), whereas the investment portfolio is held and traded as a buffer/stable liquidity portfolio.

Investment and trading assets are valued in terms of IAS 39 and can be classified as "trading, available-for-sale, or held-to-maturity." However, these assets would normally be disclosed at fair value (marked-to-market) in the bank's financial statements (see Chapter 5.2 for the treatment of income on such assets and Chapter 14 for IAS disclosure).

In many developing countries, banks have been or are obligated to purchase government bonds or other designated claims, usually to ensure that a minimum amount of high-quality liquidity is available to meet deposit demands. Frequently, the main purpose of such liquid asset

requirements is to ensure a predictable flow of finance to designated recipients. Government is the most frequent beneficiary, often with an implicit subsidy. Such obligatory investments may diminish the availability and increase the cost of credit extended to the economy (and the private sector), and due to the increased cost of credit result in a higher level of risk.

In developed countries and financial markets, an increase in bank investment and trading portfolios generally reflects the growing orientation of a bank to nontraditional operations. In such cases, an investment portfolio comprises different types of securities instruments. In risk management terms, such an orientation would mean that a bank has replaced credit risk with market and counterparty risk.

Loans and advances to customers are normally the most significant component of a bank's assets. These include loans for general working capital (overdrafts), investment lending, asset-backed installment and mortgage loans, financing of debtors (accounts receivable and credit card accounts), and tradable debt such as acceptances and commercial paper. Loans and advances are extended in domestic and foreign currency and are provided by banks as financing for public or private sector investments.

In the past decade, innovation has increased the marketability of bank assets through the introduction of sales of assets such as mortgages, automobile loans, and export credits used as backing for marketable securities (a practice known as securitization and prevalent in the United States and the United Kingdom).

An analysis of this trend may highlight investment or spending activity in various sectors of the economy, while an analysis of a foreign currency loan portfolio may indicate expectations regarding exchange rate and interest rate developments. Further, evaluation of trade credits may reveal important trends in competitiveness of the economy and its terms of trade.

Other investments could comprise a bank's longer-term equity-type investments, such as equities and recapitalization/ non-trading bonds held in the bank's long-term investment portfolio — this includes equity investments in subsidiaries, associates, and other listed and unlisted entities. The percentage of a portfolio that is devoted to this type of instrument varies among countries, though not necessarily as a result of a bank's own

asset-liability management decisions. Such assets are also valued in terms of IAS 39 and will normally be classified as “available-for-sale, or held-to-maturity.”

For equity investments, the balance sheet should be reviewed on a consolidated basis to ensure a proper understanding of the effect of such investments on the structure of the bank’s own balance sheet, and to properly assess the asset quality of the bank.

Fixed assets represent the bank’s infrastructure resources and typically include the bank’s premises, other fixed property, computer equipment, vehicles, furniture, and fixtures. In certain circumstances, banks may have a relatively high proportion of fixed assets, such as houses, land, or commercial space. These holdings would be the result of collections on collateral which, under most regulations, banks are required to dispose of within a set period of time. They may also reflect the deliberate decision of a bank to invest in real estate, if the market is fairly liquid and prices are increasing. In some developing countries, investments in fixed assets reach such high proportions that central banks may begin to feel obliged to limit or otherwise regulate property-related assets. A bank should not be in the business of investing in real estate assets, and therefore a preponderance of these assets would affect the assessment of the bank. In more developed countries, real estate assets not acquired in the normal course of banking business would be booked in a subsidiary at the holding company level in order to protect depositors from associated risks.

Other assets often include intangible assets. These vary with regard to the predictability of income associated with a particular asset, the existence of markets for such assets, the possibility of selling the assets, and the reliability of the assessments of the asset’s useful life. The treatment of assets in evaluating capital adequacy can be controversial. For example, assets may include suspense accounts, which have to be analyzed and verified to ensure that the asset is indeed real and recoverable.

4.3 Liabilities Structure: Growth and Changes

As explained in Section 4.2, the relative share of various balance sheet components — liabilities, in this instance — is already a good indication of the risk levels and types of risk to which a bank is exposed.

An increase in the level of nonretail deposits funding, such as repurchase agreements or certificates of deposit, could expose the bank to greater volatility in satisfying its funding requirements, requiring increasingly sophisticated liquidity risk management. Funding instruments such as repurchase agreements also expose a bank to market risk, in addition to liquidity risk.

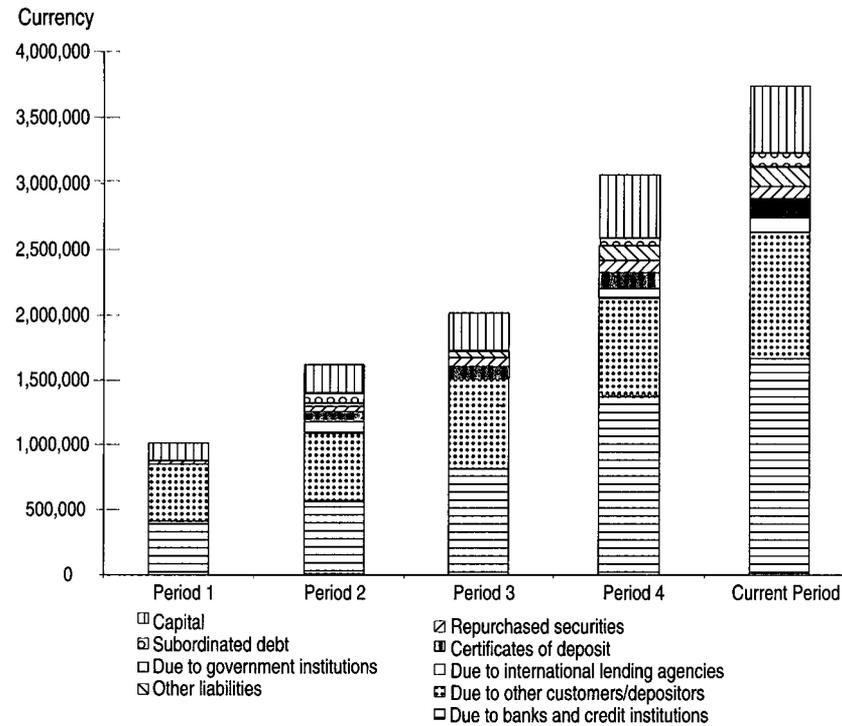
Liabilities. The business of banking is traditionally based on the concept of low margins and high leverage. Consequently, a special feature of a bank's balance sheet is its low capital-to-liabilities ratio, which would normally be unacceptable to any other business outside the financial services industry. The acceptable level of risk associated with such a structure is measured and prescribed according to risk-based capital requirements, which are in turn linked to the composition of a bank's assets.

While the types of liabilities present in a bank's balance sheet are nearly universal, their exact composition varies greatly depending on a particular bank's business and market orientation, as well as by the prices and supply characteristics of different types of liabilities at any given point in time. The funding structure of a bank directly impacts its cost of operation and therefore determines a bank's profit potential and risk level. The structure of a bank's liabilities also reflects the specific asset-liability and risk management policies of a bank. Figure 4.4 illustrates a typical liability structure.

Interbank funding comprises amounts due to other banks and credit institutions. It includes all deposits, loans, and advances that are extended between banks and are normally regarded as volatile sources of funding. An analysis of interbank balances may point to structural peculiarities in the banking system; for example, when funding for a group of banks is provided by one of its members.

International borrowing may occur in the same form as domestic funding, except that it normally exposes a bank to additional currency risk. Direct forms of international borrowing include loans from foreign banks, export promotion agencies in various countries, or international lending agencies, as well as vostro accounts. Indirect forms include notes, acceptances, import drafts, and trade bills sold with the bank's endorsement; guarantees; and notes or trade bills rediscounted with central banks in various countries. The existence of foreign funding is generally a good indicator of international confidence in a country and its economy.

FIGURE 4.4 STRUCTURAL CHANGE AND GROWTH OF CAPITAL AND LIABILITIES



Given the volatility of such funding sources, however, if a bank is an extensive borrower its activities should be analyzed in relation to any other aspects of its operations that influence borrowing. The acceptable reasons for reliance on interbank funding include temporary or seasonal loan or cash requirements and the matching of large and unanticipated withdrawals of customer deposits. Money centers or large regional banks engaged in money market transactions tend to borrow on a continuous basis. Otherwise, heavy reliance on interbank funding indicates that a bank carries a high degree of funding risk and is overextended in relation to its normal deposit volume.

Repurchase agreements (to enhance returns on proprietary trading). Instead of resorting to direct borrowing, a bank may sell and simul-

taneously agree to repurchase securities at a specific time or after certain conditions have been met. Repurchase structures are often used to fund a bank's trading portfolio and to enhance returns on such portfolios.

The proprietary trading portfolio is therefore aimed at exploiting market opportunities with leveraged funding such as repurchase agreements, whereas the investment portfolio is held and traded as a buffer/stable liquidity portfolio — and funded with more stable deposits.

Repurchase agreements may expose banks to interest rate or market risks as they involve underlying securities, and even a credit risk if the buyer is unable to follow through on its commitments. The level of securities sold under repurchase agreements has (in the past) also served as a barometer of the level of disintermediation in the system, as well as the demand for wholesale funds.

Deposits usually constitute the largest proportion of a bank's total liabilities. Deposits from customers — the amount due to other customers and depositors — represent money accepted from the general public, such as demand and savings, fixed and notice, and foreign currency deposits. The structure and stability of the deposit base is of utmost importance. Broader trends also come into play. An analysis of private sector deposits (including funding from repurchase agreements and certificates of deposit) highlight economic trends related to the level of spending, as well as its effect on inflation. Furthermore, growth in money supply is calculated using total deposits in the banking system. A change in the level of deposits in the banking system is therefore one of the variables that influences monetary policy.

Within the deposit structure, some items are inherently more risky than others. For example, large corporate deposits are less stable than household deposits, not only because of their higher degree of concentration but also because they are more actively managed. A large proportion of nonretail or nonstandard deposits can be unstable, and tends to indicate that the bank may be paying higher rates of interest than its competitors or that depositors may be attracted by liberal credit accommodations. Cash collateral and various types of loan escrow accounts may also be counted as deposits, although these funds can only be used for their stated purpose.

Competition for funds is a normal part of any banking market, and depositors, both households and corporations, often aim to minimize idle

funds. A bank should therefore have a policy on deposit attraction and maintenance and procedures for analyzing, on a regular basis, the volatility and the character of the deposit structure so that funds can be productively utilized even when the probability of withdrawal exists. Analysis of the deposit structure should determine the percentage of hard-core, stable, seasonal, and volatile deposits.

Borrowings from the central bank may also appear among the bank's liabilities. The most frequent reason for borrowing from the central bank is that changes have occurred in the volume of required reserves as a result of fluctuations in deposits. These shifts occur when banks have not correctly forecasted their daily reserve position and have been forced to borrow to make up the difference, or to assist banks to meet temporary requirements for funds. Longer-term credit from the central bank indicates an unusual situation that may be the result of national or regional difficulties or problems related to the particular bank in question. Historically, central bank financing was often directed toward a special purpose determined by government policies, for example, in the areas of agriculture or housing, but this type of activity is increasingly out of date.

The capital of a bank represents the buffer available to protect creditors against losses that may be incurred by managing risks imprudently. According to international norms, banks normally have three tiers of capital components (see Chapter 6 for further discussion). The key components of bank capital are common stock, retained earnings, and perpetual preferred stock, all of which are counted as Tier 1 capital. Otherwise, to qualify for Tier 1 or Tier 2 capital, a capital instrument should have long maturity and not contain or be covered by any covenants, terms, or restrictions that are inconsistent with sound banking. For example, instruments that result in higher dividends or interest payments when a bank's financial condition deteriorates cannot be accepted as part of capital. Tier 2 and Tier 3 capital components will often mature at some point, and a bank must be prepared to replace or redeem them without impairing its capital adequacy. When determining capital adequacy, the remaining maturity of Tier 2 and Tier 3 capital components should therefore also be assessed.

Off-balance-sheet items. Financial innovation has also led to a variety of new "off-balance-sheet" financial instruments. The costs associated

with monetary policy regulations, such as minimum reserve requirements, and capital adequacy requirements have frequently been circumvented by the use of off-balance-sheet instruments. Credit substitutes, such as guarantees and letters of credit, and derivative instruments, such as futures and options, do not count as assets or liabilities, even though they expose the bank to certain risks and hence carry a capital requirement. It is a challenge to manage risks in relation to such off-balance-sheet items. Consequently, it is important that management information accurately reflects exposure in relation to these instruments. As part of managing the risk associated with off-balance-sheet items, it is important that the extent of the liability or right is quantified. This can be accomplished by assessing the nature, volume, and anticipated usage of credit commitments, contingent liabilities, guarantees, and other off-balance-sheet items. Sensitivity to market changes that affect such instruments should also be determined in the context of the overall risk to the company.

4.4 Overall On- and Off-Balance-Sheet Growth

A bank that is well positioned and successful in its market can be expected to grow. An analysis of balance sheets can be performed to determine growth rates and the type of structural changes that occur in a bank (Table 4.2). Such an analysis indicates the general type of business undertaken by a bank, and requires an understanding of the structure of its balance sheet and the nature of its assets and liabilities. Even when overall balance sheet growth is not significant, individual components normally shift in reaction to changes in the competitive market or economic or regulatory environments (as illustrated by Figures 4.1 to 4.4 above). As balance sheet structure changes, inherent risks also change. The structure of a balance sheet should therefore be a part of an assessment of the adequacy and effectiveness of policies and procedures for managing risk exposures.

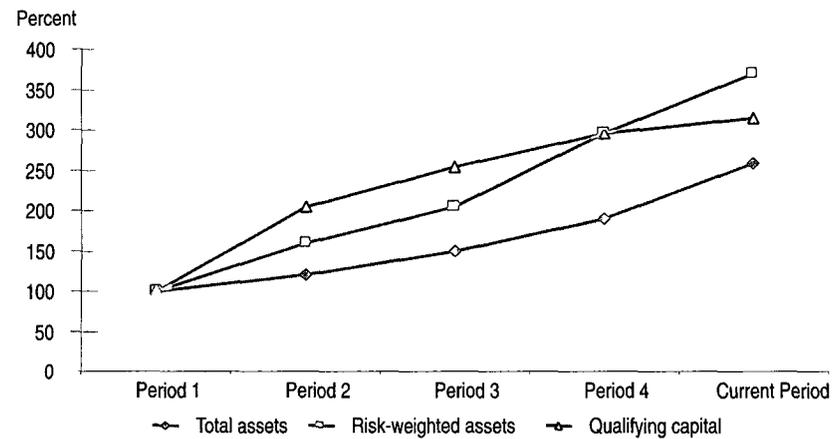
Figure 4.5 illustrates the overall growth of a bank's assets and capital. In addition, it highlights the extent to which a bank's growth is balanced, or the extent to which the bank has been able to maintain regulatory capital requirements in relation to total assets and risk-weighted asset growth. A graph of this kind could provide an early indicator of capital adequacy problems to come, which in turn could result from rapid expansion.

In normal situations, the growth of a bank's assets is justified by an increase in the stable funding base at a cost that is acceptable to the bank, as well as by profit opportunities. The spread between interest earned and interest paid should normally be stable or increasing. In a stable market environment, increasing margins may indicate the acceptance of higher risk. In order to avoid increased lending risk, emphasis is often placed on fee-generating income, which does not involve a bank's balance sheet.

TABLE 4.2 TOTAL GROWTH OF BALANCE-SHEET AND OFF-BALANCE-SHEET ITEMS

Total Growth (percent)	Period 1	Period 2	Period 3	Period 4	Current Period	Benchmark
Total assets	100	120	150	190	258	
Risk-weighted assets	100	160	205	295	370	
Qualifying capital	100	205	254	295	315	
<i>Off-Balance-Sheet</i>						
Off-balance-sheet items as percentage of total assets	1.09	1.39	15.89	24.62	24.92	

FIGURE 4.5 TOTAL GROWTH



Banks that grow too quickly tend to take unjustified risks and often find that their administrative and management information systems cannot keep up with the rate of expansion. Even well-managed banks can run into risk management problems arising out of excessive growth, especially concerning their loan portfolios.

In some countries, monetary policy conduct may limit or significantly affect the rate of growth and the structure of a bank's assets. Despite the shift away from reliance on portfolio regulations and administrative controls, credit ceilings have been and still are a relatively common method of implementing monetary policy in some transitional economies, especially in countries with less-developed financial markets. An alternative method of indirectly manipulating the demand for and level of credit in the economy has traditionally been to influence the cost of credit.

Changes in banking and finance mean that the scope for circumventing credit ceilings and interest rate regulations has increased significantly. A loss of effectiveness, and concerns over the distortions that credit ceiling and interest rate manipulations generate, are the reasons why these instruments are increasingly abandoned in favor of open-market interventions. The use of credit ceilings in countries where such monetary policies have been pursued for long periods of time may have reduced the competitive ability of banks and encouraged innovation and the creation of alternative instruments and/or channels of financial intermediation. In other words, they have inadvertently shaped the evolution of banking systems.

Low and nonearning assets. Banks clearly need to keep a reasonable risk profile on a profitable basis. The cause for declining net interest margins must include the assessment of the level of low-earning or nonearning assets, particularly those with high risk. Figure 4.6 provides a picture of the changing level, over time, of low and nonearning assets. The proportion of these assets of the total assets of a bank has increased significantly during the periods under observation. This trend should be analyzed not only in relation to industry benchmarks or averages, but also within the context of changes over time. In this particular case, growth may have resulted from changes in the regulatory environment or in the bank's funding structure, whereby the bank may have increased the proportion of funding subject to regulatory requirements. It could also have been due to

poor asset management decisions. In many transitional economies, this asset category reflects forced holding of recapitalization bonds issued by governments to save their banking systems.

Off-balance-sheet growth. Figure 4.7 similarly illustrates off-balance-sheet growth. This graph can be used to determine the growth of off-balance-sheet items and the proportion that such items constitute in total on- and off-balance-sheet activities. The bank under observation has obviously been increasing its off-balance-sheet activities, although the notional value of many off-balance-sheet instruments may not be directly related to the extent of risk exposure. An analyst should understand why and exactly which instruments have supported this significant trend. Since the off-balance-sheet items do expose a bank to financial risks, a few questions arise, including the risk implications of different instruments not present on the balance sheet. In addition, it is not known whether the return to the bank is equal to the additional risk taken and whether the bank has in place an adequate risk management system for off-balance-sheet exposures.

FIGURE 4.6 LOW AND NONEARNING ASSETS AS A PERCENTAGE OF TOTAL ASSETS

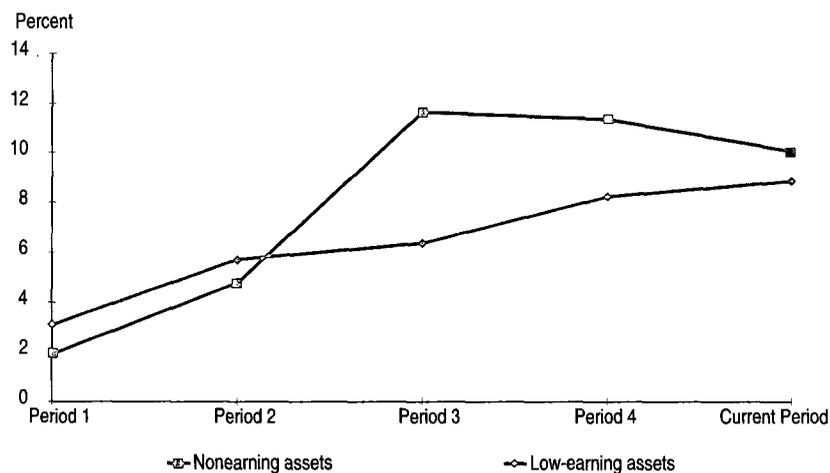
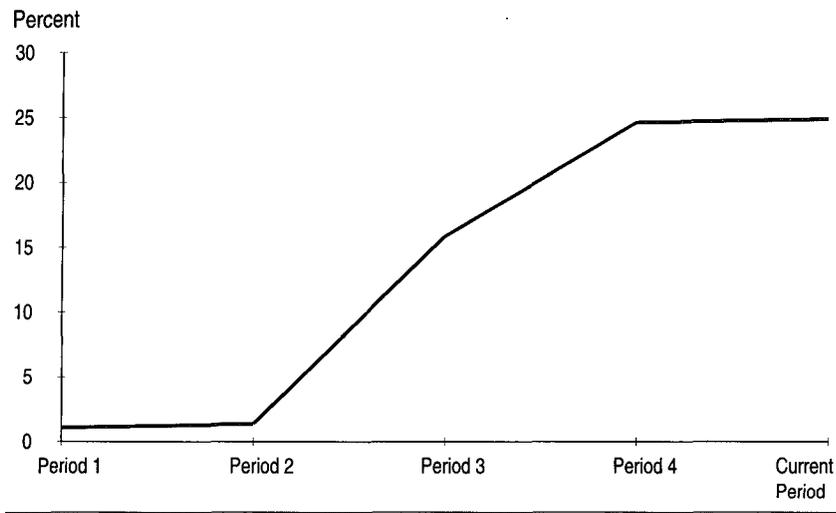


FIGURE 4.7 OFF-BALANCE-SHEET ITEMS AS A PERCENTAGE OF TOTAL ASSETS



4.5 Managing Risk Effectively

The goal of financial management is to maximize the value of a bank, as defined by its profitability and risk level. Financial management comprises risk management, a treasury function, financial planning and budgeting, accounting and information systems, and internal controls. In practical terms, the key aspect of financial management is risk management, which covers strategic and capital planning, asset-liability management, and the management of a bank's business and financial risks. The central components of risk management are the identification, quantification, and monitoring of the risk profile, of both banking and financial risks.

The risks associated with banking include product, market, and customer (loan portfolio) risk. Banks have little or no control over external risks, which are affected by changes in the economic and business environment, actions of competitors, regulators and tax authorities, and demographic shifts. As already discussed, these risks have increased significantly in the last two decades, in particular because of the impact of

increasing competition and volatility in the economic environment and in financial markets. Volatile prices have also contributed to the introduction of new financial instruments and services and to the determination of their success in the market place, since financial innovation has rarely been the norm during periods of stable prices.

The main types of financial risk include capital adequacy and liquidity, credit, interest rate, currency, and market risks (the assessment of which is the theme of this publication). The operational objective of risk management is to identify, quantify, and properly balance the elements of financial risk, many of which are interdependent to some degree. The ongoing operations of a bank affect financial risk factors and therefore require continuous attention.

Effective risk management, especially for larger banks and/or banks operating in deregulated and competitive markets, requires a formal process. In developing economies — especially those in transition — unstable, volatile economic and shallow market environments significantly increase the range and the magnitude of bank exposure to financial risk. Such conditions render risk management even more complex and make the need for an effective risk management process even more acute. The key components of effective risk management, which should be present in a bank and be assessed by the analyst, should normally include the following:

- ☒ An established line function at the highest level of the bank's management hierarchy that is specifically responsible for risk management, and possibly also for coordination of the operational implementation of ALCO (asset and liability committee) policies and decisions. This would place the risk management function on par with other major functions and provide it with the necessary visibility and leverage within the bank.
- ☒ An established, explicit, and clear risk management strategy and a related set of policies with corresponding operational targets. It should, however, be noted that a variety of risk management strategies exist that have originated from different approaches to interpreting interdependencies between risk factors. Variations may also be due to differences in opinion concerning the treatment of volatility in risk management.

- Introduction of an appropriate degree of formalization and coordination of strategic decision-making in relation to the risk management process. Relevant risk management concerns and/or parameters for decisionmaking on the operational level should also be incorporated for all relevant business and functional processes. Parameters for the main financial risk factors (normally established according to the risk management policies of a bank and expressed as ratios or limits) can serve as indicators to business units of what constitutes an acceptable risk. For example, a debt-to-equity ratio for a bank's borrowers is a risk parameter that expresses a level of credit risk. Maximum exposure to a single client is a risk parameter that indicates credit risk in a limited form.
- The bank's business and portfolio decisions should be based on rigorous quantitative and qualitative analyses within applicable risk parameters. This process, including an analysis of a consolidated risk profile, is necessary due to the complex interdependencies of and the need to balance various financial risk factors. Because the risk implications of a bank's financial position and changes to that position are not always obvious, details may be of critical importance.
- Systematic gathering of complete, timely, and consistent data relevant for risk management, and provision of adequate data storage and manipulation capacity. Data should cover all functional and business processes, as well as other areas such as macroeconomic and market trends that may be relevant to risk management.
- Development of quantitative modeling tools to enable the simulation and/or analysis of the effects of changes in economic, business, and market environments on a bank's risk profile and the related impact on its liquidity, profitability, and net worth. Computer models used by banks range from simple PC-based tools to elaborate mainframe modeling systems. Such models can be built in-house or be acquired from other financial institutions with a similar profile, specialized consulting firms, or software vendors. The degree of sophistication and analytical capacity of such models used by a bank may indicate early on the seriousness of a bank toward risk management.

The new Basel Capital Accord will significantly increase the importance of quantitative modeling tools and of bank's capacity to use them, as they provide a basis for implementation of the Internal Rating Based (IRB) approach to measurement of bank's capital adequacy. It is hoped that the IRB approach would bring additional risk sensitivity, in that a capital requirement based on internal ratings would be more sensitive to the drivers of credit, market, and operational risk and economic loss in a bank's portfolios, and higher incentive compatibility, in that the bank would thus be encouraged to continuously improve its internal risk management practices.

CHAPTER 5

PROFITABILITY

KEY MESSAGES

Profitability is an indicator of a bank's capacity to carry risk and/or to increase its capital.

Supervisors should welcome profitable banks as contributors to stability of the banking system.

Profitability ratios should be seen in context, and the cost of free capital should be deducted prior to drawing conclusions about profitability.

Net interest income is not necessarily the greatest source of banking income and often does not cover the cost of running a bank.

Management should understand on which assets they are spending their energy, and how this relates to sources of income.

5.1 Introduction: The Importance of Profitable Banks

Profitability, in the form of retained earnings, is typically one of the key sources of capital generation. A sound banking system is built on profitable and adequately capitalized banks. Profitability is a revealing indicator of a bank's competitive position in banking markets and of the quality of its management. It allows a bank to maintain a certain risk profile and provides a cushion against short-term problems.

The income statement, a key source of information on a bank's profitability, reveals the sources of a bank's earnings and their quantity and

quality, as well as the quality of the bank's loan portfolio and the focus of its expenditures. Income statement structure also indicates a bank's business orientation. Traditionally, the major source of bank income has been interest, but the increasing orientation toward nontraditional business is also reflected in income statements. For example, income from trading operations, investments, and fee-based income accounts for an increasingly high percentage of earnings in modern banks. This trend implies higher volatility of earnings and profitability. It also implies a different risk profile from that of a traditional bank.

Changes in the structure and stability of banks' profits have sometimes been motivated by statutory capital requirements and monetary policy measures such as obligatory reserves. In order to maintain confidence in the banking system, banks are subject to minimum capital requirements. The restrictive nature of this statutory minimum capital may cause banks to change their business mix in favor of activities and assets that entail a lower capital requirement. However, although such assets carry less risk, they may earn lower returns. Excessive obligatory reserves and/or statutory liquidity requirements damage profits and may encourage disintermediation. They may also result in undesirable banking practices. For example, the balance sheets of banks in many developing and transitional economies contain large proportions of fixed assets, a trend that adversely affects profitability. Regulatory authorities should recognize the importance of profits and, to the extent possible, avoid regulations that may unduly depress profitability.

Taxation is another major factor that influences a bank's profitability, as well as its business and policy choices, because it affects the competitiveness of various instruments and different segments of the financial markets. For example, taxation of interest income, combined with a tax holiday for capital gains, can make deposits less attractive than equity investments. In general, banks adjust their business and policy decisions to minimize the taxes to be paid and to take advantage of any loopholes in tax laws. Beyond the level and the transparency of profit taxation, key areas to consider when assessing the business environment and profit potential of a bank are if and how fiscal authorities tax unrealized gains and interest income, and whether or not they allow provisions before taxation. Many fiscal authorities also apply direct taxes to banking transactions.

A thorough understanding of profit sources and changes in the income/profit structure of both an individual bank and the banking system as a whole is important to all key players in the risk management process. Supervisory authorities should, for example, view bank profitability as an indicator of stability and as a factor that contributes to depositor confidence. Maximum sustainable profitability should therefore be encouraged, since healthy competition for profits is an indicator of an efficient and dynamic financial system.

5.2 Income Statement Composition

A bank's income statement is a key source of information regarding the sources and the structure of its income. An example of an analytical income statement is shown in Table 5.1. In the last two columns of this example, the various components of income and expenses (even gross interest income and gross interest expenses) are disclosed as a percentage of the gross income per line item 5. Net interest income is calculated as the difference between gross interest income and interest expenses related to the loan portfolio and can be seen to make a relatively minor contribution to overall income — especially when the volume of activity to generate the net interest income is taken into account.

A bank's income statement typically includes the categories described below:

Interest income originates from loans and all other advances extended by a bank, such as working capital, investment, and housing, and foreign currency loans, installments, overdrafts, and credit cards. It also includes interest received on bank's deposits kept with other financial intermediaries. Interest income is normally calculated on an accrual basis, meaning that a bank calculates interest due over the period of time covered by the income statement, regardless of whether or not the interest has been paid. Accounting policies should normally require that a loan be placed in a nonaccrual status if a client is overdue by a specified period of time (say, 60 days), or deemed to be potentially unable to pay (regardless of whether the loan is overdue or not), at which point all previously accrued but unpaid interest should be reversed out of income. The absence of such a policy normally results in banks with largely overstated interest income and profits.

TABLE 5.1 COMPOSITION OF INCOME AND EXPENSES

	Income/Expenses		Year-on-year changes		% (Base: gross operating income)	
	Current Period	Prior Period	Amount	%	Current Period	Prior Period
A. Interest and similar income on loan portfolio and interbank deposits					205	
B. Interest expenses on deposits and loan portfolio funding instruments					170	
1. Net interest income on loan portfolio (A – B)					35	
2. Other banking-related operating income					20	
Service charges, transaction charges and commissions						
Other operating income (e.g., investment banking fees)						
Gains/losses on disposal of fixed assets						
Other Gains/losses						
3. Trading-related income (stable liquidity and trading portfolios)					41	
4. Investment-related income (subsidiaries and associates)					4	
5. GROSS INCOME					100	
6. Specific loan loss provisions and write-offs					6	
Net provisions debited to the income statement during current period						
Bad loans written off directly to income statement (not previously provided for)						
7. Operating expenses					55	
Salaries and employee benefits						
Administrative expenses						
Auditing and consulting expenses						
Rents paid						
Depreciation and amortization						
Other						
8. Expenses related to trading and investment activities					20	
9. Other expenses and interest related to non-deposit borrowings (e.g., capitalization bonds issued or government/multilateral borrowings)					4	
10. Extraordinary Gains/(Losses)					1	
Gains/Losses on revaluation of assets (NET)						
Other Gains/Losses						

TABLE 5.1 COMPOSITION OF INCOME AND EXPENSES (CONTINUED)

	<i>Income/Expenses</i>		<i>Year-on-year changes</i>		<i>% (Base: Gross operating income)</i>	
	<i>Current</i>	<i>Prior</i>	<i>Amount</i>	<i>%</i>	<i>Current</i>	<i>Prior</i>
	<i>Period</i>	<i>Period</i>			<i>Period</i>	<i>Period</i>
11. Net income/(loss) before tax					14	
12. Income tax					7	
Effective tax rate					50	
					As % of net income/(loss) after tax	
13. Net income/(loss) after tax					100	
14. Transfers to general provisions					46	
15. Dividends declared					14	
16. Other (+/-)					0	
17. Retained earnings for the period					40	
18. Retained earnings at the beginning of the period						
19. Retained earnings at the end of the period						

Interest income is further subdivided by sources of income. For example, loan categories can be subdivided into loans to the government, to state enterprises, and to private enterprises (including working capital loans and investment loans categories), and consumer loans to households, mortgage loans, etc. This subdivision may be required for supervisory or statistical purposes. It may also be the result of a bank's own internal organization, as modern, cost-conscious banks often develop elaborate pricing and costing systems for their various business and product lines to ensure that the contribution of each product to the bottom line is clearly understood.

Interest expense comprises interest paid on deposits and borrowings related to funding the loan portfolio. A breakdown of interest expenses provides an understanding of a bank's sources of funding and of the corresponding funding cost. The subdivision of interest expense is typically based on both instruments and maturities, such as demand deposits, saving accounts, foreign currency deposits, and certificates of deposit. A bank with low interest expense and thus low funding costs is clearly better positioned than one with high interest expense, as it would be able to lend at

market rates with a higher interest margin. The smaller interest expense, however, often involves higher operating expenses. For example, household deposits typically involve lower interest expense, but require branch networks to collect them, and the maintenance of deposit accounts is expensive. This is why some banks prefer funding by wholesale deposits, even if this implies higher interest expense.

Net interest income is the difference between a bank's interest income and interest expense. The net interest income is the core of a traditional bank's earnings, and the aim of the bank would normally be to keep the net interest income stable and growing. In a floating interest rate environment, this requires active management: banks normally try to adjust lending rates before deposit rates in rising interest rate markets, and do the opposite in falling markets.

Other banking-related operating income, such as knowledge-based and/or fee-based income, is income received from nontraditional banking business such as merchant banking or financial advisory services. This category also includes fee-based income derived from various services to clients, such as accounts or funds management services and payment transaction services. This class of income is generally desirable, as it does not imply exposure to any financial risk and does not inherently carry any capital charges.

Trading income (see Chapters 10 and 11) comprises income from the trading and stable liquidity investment books in securities, foreign currencies, equities, and commodities. This income is mostly due to the difference between the purchase and sale price of the underlying instruments, but also includes interest amounts. The stability or sustainability of trading income impacts the viability of a bank and is critically related to the quality of a bank's market risk management function, the effectiveness of the corresponding functional processes, and the proper information technology support. Trading assets would normally be disclosed at fair value (marked-to-market adjustments will flow through the income statement) in the bank's financial statements (see Chapters 11 and 14). "Available-for-sale" assets are also disclosed at fair value, but marked-to-market adjustments may be recorded in a reserve account directly in the balance sheet.

Investment income comprises income from a bank's longer-term equity-type investments, such as equities and interest-bearing (recapitalization/non-trading) bonds held in the bank's long-term investment portfolio,

as well as dividend income from subsidiaries and similar types of investments. Investment income depends on the respective contractual rates and, for equity investments, on the financial performance of the respective companies. By its nature, the income from equity investments is difficult to accurately predict. Investment assets could be shown on the balance sheet as assets “available-for-sale” or assets “held-to-maturity.” Mark-to-market income on the revaluation of such assets could then flow through the income statement or be taken directly to a reserve account in the balance sheet.

Operating expenses include costs related to staff, rent and utilities, auditing and consulting expenses, expenses related to the running and maintenance of a bank’s computer and information technology systems, and general administrative expenses. Besides loan loss provisions, operating expenses is the item with the most significant impact on the cost of intermediation, and is also one of the most controllable items. The level of operating expenses is generally related to a bank’s efficiency. Efficient management of these expenses requires balancing short-term cost minimization strategies with investments in human and physical resources — especially the banking technology necessary for effective management of banking risks and for the long-term maintenance of the bank’s competitive position.

Salaries and staff-related expenses, such as social security, pensions, and other benefits, are normally the largest cost item for a bank, because banking is a knowledge- and staff-intensive business. Computers and information technology-related expenses such as software licenses and application system development and maintenance expenses are also becoming major expense items, especially in modern or internationally active banks that are critically dependent on information support for identifying market opportunities, for transaction processing, and for risk management and management reporting.

Depreciation is a cost due to the reduction in value of a bank’s fixed assets. It is conceptually similar to provisions. Banks typically depreciate buildings over 25 to 50 years, movable assets and office equipment over 3 to 5 years, and computers over 2 to 3 years.

Loan loss provisions are expenses related to the credit risk inherent in granting loans and advances. Provisions are made to compensate for the impaired value of the related loan principal and interest due. This category-

ry may include write-offs and recoveries (i.e., amounts recovered on loans previously written-off), or this may be shown as a separate line in the income statement.

Other loss provisions for impaired assets. This category comprises loss provisions for all other assets where the value of the asset could be impaired; for example, the assets in a bank's long-term investment portfolio. In many countries, prudential requirements mandate that a bank carries assets at the lower of the nominal value or the market value (in which case loss provisions need to be made), and recognize any appreciation in value only when the investment is liquidated.

Foreign exchange gains (losses) often appear in the income statements of banks in developing countries, since such banks are frequently funded by foreign loans. Gains or losses result from exchange rate changes that, depending on whether a bank's net position was long or short and whether the domestic currency has depreciated or appreciated, result in a gain or loss to the bank.

The information contained in a bank's income statement provides an understanding of the institution's business focus and the structure and stability of its profits. In order to facilitate a comparison between different types of banking institutions, various income statement items, such as interest margins, fee and investment income, and overhead are usually expressed as a percentage of total assets. By using the asset base as a common denominator, banks are able to compare themselves to the sector average and to other types of banks. When aggregated, such information can also highlight changes that occur within a peer group or the banking sector.

When analyzing a bank's income structure, an analyst should give appropriate consideration to and acquire an understanding of the following aspects:

- trends in and the composition and accuracy of reported earnings;
- the quality, composition, and level of income and expense components;
- dividend pay-out and earnings retention;
- major sources of income and the most profitable business areas;
- the manner and the extent to which accrued but uncollected interest is absorbed into income, in particular when such interest

relates to loans that are or should be placed in risk categories of substandard or worse;

- the extent to which collateral values (rather than operating cash flows) are the basis for decisions to capitalize interest and/or roll over extensions of credit;
- any income or expenditure recognition policies that distort earnings;
- the effect of inter-group transactions, especially those related to the transfer of earnings and asset-liability valuations.

5.3 Income Structure and Profit Quality

In today's environment, markets that have traditionally been the sole domain of banks have opened up to competition from other institutions. Banks in turn have diversified into nontraditional markets, and therefore no longer perform only a simple intermediation function, i.e., deposit taking and lending. In fact, an overview of the industry's profit structure in most developed countries reveals that the traditional banking business is only marginally profitable and that income from other sources has become a significant contributor to the bottom line. Bank profitability appears to be largely attributable to fee income generated from knowledge-based activities, including merchant banking, corporate financing, and advisory services, and from trading-based activities in fixed-income securities, equities, and foreign exchange.

This change in the profit structure of banks has had the effect of improving profitability without increasing the traditional credit risk that results from loan portfolios. For example, many corporate clients are able to attract funding in their own name through the issuance of commercial paper and bonds. Instead of maintaining large corporate loans on their balance sheets, banks increasingly underwrite or service issues of their large corporate clients or perform a market-making function. Doing so generates fee income without increasing credit risk exposure. However, income generated in this manner (e.g., through securities trading and merchant banking) is by its nature less stable and predictable because it depends on market conditions and trading performance. The trading portfolio is also subject to market risk (discussed in Chapter 11), which can be quite substantial.

Income structure. The analysis of profitability starts by considering the structure of a bank's income and its components — interest income, transactions-based fee income, trading income, and other sources of income — and the trends over the observation period. Figure 5.1 illustrates the composition of a bank's gross income. (Note that the various figures are used as an illustration and do not necessarily refer to the same bank.) Such a graph enables an analyst to determine the quality and stability of a bank's profit, including its sources and any changes in their structure. This graph shows that the bank's trading and investment income has become an increasing contributor to its gross income, while the contribution of interest income has decreased.

Such tendencies normally require scrutiny, as in normal circumstances investment income is less stable than interest income. However, the trend may have been motivated by adverse changes in the bank's macroeconomic or market environment, which would provide good reasons for such an orientation. Another reason would be that the return on investments has been significantly higher than the return on loans. Comparison of the gross income structure and the asset structure normally provides a reasonable basis for an answer to this anomaly; the analysis of income structure may also yield conclusions regarding the quality of asset management.

Figure 5.2 illustrates this process by comparing the composition of various asset categories with the composition of gross income. The purpose of this comparison is to determine exactly how the assets of a bank are engaged and whether or not the income generated is commensurate with the proportion of assets committed to each specific asset category (in other words, is the income earned where the energy is spent). Assets should normally be engaged in product categories that provide the highest income at an acceptable level of risk. The same analysis can be performed to identify categories of loans and advances that generate proportionately lower yields.

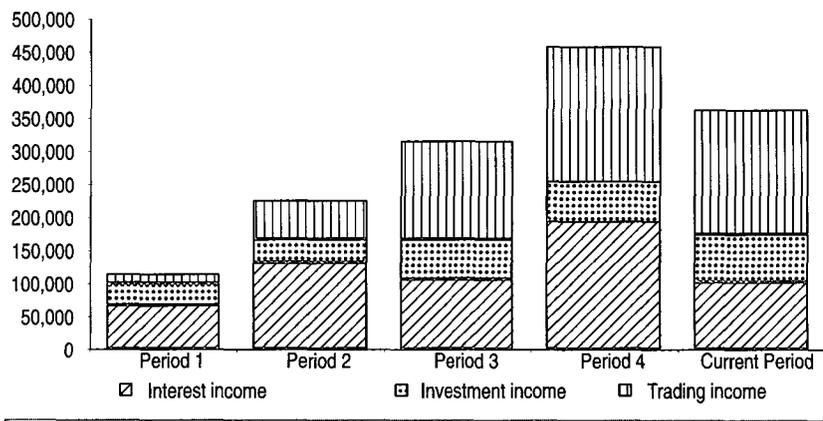
An analytical comparison of classes of interest expenses with related liability categories highlights a bank's exposure to specific sources of funding, and reveals if structural changes are taking place in its sources of funding. A similar type of graph and analysis can be used to assess whether or not the components of interest expense in the total expenditures are of the same proportions as the related liabilities. Expensive cat-

egories of funding would be clearly highlighted on such a graph, and the reasons for the specific funding decisions would need to be explained. In the long term, this type of analysis would be able to highlight if and what sort of structural changes are taking place in the income and expenditure structure of a bank, and whether or not they are justified from the profitability perspective.

Figure 5.3 illustrates the next step, the analysis of how a bank's income covers its operating expenses. In the case illustrated, the fee income and trading income significantly contribute to the bank's profitability and to its capacity to carry the operating cost. The stability of the bank's income has likely deteriorated, as fee and trading income are generally considered to be less stable than net interest (i.e., intermediation) income. Both the gross income and the operating expenses have shown significant growth in the observation period. In spite of the much higher income level, the bank's bottom line does not appear to have improved. The analysis should determine the reason for the significant increase in operating expenses.

Operating expenses is one of the items on a bank's income statement that can be controlled. One acceptable reason for the increase in operating expenses would be that this was due to investments in human resources and banking infrastructure that could be expected to pay off in the future.

FIGURE 5.1 STRUCTURE OF GROSS INCOME



If no such reasons can be found, the bank should be asked to rethink its business strategy.

Figure 5.4 illustrates another view of trends in the level of operating expenses in relation to total assets, gross interest income, and gross operating income that could provide the analyst with information on the relationship between a bank's expenses and earning capacity, as well as on whether or not the bank has optimized its potential. Income and expenses are presented in relation to total assets. When compared with industry norms, such a view can yield important conclusions, for example that a bank's expenses are high because it is overstaffed. The ratios of operating expenses to interest income and of operating expenses to gross operating income are also very useful, as they clearly indicate the bank's profitability.

Internal performance measurement systems. In such an intensively competitive business, modern banks can no longer afford to carry insufficiently profitable products, services, or lines of businesses. International banks and financial conglomerates especially must organize their functions in a way that enables them to establish the exact contribution to the bottom line of their many constituent parts. In the last decade, more refined systems for profitability and performance measurement have been developed to address this need.

FIGURE 5.2 ASSET STRUCTURE VERSUS INCOME STRUCTURE

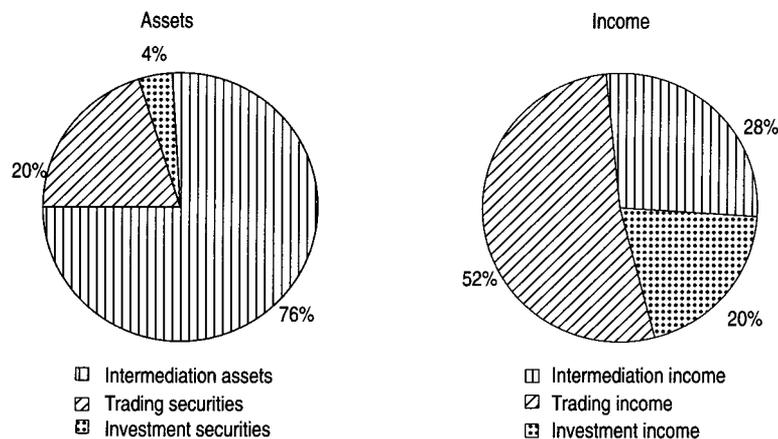
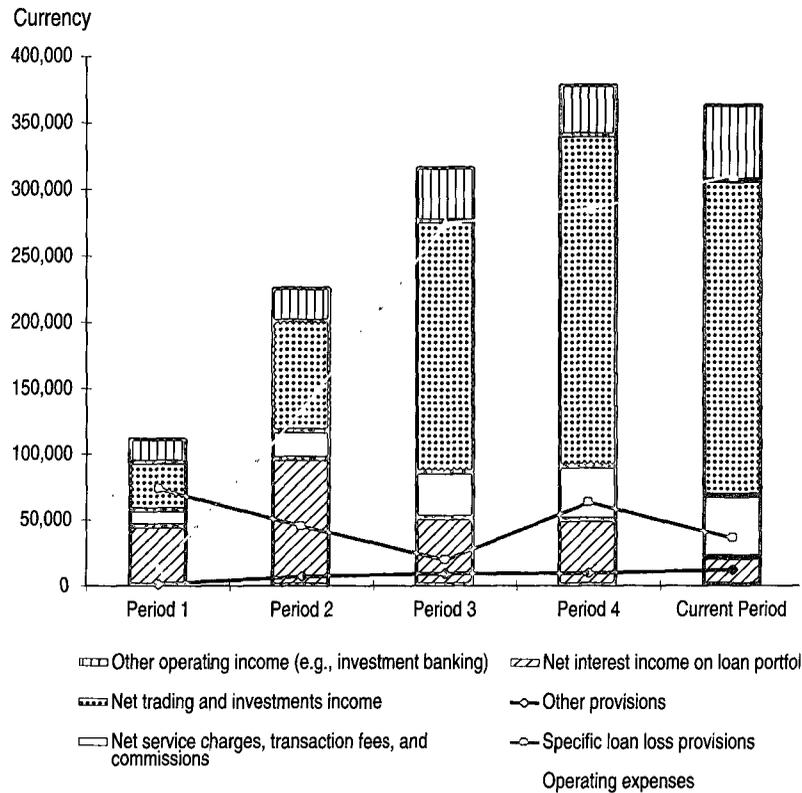


FIGURE 5.3 SOURCES OF INCOME VERSUS COSTS



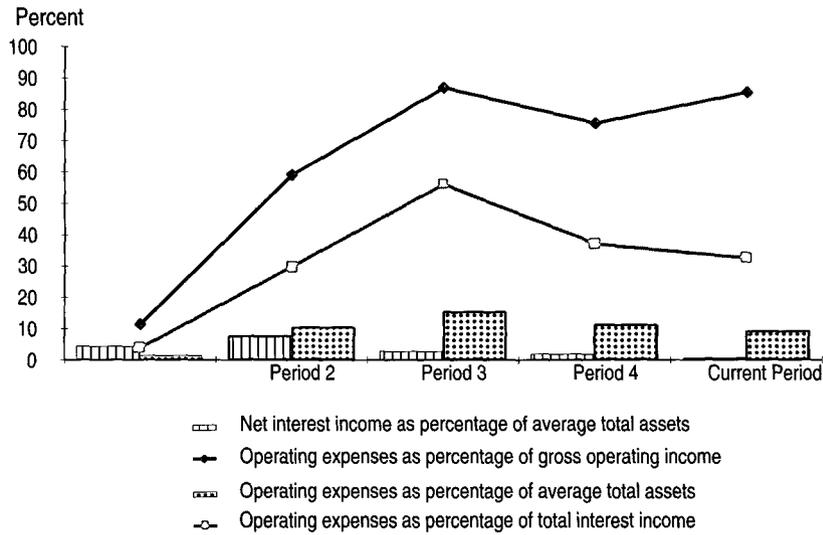
The conclusions drawn by internal performance measurement systems directly affect the products offered and their pricing, and can shape the bank's entry and exit decisions concerning particular products or services. Internal measurement techniques usually take into account the underlying risk elements (which may negatively affect the bank's expenses), and therefore also contribute to enhancing risk management techniques. A good measurement system will also enhance the application of a consistent incentive compensation system, based on achievement rather than on hierarchy.

A good performance measurement framework comprises a number of elements, including: an effective organization that allows a clear allocation of income and expenses to business units related to different lines of

a bank's business and/or products and/or market segments; an internal transfer pricing system to measure the contribution of various business units to the bottom line; and an effective and consistent means to incorporate the respective risk elements into the performance measurement framework. Once the net contributions are known, by business lines, products, or markets, it can be clearly established which customer segments are the most promising and which products should be scrutinized concerning their revenue-generating capacity. A good performance measurement framework also allows analysis of the net contribution a relationship with a large customer makes to the bank's bottom line.

Internal transfer pricing system refers to the cost of funds as they are moved from one business unit to another. A sophisticated internal transfer pricing system will also cover the allocation of overhead costs to business units, and will include transfer prices for internal services such as accounting or legal services. Internal transfer prices could, in principle, reflect the respective market prices, including maturities, and the repricing characteristics of the corresponding assets and/or liabilities. In practice, most banks choose a weighted average based on their specific funding mix.

FIGURE 5.4 OPERATING INCOME RATIOS



Branch relationships provide a good example of internal transfer pricing. When making a loan that it cannot fund itself, a business unit will “borrow” funds from the treasury; the same unit will “lend” money to the treasury when it collects excess deposits. Internal transfer prices in both directions should be based on the same principles, but with applicable modifications. For example, the transfer price of deposits may be modified for the cost of obligatory reserves. For consistent application of such a system, a bank must also have a supporting management accounting system.

There are a number of ways to incorporate risk into this framework. For the lending function, as an example, the internal cost of funds could reflect the credit risk of the loan being funded, with a higher transfer price being allocated to lower-quality loans. Loans with higher risk could be expected to generate higher returns. Most banks apply a uniform transfer price for all loans, and the risk element is accommodated by requiring higher returns on lower-quality loans.

Another step is to determine how much capital should be assigned to each of the different business or product lines. The key issue is not how to determine the right amount of capital to be assigned for each business unit, but how to assign capital to all businesses in a consistent manner and based on the same principles. In practice, it is often unnecessary to measure risk using sophisticated modeling techniques for all bank business lines and products in order to determine the appropriate coefficients, and in any case it is nearly impossible to do it in a practical, consistent, and meaningful manner. Instead, banks typically use much simpler “return on risk capital”-type calculations. A practical approach followed by many banks is to use the weights as provided under the Basel Accord (discussed in Chapter 6) as a basis for calculations.

Transfer pricing should be carefully scrutinized when the analysis concerns a bank that belongs to a banking group or a holding company, especially if the group is domiciled abroad. In some cases, internal transfer prices have been set that allow the parent to take profits from a bank, for example, by charging more than the applicable market price for funds borrowed by the bank from other business units or members of the conglomerate, or by paying less than the market price for funds provided by the same bank. Such cases are especially frequent in countries where there are limits to or complications with dividend repatriation.

5.4 Profitability Indicators

Profit is the bottom line or ultimate performance result showing the net effects of bank policies and activities in a financial year. Its stability and growth trends are the best summary indicators of a bank's performance in both the past and the future. Profitability is usually measured by all or part of a set of financial ratios, as shown in Table 5.2.

Key indicators include the return on average equity, which measures the rate of return on shareholder investment, and the return on assets, which measures the efficiency of use of the bank's potential. Other ratios measure the profitability of a bank's core business (e.g., margin ratios), the contribution to profit of various types of activities, the efficiency with which the bank operates, and the stability of its profits. Ratios are observed over a period of time in order to detect profitability trends. An analysis of changes of various ratios over time reveals changes in bank policies and strategies and/or in its business environment.

Numerous factors may influence a bank's profitability. In some cases, inflation may increase operating costs faster than income. Marking the value of assets to market requires that unrealized gains are recognized as income; since these gains are yet to be realized, this may negatively affect the quality of earnings. Given the traditional narrow margin on which banks operate, a change in the level of interest rates will trigger changes in the gross profit percentage. Because banks are influenced by the high level of competition in the banking sector, many have made significant investments in infrastructure-related assets — especially with regard to information technology — as part of their competition strategy. Investments such as these have both increased the overhead cost of banking and negatively affected profitability.

Viewed in the context of the financial items to which they are related, operating ratios enable an analyst to assess the efficiency with which an institution generates income. Industry efficiency norms facilitate a comparison between individual banks and the banking system. A review of interest income in relation to loans and advances allows an analyst to determine the return on the loan assets. Similarly, a comparison of interest expenses and funding indicates the relative cost of funding. This process highlights the impact of monetary policy on the banking system and the effect that changes in official interest rates have on the profitability of a bank.

TABLE 5.2 PROFITABILITY RATIOS

	<i>Prior Period</i>	<i>Current Period</i>	<i>Bench- mark</i>
Net interest income as percentage of average total assets			
Interest income as percentage of average earning assets			
Noninterest income as percentage of average total assets			
Net interest income net of provisions as percentage of total assets			
Interest expense as percentage of average total assets			
Intermediation spread			
Net interest income (net of provisions) as percentage of gross operating income			
Loan loss provisions as percentage of average total assets			
Dividends as percentage of net income after tax			
Return on average equity (pretax)			
Return on average equity (post-tax)			
Return on average assets (pretax)			
Return on average assets (post-tax)			
Operating expenses/gross operating income			
Staff costs/gross operating income			
Other operating income as percentage of gross operating income			
Other operating expenses as percentage of average total assets			
Total interest expense as percentage of average interest-bearing liabilities			
Interest on subordinated debt as percentage of average subordinated debt			
Noninterest income as percentage of operating income			

The ratios can also be used in a broader context. The cost and revenue structure of the banking system can be assessed by calculating and analyzing provisions to loans and advances; interest margin to gross interest income; investment income to investments; and overhead to gross income. The value added by the banking system can be determined by calculating net income after taxes in relation to total average assets (i.e., the return on average assets) and net income after taxes in relation to owner equity (i.e., the return on equity).

5.5 Profitability Ratio Analysis

Bankers pay a great deal of attention to the message that is revealed by ratio analysis. Banks usually manage profitability by trying to beat market averages and keep profits steady and predictable; this in turn attracts

investors. Ratios are therefore extremely useful tools, but as with other analytical methods, they must be used with judgment and caution, since they alone do not provide complete answers about the bottom-line performance of banks. In the short run, many tricks can be used to make bank ratios look good in relation to industry standards. An assessment of the operations and management of a bank should therefore be performed to provide a check on profitability ratios.

The need to generate stable and increasing profits also implies the need to manage risk. Asset-liability management has become an almost universally accepted approach to profitability (risk) management. Since capital and profitability are intimately linked, the key objective of asset-liability management is to ensure sustained profitability so that a bank can maintain and augment its capital resources. Interest margins can be negatively affected by the bank's failure to effectively manage credit risk.

Strong and stable net interest margins have traditionally been the primary objective of bank managers, and are still the primary determinant of intermediation efficiency and earning performance. An analysis of the interest margin of a bank can highlight the effect of current interest rate patterns, while a trend analysis over a longer period of time can show the effect of monetary policy on the profitability of the banking system. It can also illustrate the extent to which banks are exposed to changes in interest rates, and thus the ability of management to effectively manage interest rate risk.

Figure 5.5 illustrates the intermediation performance of a bank. The net interest margin of the bank has shown a steady increase and then a significant deterioration in the recent period. Such a trend demands further analysis. The analyst should establish if this was due to systemic reasons, for example, if the interest margins were reduced as a result of increased competition. The reduction of interest margins, however, could also be due to an increase in the cost of funds — such a trend would negatively impact profitability and ultimately may even affect the solvency of a bank.

Bottom-line profitability ratios — the return on equity and assets — indicate the net results of a bank's operations in a financial year or over a period of time. Figure 5.6 illustrates how to adjust these profitability ratios by deducting an assumed cost of capital to show the real profit of a bank. By comparing the return on equity to the after-tax return on risk-free gov-

ernment securities, one can determine whether equity invested in the bank has earned any additional returns, as compared to risk-free investments. The result, such as the one shown in Figure 5.6, may disclose that it is better for shareholders to simply invest in risk-free government securities or for the bank concerned to cease its intermediation function and close its doors.

FIGURE 5.5 AVERAGE YIELD DIFFERENTIAL ON INTERMEDIATION BUSINESS

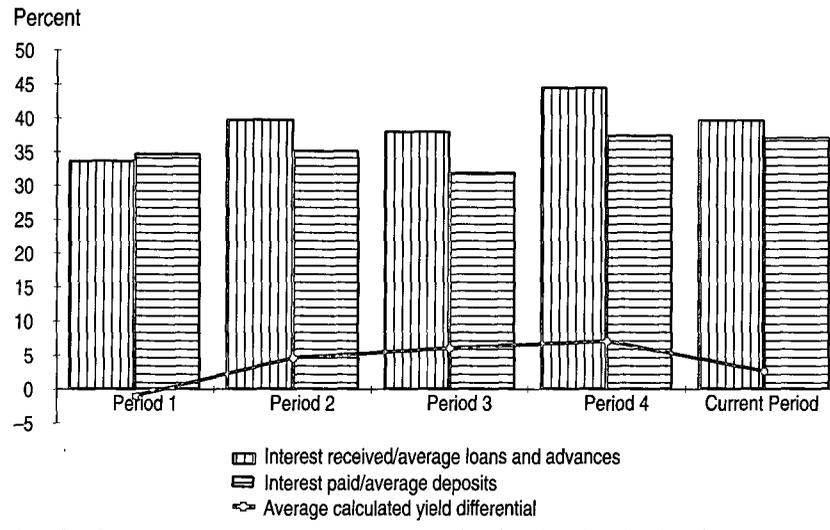
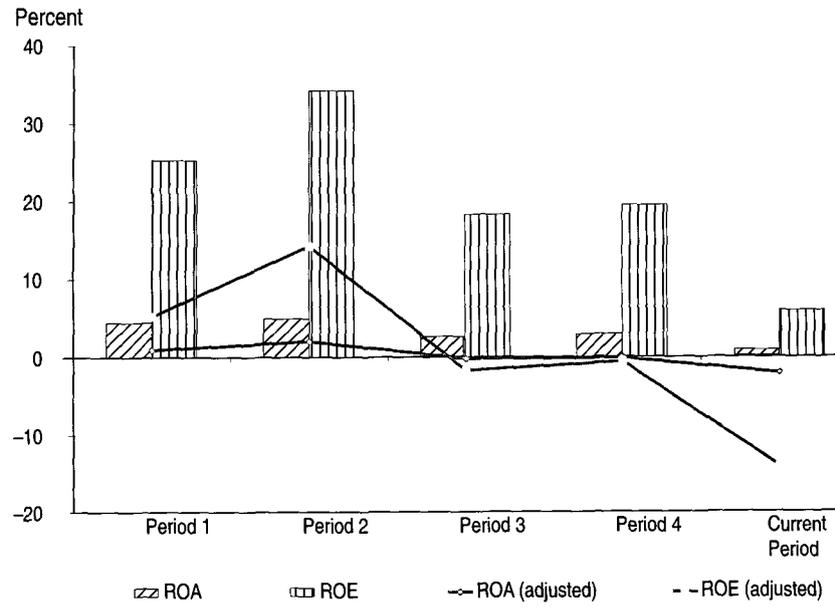


FIGURE 5.6 RETURN ON ASSETS (ROA) AND ON EQUITY (ROE)
(ADJUSTED FOR THE COST OF CAPITAL)



CHAPTER 6

CAPITAL ADEQUACY

KEY MESSAGES

Capital is required as a buffer against unexpected losses.

Capital cannot be a substitute for good management.

A strong base of permanent shareholders' equity and disclosed reserves, supplemented by other forms of qualifying capital (for example, undisclosed reserves, revaluation reserves, general provisions for loan losses, hybrid instruments, and subordinated debt) is needed. The Basel Accord allows for three tiers of capital, the first two measuring credit risk related to on- and off-balance-sheet activities and derivatives, and the third for the partial covering of market risk. The new Basel Accord will introduce capital charges to cover operational risk.

The current 8 percent capital adequacy requirement must be seen as a minimum. In transitional or volatile environments, a risk-weighted capital adequacy requirement of substantially more than 8 percent would be more appropriate.

The supervisory authority should set different capital levels for each bank depending upon the individual bank's risk profile and ability to identify, measure, monitor, and control its risks.

The amount of capital held by a bank must be commensurate with its level of risk; it is management and the board's responsibility to, first, evaluate the bank's risk profile and, second, to equate capital to risk. The board of directors also has a responsibility to project capital requirements to determine whether or not current growth and capital retention are sustainable.

6.1 Introduction: The Characteristics and Functions of Capital

Almost every aspect of banking is either directly or indirectly influenced by the availability and/or the cost of capital. Capital is one of the key factors to be considered when the safety and soundness of a particular bank is assessed. An adequate capital base serves as a safety net for a variety of risks to which an institution is exposed in the course of its business. Capital absorbs possible losses, and thus provides a basis for maintaining depositor confidence in a bank. Capital also is the ultimate determinant of a bank's lending capacity. A bank's balance sheet cannot be expanded beyond the level determined by its capital adequacy ratio; the availability of capital consequently determines the maximum level of assets.

The cost and amount of capital impact a bank's competitive position. Because shareholders expect a return on their equity, the obligation to earn it impacts the pricing of bank products. There is also another market perspective. In order to grant loans and advances, a bank should normally be able to attract deposits from the public. Doing so requires public confidence in the bank, which in turn can be best established and maintained by a capital buffer. If a bank faces a shortage of capital, or if the cost of capital is high, a bank stands to lose business to its competitors.

The key purposes of capital are to provide stability and to absorb losses, thereby providing a measure of protection to depositors and other creditors in the event of liquidation. As such, the capital of a bank should have three important characteristics:

- it must be permanent;
- it must not impose mandatory fixed charges against earnings;
- it must allow for legal subordination to the rights of depositors and other creditors.

The total amount of capital is of fundamental importance. Also important is the nature of the bank ownership, specifically the identity of those owners who can directly influence the bank's strategic direction and risk management policies. A bank's ownership structure must ensure the integrity of the bank's capital and be able to supply more capital if and

when needed. It must not negatively influence the bank's capital position or expose it to additional risk. In addition to owners who are less than "fit and proper" or who do not effectively discharge their fiduciary responsibilities, the structure of financial conglomerates may also impact negatively on the capital of banks in such groups.

Banks have the inherent characteristic of a relatively low capital-to-liabilities ratio. To encourage prudent management of the risks associated with this unique balance sheet structure, regulatory authorities have in most countries introduced certain capital adequacy requirements. In the late 1980s, the Basel Committee on Banking Supervision took the lead to develop a risk-based capital adequacy standard that would lead to international convergence of supervisory regulations governing the capital adequacy of internationally active banks. The dual objectives for the new framework were to strengthen the soundness and stability of the international banking system and, by ensuring a high degree of consistency in the framework's application, to diminish the sources of competitive inequality among international banks.

This initiative resulted in the Basel Capital Accord of 1988. The Basel Accord comprises a definition of regulatory capital, measures of risk exposure, and rules specifying the level of capital to be maintained in relation to these risks. It introduced a de facto capital adequacy standard, based on the risk-weighted composition of a bank's assets and off-balance-sheet exposures, that ensures that an adequate amount of capital and reserves is maintained to safeguard solvency. While the original targets of the Accord were international banks, the capital adequacy standard has been adopted and implemented in more than 100 countries and now forms an integral part of any risk-based bank supervisory approach. Constant review of the level of capital maintained in both the banking system and in individual banks is an important part of the financial risk management process, which seeks to ensure that a bank's capital position is consistent with its overall risk profile and business strategy.

The world financial system has seen considerable changes since the introduction of the Basel Accord. The volatility of financial markets has increased in the last decade, and there has been a significant degree of financial innovation. There also have been incidents of economic turbulence leading to widespread financial crisis; for example, in Asia in 1997

and in Eastern Europe in 1998. The risks that internationally active banks must deal with have become more complex. There was an increasing concern that the 1988 Accord did not provide an effective means to ensure that capital requirements match a bank's true risk profile; in other words, it was not sufficiently risk sensitive. The risk measurement and control aspects of the Accord also needed to be improved. In 1999, the Basel Committee started consultations leading to issuance of a new Capital Accord that should be better attuned to the complexities of the modern financial world. The consultations are now well advanced.

While the new framework aims to provide a comprehensive approach to measuring banking risks, its fundamental objectives remain the same as those of the 1988 Accord: to promote safety and soundness of the banking system and to enhance the competitive equality of banks. In addition to minimum capital requirements, it is proposed that the new capital framework include two additional pillars: an enhanced supervisory review process and effective use of market discipline. All three pillars are mutually reinforcing and no one pillar should be viewed as more important than another.

6.2 Constituents of Regulatory Capital (Current Methodology)

Tier 1 capital. The components of a bank's balance sheet that meet the requirements of capital (i.e., that are permanent, that do not impose mandatory fixed charges against earnings, and that allow for legal subordination to the rights of depositors and other creditors) are equity shares, retained earnings, and non-redeemable, non-cumulative preference shares. These types of capital are regarded as core capital or primary capital, and as defined by the 1988 Basel Accord constitute the Tier 1 capital of a bank. Tier 1 capital is common in all banking systems and is always clearly disclosed in published financial statements. It also has a crucial bearing on profit margins and on a bank's ability to bear risk and be competitive. Such capital is regarded as a buffer of the highest quality.

In response to the increasing use of innovative capital instruments, for Tier 1 capital adequacy purposes, the Basel Committee on Banking Supervision issued a press release in October 1998. This press release confirmed that the main features of capital instruments should be easily

understood, permanent, able to absorb losses on a going-concern basis, and that innovative capital instruments be limited to a maximum of 15 percent of Tier 1 capital. The committee reaffirmed that common shareholders' funds, that is, common stock and disclosed reserves or retained earnings:

- ☐ constitute the key element of capital;
- ☐ allow a bank to absorb losses on an ongoing basis and are permanently available for this purpose;
- ☐ best allow banks to conserve resources when they are under stress because common stock provides a bank with full discretion as to the amount and timing of distributions;
- ☐ are the basis on which most market judgments of capital adequacy are made;
- ☐ provide an important source of market discipline over a bank's management, through the voting rights attached to the common shares;
- ☐ should be the predominant form of a bank's Tier 1 capital.

With regard to capital contributions, it is important to know whether they were made in cash or in kind, such as fixed assets. Regulators sometimes limit the amount of contributions in kind, and express the limit as a percentage of the total Tier 1 capital. Since contributions in kind may be subject to changes in value, regulators typically require that owners obtain a reliable third-party evaluation before including the corresponding amount in a bank's capital, taking into consideration the fact that revaluation reserves related to fixed assets form part of Tier 2 capital.

Tier 2 capital. Although they do not have the permanence of core capital, other components of a balance sheet may be included in the bank's capital base for the purpose of assessing capital adequacy. These components include capital obligations that must ultimately be redeemed or that contain a mandatory charge against future income, whether or not earnings will be available. Such capital consists of instruments that have the same characteristics as both equity and debt, including asset revaluation reserves, general provisions and general loss reserves, hybrid capital instruments (such as redeemable cumulative preference shares), and sub-

ordinated term debt. These types of capital constitute the Tier 2 share capital of a bank, which is limited to 100 percent of Tier 1 capital.

Statutory limitations contained in the Basel Accord define the conditions under which specific instruments may be included in Tier 2 capital, as follows:

- **Asset revaluation reserves** may be included in Tier 2 capital provided that they are prudently valued and fully reflect the possibility of price fluctuations and forced sales. Revaluation reserves arise in two ways. First, in some countries banks are permitted to revalue fixed assets (normally their own premises) in accordance with changes in market value. Second, revaluation reserves may arise as a result of long-term holdings of equity securities that are valued in the balance sheet at the historic cost of acquisition. For such revaluation reserves, a discount is normally applied to the difference between the historic cost book value and market value in order to reflect potential volatility; and only 50 percent is included in Tier 2 capital.
- **General provisions/loss reserves**, which are held against future unidentified losses, also qualify for definition as Tier 2 capital. The amount of general provisions/loan loss reserves included in a set amount of Tier 2 capital may not exceed 1.25 percent of the assets to which they are related.
- **Hybrid (debt/equity) capital instruments** may be part of Tier 2 capital if they are unsecured, subordinated, and fully paid-up; are not redeemable without prior consent of the supervisory authority; and are part of losses without obliging a bank to cease trading. In addition, the capital instrument should allow the service obligation to be deferred when the profitability of a bank cannot support payment.
- **Subordinated term debt**, which can be considered Tier 2 capital, includes conventional, unsecured subordinated debt capital instruments with a minimum original fixed term of maturity of more than five years. During the last five years before maturity is reached and before inclusion as Tier 2 capital, a discount of 20 percent per year should be applied. Total subordinated term debt

included in Tier 2 capital cannot be larger than 50 percent of core capital.

Tier 3 capital. In 1996, the Basel Committee introduced the concept of Tier 3 capital to allow banks, at the discretion of national regulators, to address part of their market risks by issuing short-term subordinated debt. Tier 3 capital therefore is permitted only to cover market risks that derive from equities and interest-bearing instruments in the trading book, as well as foreign exchange and commodities in the banking and trading books. Statutory conditions placed on Tier 3 capital specify that it must have a maturity of at least two years and be subject to a lock-in provision that stipulates that neither interest nor principal may be paid if such payment results in a bank's overall capital amounting to less than is minimally required.

Minimum capital requirements. The minimum risk-based standard for capital adequacy was set by the Basel Accord at 8 percent of risk-weighted assets, of which the core capital element should be at least 4 percent. Tier 3 capital is limited to 250 percent of the *increased* portion of Tier 1 capital required as a result of adding market risk.¹ Insofar as overall limits are not breached, Tier 2 capital may be substituted for Tier 3 capital up to the same limit of 250 percent.

The Basel Accord also provides for certain deductions from Tier 1 capital for capital adequacy calculation purposes. The deductions include goodwill and investments in financial institutions. The latter is motivated by the objective to discourage cross-holding and "double leveraging" of capital in a banking system, which can make the system more vulnerable to the transmission of problems between capital-related institutions.

1. The calculated market risk capital requirement is converted to a notional risk-weight (based on an assumption of an 8 percent capital adequacy requirement, the calculated market risk capital would therefore be divided by .08). The overall capital requirement is then determined by calculating 8 percent of the total credit and notional market risk weights. The new T1 has to be at least 50 percent of this revised overall risk weight. The difference between the new T1 and the existing T1, namely the increased portion of T1, becomes the basis for determining the maximum amount that T3 may be: 250 percent of that increased portion (see example in annexure to this chapter).

6.3 Coverage of Risk Components by Constituents of Capital (Current Methodology)

The Basel capital adequacy standard is based on the principle that the level of a bank's capital should be related to the bank's specific risk profile. In addition to directly relating capital to a bank's risks, this framework was deemed flexible enough to allow consistent incorporation of other types of risks and was expected to provide a fairer basis for comparison between banking systems. The central focus of the Basel capital adequacy framework is credit risk, including the aspect of country risk.

The credit risk profile of a bank is determined by assigning to its assets and off-balance-sheet commitments various risk weights, according to the terms set out in the 1988 Basel Accord.

Credit risk related to on-balance-sheet items — covered by Tier 1 and Tier 2 capital. The following risk weights are typically assigned to major categories of loans and advances:

- **Cash claims on central governments or on central banks denominated and funded in the national currency: 0 percent.** This weighting indicates that financial assets related to governments or central banks are internationally regarded as of zero risk, if denominated in the national currency. This assumption clearly does not hold true when a government's fiscal condition gives reason for concerns or when a government defaults on its debt.
- **Claims on domestic public sector agencies: 0 to 50 percent, at national discretion.** This risk weighting relates to financing, including off-balance-sheet financing and guarantees, made available to the public sector and to semi-governmental organizations. This relatively low weighting reflects the view that quasi-governmental bodies are also regarded as low risk. Loans guaranteed by or collateralized by securities of such entities are also subject to the same risk weight. National authorities typically assign the weight of 10 or 20 percent, which may not be realistic, especially in developing countries. While claims on public sector agencies may ultimately be realized, in many situations the point of collec-

tion is not within the timeframe of the original financial contract.

- ▣ **Claims on banks: 20 percent.** This low weighting is a consequence of the intensive regulation and supervision to which banks are subjected. As a result of formalized risk management procedures and the available central bank accommodation, interbank loans are regarded as less of a credit risk than other loans and advances. For banks outside the OECD, the 20 percent risk weighting applies only to claims with a residual maturity of less than one year.
- ▣ **Residential mortgages: 50 percent.** This weighting indicates the traditionally sound nature of such investments. Mortgages, however, are increasingly risky due to the high level of consumption expenditures secured by mortgage bonds, which are in turn tied to more flexible mortgage products (e.g., home equity loans or advances against capital that has already been paid). Consequently, the relatively low risk weight accorded to residential mortgages could distort the allocation of credit, since loans that finance consumption expenditures can be granted at a price that is not economically justifiable.
- ▣ **Other loans: 100 percent.** This weighting generally indicates the higher risk to which a bank is exposed when it extends loans to the private sector. Other claims in this category include claims on governments outside the OECD that are denominated in currencies that are not national currencies; on banks outside the OECD, for claims of residual maturities of more than one year; on real estate and other investments; and on fixed and other assets.

Credit risk related to off-balance-sheet items — covered by Tier 1 and Tier 2 capital. The framework established in the Basel Accord also includes off-balance-sheet items. Off-balance-sheet exposures are treated by converting them into on-balance-sheet credit risk exposures by applying the corresponding credit conversion factors to different types of instruments or transactions. The multiplication factors are derived from the estimated likelihood of default. Credit conversion factors for major off-balance-sheet categories are defined as follows:

- Commitments (such as standby facilities and credit lines) with maturities of up to one year, or those that can be unconditionally cancelled at any time: **0 percent**.
- Short-term, self-liquidating, trade-related contingencies, such as documentary credits subject to collateral by underlying shipments: **20 percent**.
- Certain transaction-related contingent items, such as performance bonds, bid bonds, warranties, and standby letters of credit related to a particular transaction; note issuance facilities and revolving underwriting facilities; and other commitments, such as formal standby facilities and credit lines with maturities of more than one year: **50 percent**.
- Direct credit substitutes such as general guarantees of indebtedness (e.g., standby letters of credit that serve as financial guarantees for loans and securities) and acceptances (e.g., endorsements); sale and repurchase agreements; and forward asset purchases: **100 percent**.

The risk weighting of assets and off-balance-sheet positions has provided a major step toward improved objectivity in assessing the adequacy of bank capital. The simplicity of this methodology has also enabled it to be introduced in banking systems that are in their early stages of development. However, this simple weighting of assets provides only a crude measure of economic risk, primarily because the methodology is not effectively calibrated to account for different default risks.

Credit risk related to derivative instruments — covered by Tier 1 and Tier 2 capital. In 1995, the Basel Accord was amended to include the treatment of forward contracts, swaps, options, and similar derivative con-

TABLE 6.1 CREDIT RISK MULTIPLICATION FACTORS FOR DERIVATIVE INSTRUMENTS

<i>Residual Maturity</i>	<i>Interest Rate</i>	<i>Exchange Rate and Gold</i>	<i>Equity</i>	<i>Commodities</i>
One year or less	0.0%	1.0%	6.0%	10.0%
One to five years	0.5%	8.0%	7.0%	12.0%
More than five years	1.5%	10.0%	8.0%	15.0%

tracts. With such derivative instruments, banks are exposed to credit risk not for the full face value of their contracts, but only to the potential cost of restoring the cash flows if the counterparty defaults. The theoretical basis for assessing the risk on all derivative instruments is the same, with the “credit equivalent” amounts being dependent on the maturity of the respective contract and on the volatility of the rates and prices underlying this type of instrument. For capital adequacy assessment, the derivative instruments are converted according to the same principles as the other types of off-balance-sheet exposures. Table 6.1 summarizes the weights used for multiplication.

Market risk related to on- and off-balance-sheet positions — partially covered by Tier 3 capital. Another major amendment was the 1996 inclusion of market risk exposures in the capital adequacy framework. Market risk is defined as the risk of losses in on- and off-balance-sheet positions that arise from shifts in market prices. The risks covered by the amendment include the general and specific interest rate and equity price risks for a bank’s trading book of debt and equity instruments and related off-balance-sheet contracts, and general foreign exchange and commodities risks throughout the bank (i.e., in the trading and banking books). Banks may use either a standardized approach or an internal model approach. Both approaches result in the calculation of an actual capital charge, which is then converted into a notional risk-weight, by using the percentage capital requirement set by the local regulatory authorities. Tier 1, 2, or 3 capital can be used to satisfy this charge, subject to the limitations explained in Section 6.2. Assets subject to market risk capital requirements are excluded from the risk-weighted *credit* capital requirements.

The **standardized framework** for market risk is based on a **building-block approach**, and comprises the general market risk that arises from the bank’s overall open position in four fundamental markets and the specific risk associated with the individual securities positions of a bank. The capital requirement is calculated separately for the following risks:

- ☐ Interest risk — trading book
- ☐ Equities risk — trading book
- ☐ Currency risk — trading and banking books (see Section 13.4 and Figure 13.4)
- ☐ Commodities risk — trading and banking books

Once quantified, the separate capital charges are added together and multiplied by the reciprocal of the regulatory percentage capital adequacy requirement, to create a notional risk weight for market risk, from which the allowable portion of the Tier 3 capital adequacy requirement can be calculated (e.g., an 8 percent capital adequacy requirement would result in a 12.5 multiplication factor — see footnote 1 in Section 6.2 and the annexure to this chapter for details of the calculation).

The market risk capital charge, when using an **internal model**, is based on whichever is higher: the previous day's value at risk (VAR; see Section 11.5) or the average VAR over the last 60 business days. The actual capital requirement is calculated by using a model that falls within the recommended Basel Committee parameters. This figure is then multiplied by the factor k , designated by the national supervisory authorities and related to the quality of a bank's risk management system — k has a minimum value of 3.0.

Banks are expected by their supervisory authorities to also add to k a “plus” factor, of between 0.0 and 1.0, that is determined by the number of times back-testing of the internal model disclosed the predicted VAR to have been exceeded. Since this plus factor is related to the ex-post performance of the internal model, its addition is expected to serve as a positive incentive to maintain a good quality model.

The Basel Committee market risk-related capital standard requires that the VAR must be computed daily and the market risk-related capital requirements met on a daily basis.

The use of **internal models** for the measurement of market risk is subject to the approval of supervisory authorities, and must meet certain criteria. In addition, the use of internal models includes a set of detailed requirements related to the following:

- **Market risk management process.** This should be comprehensive; under senior management scrutiny; integrated with but independent from operations; with adequate controls; and with learning capacity.
 - **Coverage.** The risk measurement system should include specific risk factors related to interest rate risk, currency risk, equity price risk, and commodity price risk.
-

- ▣ **Quantitative parameters of an acceptable internal model.** Included among these are the frequency of VAR computations, an historical observation period, confidence parameters, a holding period, and multiplication factors.
- ▣ **Stress testing and external validation requirements.** These include parameters to ensure that a bank tests against various assumptions and factors that potentially could create extraordinary gains or losses in the trading portfolio or make the control of risk difficult; to ensure that the bank has a system to act on what it learns from the stress test; and to ensure that the system is externally validated in terms of meeting the Basel criteria.

6.4 Basel II: Proposed Changes for Determining Capital Adequacy

The Basel II proposals are based on three *pillars*: a capital adequacy requirement, a supervisory review process and a market discipline requirement (see Table 6.2). While the Accord offers a menu of approaches for measuring credit, market and operational risk, the approaches themselves are a balance between simplicity and accuracy. For example, in credit risk, the standardized approach is less accurate, but more simple to implement. Advanced models on the other hand, are more accurate, but more difficult to implement.

Pillar 1: Capital Adequacy Requirement. Measurement of the capital adequacy requirement is determined by three risk components — credit risk, market risk, and operational risk. For each of these risk components, a menu of different approaches will be available, as follows:

- ▣ **Credit risk.** The options for calculation of the credit risk capital adequacy requirement include a standardized approach and two versions of an internal ratings-based model (IRB). The **standardized approach** proposes that the credit risk weighting of banking assets rely in large part on the assessments of external rating agencies. The criteria for acceptability of such credit assessments encompass the issues of the objectivity, independence, transparency, credibility, international recognition, and
-

TABLE 6.2 SUMMARY OF BASEL II PROPOSALS

Pillar One										Pillar Two	Pillar Three	
Capital Adequacy Requirement / Basis										Supervisory Review	Market Discipline	
Detail	Credit Risk			Market Risk		Operational Risk				Regulators must ensure that banks have sound internal processes for capital assessment based on risk commensurate with risk profile.	Enhance disclosure regarding the calculation of capital and risk assessment methods. More detail required for banks that use advanced risk management approaches.	
	Standardized approach	Internal ratings-based approaches		Standardized approach	Internal model	Basic indicator approach	Standardized approach	Advanced measurement approach				
	1	Foundations approach	Advanced approach	Building block approach	VAR, etc.	One indicator: gross revenue	Same indicator for different business lines	Internal measurement approach	Loss distribution approach			Scorecard approach
	1	2	3	4	5	6	7	8	9	10	11	12
	Places more emphasis on banks' own internal control and management, the supervisory review process, and market discipline.											
1	Similar to Basel I, but additional and changed risk-weight buckets. Expanded use of credit risk mitigation techniques (financial collateral). More reliance on rating agencies.											
2	Divide loan portfolio into 7 portfolios. Probability of default (PD) is provided by bank, with the exposure at default (EAD) and loss given default (LGD) provided by the regulator.											
3	Divide loan portfolio into 7 portfolios. Probability of default (PD), Exposure at default (EAD) and loss given default (LGD) all provided by the bank, using historical experience.											
4	Capital charge captured separately for each risk and then summed. Trading book used for general and specific risk in interest and equities markets. Both trading and banking books are used for general risks in currency and commodities markets.											
5	Market risk capital is based on higher of average VAR over past 60 days, or previous day's VAR (multiplied by a scaling factor).											
6	A simplistic approach which uses a single indicator (gross revenue) as proxy for overall operational risk exposure — to be multiplied by an alpha-factor set by the Basel Committee.											
7	Bank organizes itself into eight standard business lines, currently all using a common indicator, but flexibility built in for future differentiation of indicators — to be multiplied by a beta-factor, which varies by business line and which is set by Basel.											
8	IMA uses information from standardized approach. Calculates exposure indicator (EI) and loss should an operational risk event occur (LGE). Expected loss (EL) is product of EI*LGE. IMA uses assumptions about relationship between expected and unexpected loss.											
9	LDA allows bank to estimate distribution of losses and therefore attempts to assess unexpected losses directly.											
10	Bank determines initial level of operational risk capital. Amount is modified over time by capturing underlying risk profile of different business lines. Approach relies more on qualitative judgment, less on historical data.											
11	Regulators must ensure that banks have sound internal processes for capital assessment based on risk commensurate with risk profile.											
12	Enhance disclosure regarding the calculation of capital and risk assessment methods. More detail required for banks that use advanced risk management approaches.											

access to resources of the providing agency. Reservations about the use of such assessments nonetheless remain due to the mixed record of agencies when rating less than ultra-prime borrowers and on the use by the separate agencies of different credit analysis methodologies. In addition, there exists a lack of ratings depth in many emerging market countries.

The external ratings that would determine the standard weights for claims on governments, non-domestic banks, and domestic or international corporates are illustrated in Table 6.3 (according to the Standard and Poor's rating methodology).

Option 1 implies that the risk weight used for banks in a country will be one rating category below the sovereign risk weight in that country (for AAA to BBB ratings). Option 2 ignores the sovereign rating and uses a set of risk weights based on the actual rating of the borrowing bank. Lending to foreign banks in countries where there are no ratings agencies will follow the risk weights shown in the "unrated" column. Domestic banks will continue to carry a 20 percent risk weighting.

Some changes additionally are proposed that would address asset securitization transactions through special purpose vehicles, using an external ratings approach. Only minor changes are proposed to the treatment of off-balance-sheet items. In the standardized approach, credit-risk mitigation techniques for financial collateral, netting and guarantees will be permitted. Also, in very limited cases, commercial real estate will be permitted as a credit risk mitigant when using the standardized approach.

TABLE 6.3 PROPOSED STANDARDIZED APPROACH: RISK WEIGHTS BASED ON EXTERNAL RATINGS

Claim		Assessment					Unrated
		AAA to AA-	A+ to A-	BBB+ to BBB-	BB+ to B-	Below B-	
Governments		0%	20%	50%	100%	150%	100%
Banks	Option 1	20%	50%	100%	100%	150%	100%
	Option 2	20%	50%	50%	100%	150%	50 %
Corporates		20%	100%	100%	100%	150%	100%

The two alternative **internal ratings-based (IRB) approaches** are a foundations and an advanced approach. There is a common misconception that using one of the IRB approaches to measure credit risk, will result in lower capital charges. This is not true. The measurement will be more accurate, but also, the risk-weight curve is far steeper for IRB approaches than for the standardized approach and as a consequence, a poor quality loan portfolio will produce a higher capital requirement when using an IRB approach. It is also worth noting that an IRB methodology will result in increased volatility in the capital requirement. The probability of default (PD) of a borrower or group of borrowers is the central measurable concept on which the IRB approach is founded. Banks' internal measures of credit risk are normally based on assessments of the risk characteristics of both the borrower and the specific type of transaction. In addition, a bank must estimate exactly how much it is likely to lose should a borrower default on an obligation. The magnitude of likely loss is termed Loss Given Default (LGD) and is normally expressed as a percentage of a bank's exposure. The actual loss is contingent upon the amount at the time of default, commonly expressed as Exposure at Default (EAD). The final element normally included in the IRB is the maturity (M) of exposures. These components (PD, LGD, EAD and M) form the basic inputs to the IRB approach. They combine to provide a measure of the expected intrinsic, or economic, loss and, consequently, they form a basis for credit risk related capital adequacy requirements.

The IRB may be implemented in two ways, using a "foundation" (basic) approach or an advanced approach. The **foundations approach** requires the loan portfolio to be subdivided into at least seven different "buckets," with the (PD) provided by the bank and the EAD and LGD, provided by the supervisory authority. Once the total probable loss (given the various probabilities of default) is calculated, a capital charge is determined, based on a risk weight for each "bucket."

The **advanced approach** to calculating capital adequacy proposes use of the same methodology as used for the foundations

approach, with the exception that the bank determines its own PD, EAD, and LGD figures based on historical experience. This alternative opens the door to credit risk modeling and introduces the concept of correlation, which although not yet accepted by regulatory authorities and not permitted by the capital accord, is common practice among the more sophisticated banks.

In practice, implementation of the IRB approach includes the following elements:

- a classification of exposures by broad exposure type (e.g., governmental, corporate, retail);
- for each exposure class, risk estimates that the bank must assign using standardized parameters or its internal estimates;
- a risk-weight function deriving the respective capital requirements for each exposure type;
- a set of minimum requirements that a bank must meet in order to be eligible to use an IRB approach;
- across all exposure classes, supervisory review of a bank's compliance with the minimum requirements.

☐ **Market risk.** The market risk capital adequacy requirement remains unchanged. Calculation of the market risk capital requirement is also permitted via a standardized approach or an internal models approach.

☐ **Operational risk.** Operational risk is defined by the Basel Committee on Banking Supervision as “the risk of loss resulting from inadequate or failed internal processes, people and systems or from external events.” Developments such as the increasing use of highly automated technology, the increase in retail operations and growth of e-commerce, increased outsourcing, and the greater use of sophisticated techniques to reduce credit and market risk have created increased operational risk. This recognition has led to an increased emphasis on sound operational risk management by banks, as well as to the inclusion of operational risk in a bank's internal capital assessments and allocation process.

Consequently, Basel II includes capital charges explicitly related to the assessment of operational risk. The initial proposal

was a charge of 20 percent of regulatory capital to cover operational risk, but this has been challenged by the industry and subsequently reduced to 12 percent. Three methods are proposed for calculating the operational risk capital requirement, as follows:

The **basic indicator approach** is a simplistic approach that uses a single indicator as a proxy for a bank's overall operational risk exposure. The most frequently used indicator is likely to be gross revenues, where a bank will be expected to assign capital for operational risk equal to a certain percentage of its gross income (using an alpha factor). This is the approach most likely to be used by non-G10 banks. The method does not require much work from banks, and is proposed as the most appropriate method for use until such time that management has in place adequate control processes, board oversight, data reporting, and audit processes related to operational risk.

The **standardized approach** requires a bank to organize itself into eight standard business lines (see Table 6.4), all using gross income as a common indicator. It is conceivable that different indicators could be used in the future. These indicators are multiplied by a percentage factor (beta) and the total capital charge for operational risk is then based on the sum of the business line charges. Banks that use this method do not have to collect operational loss data, but they are required to have effective standards of risk management. The standardized approach is to be used until banks have in place adequate management information systems for capital data, procedures for tracking internal loss experiences, and loss mapping.

Once banks are able to produce all the information required under the standardized approach, they may consider the three options identified by regulators as **advanced measurement approaches**. These are the most risk-sensitive approaches, derived from a bank's internal risk measurement systems and associated operational loss data. The first of these is the **internal measurement approach (IMA)**. In essence, this approach uses information from the standardized approach, for each business line providing an exposure indicator (EI), the probability of a loss

TABLE 6.4 OPERATIONAL RISK: BUSINESS LINES AND OPERATIONAL LOSS EVENT TYPES

<i>Business lines</i>	<i>Operational Loss Event Types</i>							<i>Highest incidence of monetary losses</i>
	<i>Internal fraud</i>	<i>External fraud</i>	<i>Employment practices and workplace safety</i>	<i>Clients, products and business services</i>	<i>Damage to physical assets</i>	<i>Business disruption and system failures</i>	<i>Execution, delivery and process management</i>	
Corporate finance								
Trading and sales								
Retail banking								
Commercial banking								
Payment and settlement								
Agency and custody services								
Asset management								
Retail brokerage								
Highest incidence of monetary losses								

event occurring (PE), and the loss should such an event occur (LGE). The product of these factors and an additional risk factor produces the expected loss (EL). The second approach, the **loss distribution approach (LDA)**, allows banks to estimate the likely distribution of operational losses over a given period for each business line or risk type. LDAs attempt to assess unexpected losses directly, whereas IMAs use assumptions about the relationship between expected loss and unexpected loss. Third, banks may use a **scorecard approach** to determine an initial level of operational risk capital at the firm or business-line level. This amount of capital is then modified over time by capturing the underlying risk profile of the different business lines. The scorecard approach requires qualitative judgment, and relies less on historical data.

Pillar 2: Supervisory Review. The second pillar of the Basel II proposals and a critical part of the capital adequacy framework is the supervisory review. Banks are expected to operate above minimum capital adequacy ratios and are expected to have policies and an internal process for assessing capital adequacy that are commensurate with their risk profile, operations, and business strategy. The role of supervisors when assessing a bank's position is to review the internal capital adequacy assessments of the bank, to ensure that the bank's position is consistent with its overall risk profile and strategy, and to enable supervisory intervention if the bank's capital does not provide a sufficient buffer against risk. Supervisors also are expected to have an approach for identifying and intervening in situations where falling capital levels raise questions about the ability of a bank to withstand business shocks.

Pillar 3: Market Discipline. The requirement for market discipline, the third pillar of Basel II, is intended to give banks a strong incentive to conduct their business in a safe, sound, and efficient manner. For market discipline to be effective, reliable and timely information is needed to enable market participants to make well-founded risk assessments, including assessment of the adequacy of capital held as a cushion against losses and of the risk exposures that may give rise to such losses. This therefore brings disclosure and transparency into the forefront of the capital adequacy issue (Chapter 14).

6.5 Implementation of the Basel Accord

It is important that a bank's board pay proper attention to all matters related to the maintenance of capital adequacy. The board has a responsibility to project capital requirements to determine whether current growth and capital retention are sustainable, to establish sound risk management policies and effective risk management and control systems and procedures, to ensure efficient organization, and to provide adequate resources to attract and retain the necessary professional cadre.

The quality of a bank's assets must also be mentioned in the capital adequacy context. A bank's capital ratios can be rendered meaningless or highly misleading if asset quality is not taken into account. Particularly in developing or transition economies, but also in advanced market economies, many banks report impressive capital ratios when they may be in fact insolvent, because they have overstated asset quality and have provisioned inadequately for losses. An accurate assessment of asset quality and of off-balance-sheet exposures and contingent liabilities is critical for an accurate assessment of capital. Similarly, accurate evaluation of provisions and loan loss reserves is a critical input in the process of capital adequacy assessment.

Many national authorities have promptly applied the Basel Accord and introduced formal regulatory capital requirements. After the introduction of the risk-based capital adequacy standard, risk-based capital ratios have increased significantly in all countries that have adopted the standard: the industry average for the G-10 countries increased from 9.3 percent in 1988 to 11.2 percent in 1996. It should, however, be noted that the differences in fiscal treatment and accounting presentations of certain classes of provisions for loan losses and of capital reserves derived from retained earnings may still to some extent distort the comparability of the real capital positions of banks from different countries.

Most regulatory authorities around the world now follow the Basel guidelines for capital adequacy. The standard has also played a major role in improving the safety of banking systems in developing countries. In the past decade, it has been widely introduced in less developed countries and in transitional economies. Aware that the banking environment in these countries entails higher economic and market risks, many regulators have

introduced even higher standards, with 12 to 15 percent often regarded as appropriate for transitional and developing environments.

A bank's capital ratio may be changed by altering either the numerator or the denominator of the ratio. In most cases, to reach or maintain the necessary capital level banks have done both. They have increased Tier 1 and/or Tier 2 capital by not distributing dividends and by issuing equity or subordinated debt; they have also changed the balance sheet structure by reducing total assets (e.g., by cutting back loans) and by shifting into assets that bear a lower risk weight (e.g., by moving from corporate loans to government securities or residential mortgages). These decisions have often been motivated by business cycles. In times of high demand, banks are more likely to increase capital; in downturns, they prefer to reduce the size of their balance sheets.

Besides the business cycle aspects, important determinants in selecting the strategy to achieve or maintain capital adequacy include the degree of undercapitalization and the time in which a bank must reach the minimum level of capital. If a bank's condition deteriorates, its options for raising capital become increasingly limited and at the same time, more expensive. This argues for a bank to maintain capital in excess of regulatory minimums. In the event that its asset quality deteriorates, or if undercapitalization is serious and the time is short, then raising new capital immediately is the only effective solution. Hoping that the problem will solve itself is a fool's game that will cost the bank far more in the long-run. Rapid shrinking of the balance sheet often means that a bank is shedding its highest-quality and/or most liquid assets. This masks the problem in the short run, but creates an even larger problem in the medium term.

The introduction of capital adequacy standards has also motivated regulatory capital arbitrage, reflecting bank efforts to keep their funding cost, including equity, as low as possible. Since the cost of equity is generally perceived as much greater than the cost of debt, banks that would otherwise keep lower capital see the imposition of capital adequacy as a form of regulatory taxation. As with other such forms of taxation, some banks develop methods to minimize the taxes. In practice, capital arbitrage has often exploited the differences between true economic risk and credit risk as measured by the Basel Accord's risk-weighting methodology. Capital arbitrage can be exercised in a number of ways, including shifting the asset

composition toward less weighted assets through some form of securitization or by creating credit substitutes (which also carry lower risk-weights).

6.6 Assessing Management Information with Respect to Capital Adequacy

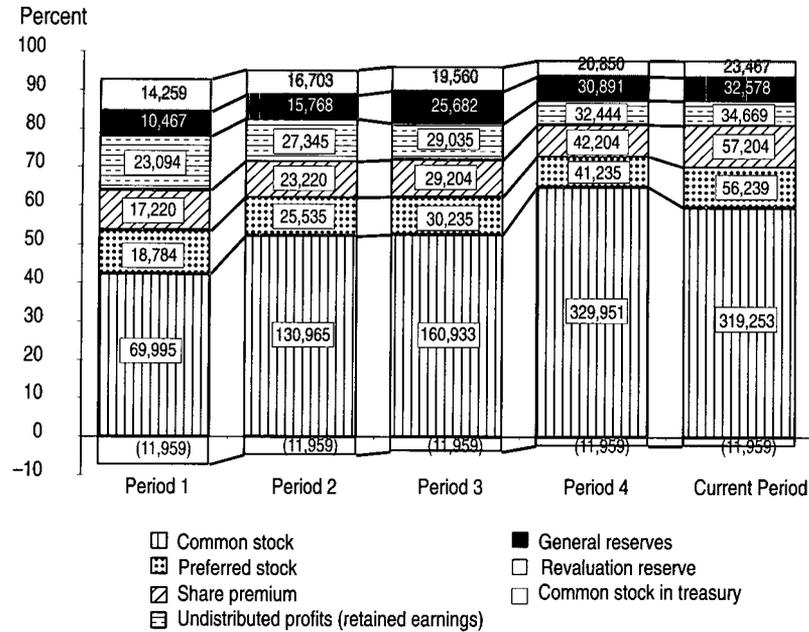
A capital adequacy assessment starts with analysis of the components of a bank's capital, as illustrated in Figure 6.1. (Note that the figures presented in this section illustrate the analysis of a bank's capital, but do not refer to the same bank.) The core capital components, including common stock and retained earnings, should account for more than 50 percent of the total capital, as mandated by the 1988 Basel Accord. The identity of shareholders is also important. In extreme circumstances the shareholders may be called upon to increase a bank's capital, either by adding new capital or by forgoing dividend payments. However, no amount of capital would be adequate for a bank with malevolent shareholders, incompetent management, or an incompetent board.

The changes in volume of capital and its structure over time are also significant. For the bank shown in Figure 6.1 there were some changes in capital structure. Any changes in capital structure, especially reductions involving core capital, should be credibly explained. A careful analysis is also needed in situations where a reduction of capital is indicated, to explain exactly why and what provoked the loss of capital and to ensure that the bank has learned from the experience and taken adequate measures to prevent a similar situation in the future. The analyst could also compare the changes in capital volume to the bank's risk profile, which is illustrated in Figures 6.2 and 6.3. In general, the changes in capital volume should be in concert with the expected changes in the risk profile, to provide an adequate cushion for the bank's risk exposures.

In addition to analyzing the structure of the bank's capital base, one should consider the level and demand for dividends being placed on the bank by shareholders. In periods of economic downturn or situations where the bank's condition is deteriorating, the bank should reduce or eliminate dividend payments to its shareholders.

The next step in the analysis is the assessment of the bank's risk exposures, on and off the balance sheet. The bank's balance sheet categories

FIGURE 6.1 COMPONENTS OF SHAREHOLDERS' FUNDS



are classified according to the risk categories specified in the Basel Accord and are assigned the corresponding risk weight. Figure 6.2 illustrates the process of balance sheet classification along these lines. The analyst should notice the structure of risk-weighted assets and if and how this has changed over time. For example, it is noticeable in Figure 6.3 that the average risk weights associated with the bank's assets have increased over time. The questions to be addressed are whether or not this is a result of the bank's business strategy decisions, whether or not the risk weights reflect actual risk, whether or not the bank is able to understand and adequately manage the higher level of risk, and what appears to be the trend for the future.

Figure 6.3 provides a summary risk profile of a bank, illustrating changes in the risk profile over time in terms of average risk weighting, including on- and off-balance-sheet items; it also projects future trends. It

FIGURE 6.2 RISK PROFILE OF ASSETS

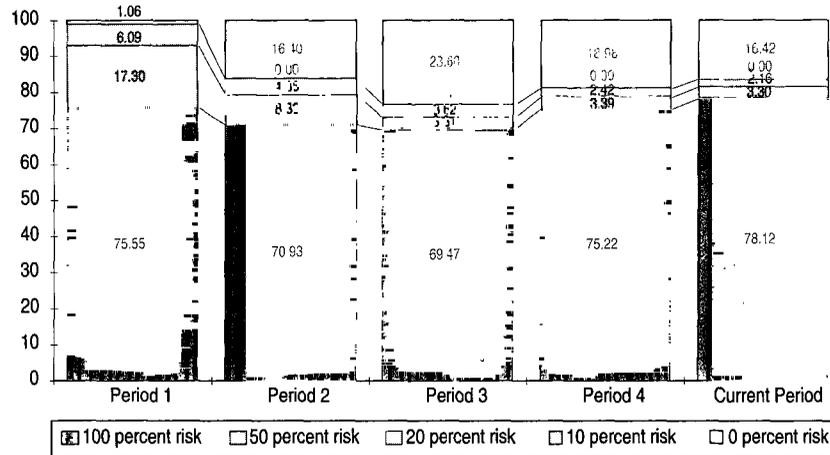
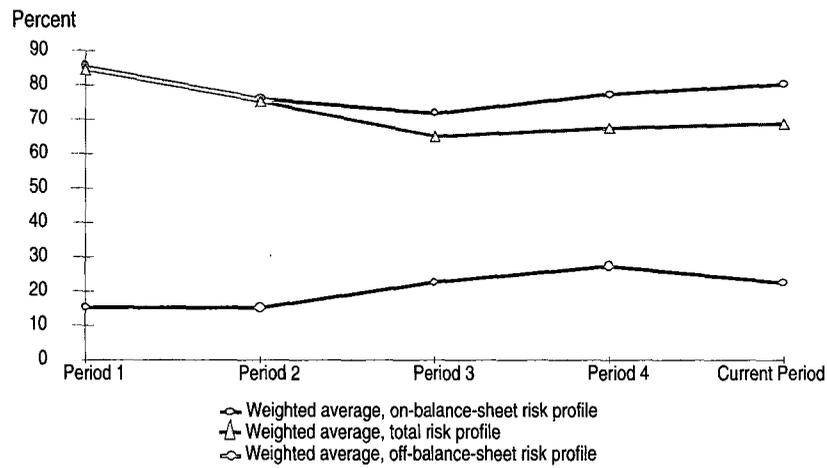


FIGURE 6.3 RISK PROFILE OF ON- AND OFF-BALANCE-SHEET ITEMS



appears that the weighted average of the bank's total risk profile has been reduced in the observation period. The analyst should understand why and what is the trend. For example, the total average could have been reduced because the bank increased its off-balance-sheet business. The weighted average of on-balance-sheet items could have been reduced because the bank started to engage in regulatory capital arbitrage, or because of changes in its demand structure.

The final step is to verify the denominator for the capital adequacy calculation by multiplying the amounts of various asset categories by their corresponding risk weights. Once the denominator is determined, the capital adequacy ratio calculation is straightforward. The analyst should, however, also scrutinize a bank's asset quality, to make sure that the capital ratio is realistic. This would normally include checking the bank's policies and practices regarding asset classification and provisions to make sure that it has adequately provided for the impaired value of any of its assets (see Chapter 7). It may also include checking the applicable rules concerning general loss reserves.

Table 6.5 illustrates selected capital ratios of a bank and their trends over time. A decline in the percentage of core capital in relation to the total qualifying capital would indicate that Tier 2 capital or debt instruments are being used to a greater degree in order to meet minimum capital requirements. This situation would in turn indicate a relative shift to less permanent forms of capital. The capital ratio indicates whether or not the bank is meeting the minimum capital requirements.

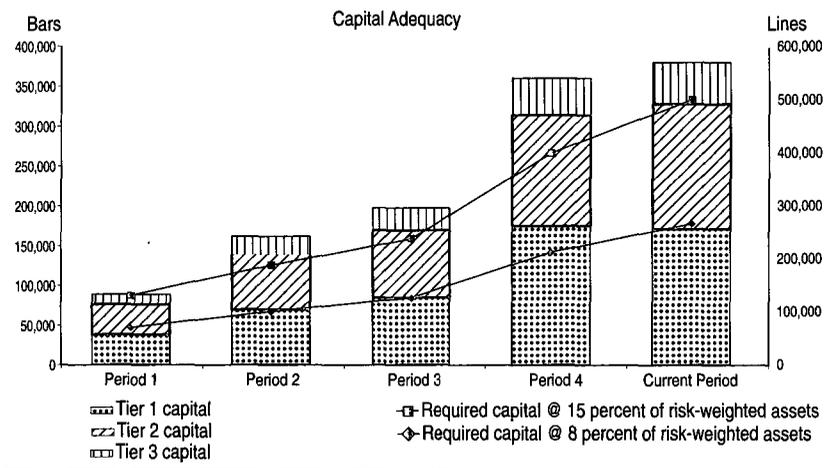
TABLE 6.5 CAPITAL ADEQUACY RATIOS

<i>Capital Adequacy</i>	<i>Period 1</i>	<i>Period 2</i>	<i>Period 3</i>	<i>Period 4</i>	<i>Current Period</i>	<i>Benchmark</i>
Total qualifying capital						
Tier 1 to total capital						
Total risk-weighted assets, on-balance-sheet						
Total risk-weighted assets, off-balance-sheet						
Capital adequacy (qualifying capital to risk-weighted assets)						
Tier 1 to risk-weighted assets						

When a bank's capital ratio shows deterioration it is a cause for concern. The reason could be that the bank has increased the size of its balance sheet, while still meeting minimum capital requirements. Should the growth trend continue, it would mean that the bank would have to increase capital to be able to maintain the minimum capital ratio. Another reason for a deteriorating capital ratio could be that the bank has changed its risk profile. In such a case, the analyst should investigate if the bank has adequate policies, procedures, and controls in place to effectively handle the higher risk profile of its operations.

Figure 6.4 traces the capital of a bank over time. The capital is split into Tier 1, Tier 2, and Tier 3 categories, and these are compared to the capital necessary to meet the 8 percent and 15 percent risk-weighted minimum capital requirement. The bank under review has significantly increased its capital, as well as its risk-weighted capital ratios. This situation likely indicates that this bank is positioning itself for future growth. While capital adequacy is clearly not an issue, this calls for a review of the bank's internal processes and controls, to ensure that it is adequately prepared to handle the increasing volume of business and, most likely, the increasing degree of risk.

FIGURE 6.4 ACTUAL VERSUS REQUIRED CAPITAL

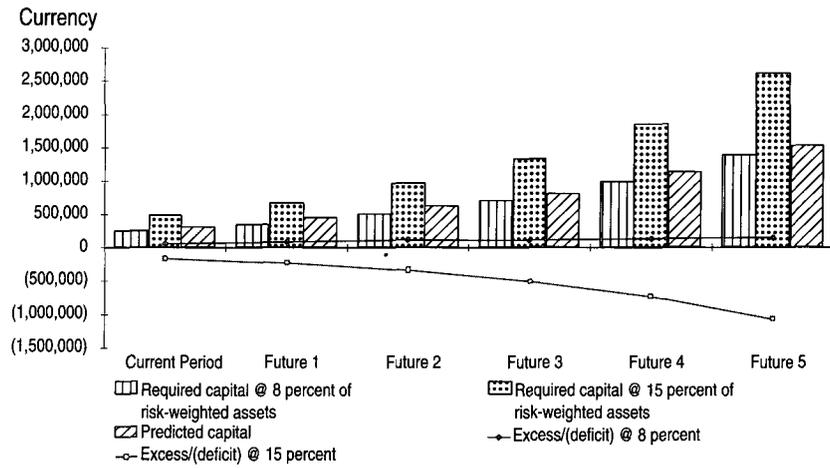


The next question is whether or not a bank can continue to meet its minimum capital requirements in the future. Analysis of this question should include stress tests for situations that might arise in which risk or the bank’s capacity to control risk could get out of hand. Figure 6.5 illustrates capital adequacy projections under normal circumstances, made as part of the process of risk management and capital planning. The graph shows the end result of possible situations that a bank may encounter in the future, and highlights any projected excess or deficiencies in capital adequacy.

The projection in Figure 6.5 is based on a simplistic assumption that risk-weighted assets will grow by 10 percent and net qualifying capital by 5 percent, and that the bank’s risk profile will remain the same. This expected business growth would clearly result in a capital shortfall. A bank may take a number of actions to address an expected shortfall in capital adequacy, including:

- a Tier 1 capital increase, by asking shareholders to add capital, by retaining earnings, or by issuing new shares in the market;

FIGURE 6.5 ESTIMATING POTENTIAL CAPITAL REQUIREMENT (GIVEN GROWTH RATES ASSUMPTIONS BASED ON PAST EXPERIENCE)



- a Tier 2 capital increase — if there is space for this in the bank's capital structure — by issuing the appropriate instruments;
- a change of business policy to focus on a business with lower capital requirements;
- a reduction in the size of its balance sheet or of its growth.

Annex to Chapter 6

Calculation of the Capital Adequacy Ratio to Include Market Risk (Tier 3 Capital)

Background

1. The 1988 Capital Accord divides capital into two types: core capital (Tier 1) and supplementary capital (Tier 2). These capital elements, taken together, are designed to meet the explicit capital charge for credit risk and allow for a buffer to cover other risks.
2. With the implementation of the 1996 Market Risk Amendment, Tier 3 capital - consisting of short-term subordinated debt - was created. Tier 3 capital can be used to **partially** offset the capital charge for market risks, including foreign exchange risk and commodity risk. However, the amount of Tier 3 capital that can be used for market risks is limited to 250 percent of the amount of Tier 1 capital that is allocated to market risk. Tier 2 capital may be substituted for Tier 3 up to a limit of 250 percent, provided that the overall limits on Tier 2 capital in the 1988 Capital Accord are adhered to.
3. When calculating the market risk capital charge, the result is the actual amount of capital that must be held; when calculating credit risk, the amount of capital needed is determined by multiplying risk-weighted assets by 8 percent. To create a link between credit risk and market risk, the market risk capital charge must be multiplied by 12.5 (the reciprocal of 8 percent) and then added to the risk-weighted assets calculated for credit risk purposes.
4. Thus, the formula for determining capital adequacy can be illustrated as follows:

$\frac{\text{Tier 1} + \text{Tier 2} + \text{Tier 3}}{\text{Risk-weighted Assets} + (\text{Market Risk Capital Charge} \times 12.5)} = 8\%$

where:

- Tier 1 is the entire amount of the bank's Tier 1 capital.
- Tier 2 is limited to 100 percent of Tier 1 capital; subordinated debt included in Tier 2 is limited to 50 percent of total Tier 2.
- Tier 3 is limited to the amount that is eligible to support market risk, subject to the restrictions in paragraph 2, above.

Example Calculation of the Capital Adequacy Ratio to Include Market Risk (Tier 3 Capital)

Assumptions:

1. The bank is operating in a regime that requires an 8 percent minimum capital requirement.
2. The bank has calculated its risk-weighted assets as 10,000 and its capital charge for market risk as 500.
3. The bank has 750 of Tier 1 capital, 250 of Tier 2 capital, and 700 of Tier 3 capital.

Solution — see Table 6.6:

1. To calculate the denominator of the equation above, the market risk capital charge must be multiplied by 12.5, the product of which will be added to risk-weighted assets of 10,000. In this example the denominator will be 16,250.
2. One can then determine that in an 8 percent capital environment, the bank will require a minimum of 1,300 in capital ($16,250 \times 8\% = 1,300$). Of this amount, 800 is for credit risk ($10,000 \times 8\% = 800$), and 500 is for market risk ($6,250 \times 8\% = 500$).
3. To determine if the bank has sufficient eligible capital, one must look at the composition of its Tier 1, Tier 2, and Tier 3 capital. Beginning with credit risk, the bank will obviously want to use as much Tier 2 capital as

TABLE 6.6 CALCULATING THE ALLOWABLE PORTION OF TIER 3 CAPITAL

	<i>Available capital</i> <i>1</i>	<i>Risk-weighted assets</i> <i>2</i>	<i>Minimum capital charge @ 8 %</i> <i>3</i>	<i>Tier 1 and Tier 2 capital utilized for credit risk</i> <i>4</i>	<i>Tier 1 and Tier 3 capital required for market risk</i> <i>5</i>	<i>Minimum capital requirement</i> <i>6</i>	<i>Eligible capital (excluding unused Tier 3)</i> <i>7</i>	<i>Unused but eligible Tier 3 - currently provided by Tier 1</i> <i>8</i>	<i>Unused but not eligible Tier 3</i> <i>9</i>
Credit risk	Tier 1: 750 Tier 2: 250	10,000	800	Tier 1: 550 Tier 2: 250		Tier 1: 550 Tier 2: 250	Tier 1: 750 Tier 2: 250		
Market risk	Tier 3: 700	6,250	500		Tier 1: 143 Tier 3: 357	Tier 1: 143 Tier 3: 357	Tier 3: 357	Tier 3: 143	Tier 3: 200
Totals		16,250	1,300	800	500	1,300	1,357		
Capital ratio							8.35%		

1. These amounts are provided in the text.

2. Capital requirement of 500, multiplied by 12.5 (the reciprocal of 8) = 6,250.

3. Risk-weighted assets multiplied by the percentage requirement: $10\,000 * 8\% = 800$ and $6,250 * 8\% = 500$.

4. It would be reasonable for the bank to use all its Tier 2 capital first (up to 100 % of Tier 1 capital).

5. Tier 3 ratio to Tier 1 may not exceed 250:100 (250/350). Tier 3 capital allowed to fulfill requirement = $250/350 * 500 = 357$. The remaining 143 (500 - 357) must come from Tier 1 capital.

6. Consolidation of columns 4 and 5.

7. The required ratio for T3:T1, results in an actual capital adequacy ratio of 8.35% ($(750 + 250 + 357) / 16,250 = 8.35\%$). This is due to the excess T1 capital in the bank ($750 - 550 - 143 = 57$).

8. Tier 3 capital can eventually equal the market risk capital requirement of 500. Hence the excess (500-357).

9. The excess Tier 3 capital, above the requirement (700-500), cannot be used unless the current market risk capital requirement of 500 increases.

it can to cover credit risk requirements. Since the minimum capital charge is 800 for credit risk, the bank can use all of its 250 in Tier 2 capital for credit risk. As a consequence, only 550 of Tier 1 capital will be needed for credit risk, leaving an excess of 200 in Tier 1 capital available to meet the market risk capital charge.

4. It is important to note that the amount of Tier 3 capital that may be used to cover market risk is limited to 250 percent of the amount of available Tier 1 capital. In this example, the bank would be limited to 500 of Tier 3 capital for market risk ($200 \times 250\%$), despite the fact that it has 700 of Tier 3 capital available. Wanting to maximize its use of Tier 3 capital, the bank will calculate the amount of Tier 3 capital that is 250 percent of Tier 1 capital but when summed together with Tier 1 capital will equal 500. As shown in the table below, the market risk capital charge is 500 and the bank can meet this with 143 of the 200 in Tier 1 capital that remains after the credit risk charge and 357 of Tier 3. The 357 represents 250 percent of the 143, and the two, when added together, equal the 500 market risk capital requirement.

5. Finally, to calculate the bank's capital ratio, all of the Tier 1 capital (750) plus the eligible Tier 2 capital (250) is added to the eligible Tier 3 capital (357). The denominator is 16,250 (as discussed above) resulting in a capital adequacy ratio of 8.35 percent.

CHAPTER 7

CREDIT RISK MANAGEMENT

KEY MESSAGES

Credit risk management lies at the heart of survival for the vast majority of banks.

The profile of customers (**WHO** has been lent to) must be transparent.

Risks associated with the key banking products (**WHAT** has been lent) must be understood and managed.

The maturity profile of loan products (for **HOW LONG** the loans have been made) interacts strongly with liquidity risk management.

Credit risk can be limited by reducing connected-party lending and large exposures to related parties.

Asset classification and subsequent provisioning against possible losses impacts not only the value of the loan portfolio but also the true underlying value of a bank's capital.

7.1 Introduction: Components of Credit Risk

Credit or counterparty risk — defined as the chance that a debtor or financial instrument issuer will not be able to pay interest or repay the principal according to the terms specified in a credit agreement — is an inherent part of banking. Credit risk means that payments may be delayed or ultimately not paid at all, which can in turn cause cash flow problems and affect a bank's liquidity. Despite innovation in the financial services sector, credit risk is still the major single cause of bank failures. The reason is that more than 80 percent of a bank's balance sheet generally relates to

this aspect of risk management. The three main types of credit (counterparty) risk are as follows:

- personal or consumer risk;
- corporate or company risk;
- sovereign or country risk.

Because of the potentially dire effects of credit risk, it is important to perform a comprehensive evaluation of a bank's capacity to assess, administer, supervise, enforce, and recover loans, advances, guarantees, and other credit instruments. An overall credit risk management review will include an evaluation of the credit risk management policies and practices of a bank. This evaluation should also determine the adequacy of financial information received, from a borrower or the issuer of a financial instrument, which has been used by a bank as the basis for investing in such financial instruments or the extension of credit; and the periodic assessment of its inherently changing risk.

The discussion of the credit risk management function is primarily focused on the loan portfolio, although the principles relating to the determination of creditworthiness, apply equally to the assessment of counterparties who issue financial instruments. This chapter reviews the following themes:

- Credit portfolio management
- Lending function and operations
- Credit portfolio quality review
- Nonperforming loan portfolio
- Credit risk management policies
- Policies to limit or reduce credit risk
- Asset classification
- Loan loss provisioning policy

7.2 Credit Portfolio Management

Bank supervisors place considerable importance on formal policies laid down by the board of directors and diligently implemented or adminis-

tered by management. This emphasis is perhaps most critical with regard to the bank's lending function, which requires that a bank must adopt a sound system for managing credit risk. A lending policy should contain an outline of the scope and allocation of a bank's credit facilities and the manner in which a credit portfolio is managed, i.e., how loans are originated, appraised, supervised, and collected. A good lending policy is not overly restrictive, but allows for the presentation of loans to the board that officers believe are worthy of consideration but which do not fall within the parameters of written guidelines. Flexibility must exist to allow for fast reaction and early adaptation to changing conditions in a bank's earning assets mix and market environment.

Considerations that form the basis for sound lending policies include the following:

- **Limit on total outstanding loans.** A limit on the total loan portfolio is usually expressed relative to deposits, capital, or total assets. In setting such a limit, factors such as credit demand, the volatility of deposits, and credit risks should be considered.
- **Geographic limits** are usually a dilemma. If a bank lacks understanding of its diverse markets and/or does not have quality management, geographic diversification may become a reason for bad loan problems. On the other hand, the imposition of strict geographical limits can also create problems, particularly in the case of regions with narrow economies. In any case, a bank's business market should be clearly delineated and commensurate with its market knowledge and managerial and staff experience. Bank officers should be fully aware of specific geographical limitations for lending purposes, an aspect that is particularly relevant for new banks.
- **Credit concentrations.** A lending policy should stimulate portfolio diversification and strike a balance between maximum yield and minimum risk. Concentration limits usually refer to the maximum permitted exposure to a single client, connected group, and/or sector of economic activity (e.g., agriculture, steel, or textiles). This is especially important for small, regionally oriented or specialized banks. A lending policy should also require that all concentrations be reviewed and reported on a frequent basis.

- **Distribution by category.** Limitations based on aggregate percentages of total loans in commercial, real estate, consumer, or other credit categories are common. Policies related to such limitations should allow for deviations that are approved by the board.
- **Type of loans.** A lending policy should specify the types of loans and other credit instruments that the bank intends to offer to clients and should provide guidelines for specific loans. Decisions about types of credit instruments should be based on the expertise of lending officers, the deposit structure of a bank, and anticipated credit demand. Types of credit that have resulted in an abnormal loss should be controlled by senior management or avoided completely.
- **Maturities.** A lending policy should establish the maximum maturity for each type of credit, and loans should be granted with a realistic repayment schedule. Maturity scheduling should be determined in relation to the anticipated source of repayment, the purpose of the loan, and the useful life of the collateral.
- **Loan pricing.** Rates on various loan types must be sufficient to cover the costs of funds, loan supervision, administration (including general overhead), and probable losses. At the same time, they should provide a reasonable margin of profit. Rates should be periodically reviewed and adjusted to reflect changes in costs or competitive factors. Rate differentials may be deliberately maintained either to encourage some types of borrowers to seek credit elsewhere or to attract a specific type of borrower. Guidelines for other relevant procedures, such as the determination of fees on commitments or penalty interest rates, are also an element of pricing policy.
- **Lending authority** is often determined by the size of a bank. In smaller banks, it is typically centralized. In order to avoid delays in the lending process, larger banks tend to decentralize according to geographical area, lending products, and/or types of customers. A lending policy should establish limits for all lending officers. If policies are clearly established and enforced, individual limitations may be somewhat higher than would normally be expected, depending on the officer's experience and tenure with the bank. Lending limits could also be based on group authority, which would allow a

committee to approve larger loans. Reporting procedures and the frequency of committee meetings should be specified.

- ☐ **Appraisal process.** A lending policy should outline where the responsibility for appraisals lies and should define formal, standard appraisal procedures, including reference to reappraisals of renewals or extensions. Acceptable types and limits on the amount of appraisals should be outlined for each type of credit facility. Circumstances requiring appraisals by qualified independent appraisers should also be described. The ratio of the amount of the loan to the appraised value of both the project and collateral, as well as the method of valuation and differences among various types of lending instruments, should be detailed. A lending policy should also contain a schedule of down payment requirements, where applicable.
- ☐ **Maximum ratio of loan amount to the market value of pledged securities.** A lending policy should set forth margin requirements for all types of securities that are accepted as collateral. Margin requirements should be related to the marketability of securities. A lending policy should also assign responsibility and establish a timetable for periodic pricing of collateral.
- ☐ **Financial statement disclosure.** A bank should recognize a loan, whether original or purchased, in its balance sheet. This should occur as soon as the bank becomes a party to the contractual provisions that apply to the loan. A bank should initially carry the loan at cost.
- ☐ **Impairment.** A bank should identify and recognize the impairment of a loan or a collectively assessed group of loans. This should be done whenever it is neither probable nor assured that a bank will be able to collect the amounts due according to the contractual terms of a loan agreement. Impairment can be recognized by reducing the carrying amount of the loan to its estimated realizable value through an existing allowance or by charging the income statement during the period in which the impairment occurs.
- ☐ **Collections.** A lending policy should define delinquent obligations of all types and specify the appropriate reports to be submitted to the board. These reports should include sufficient detail to allow

for the determination of the risk factor, loss potential, and alternative courses of action. The policy should require a follow-up collection procedure that is systematic and becomes progressively stronger. Guidelines should be established to ensure that all major problem loans are presented to and reviewed by the board.

- **Financial information.** The safe extension of credit depends on complete and accurate information regarding every detail of the borrower's credit standing. A possible exception to this rule is the case in which a loan was originally approved with readily marketable collateral to be used as the source of repayment. A lending policy should define the financial statement requirements for businesses and individuals at various borrowing levels and should include appropriate guidelines for audited, nonaudited, interim, cash flow, and other statements. It should include external credit checks required at the time of periodic updates. If the loan maturity is longer than one year, the policy should require that the bank's officers prepare financial projections with the horizon equivalent to the loan maturity, to ensure that the loan can be repaid from cash flow. The assumptions for the projections should be clearly outlined. All requirements should be defined in such a manner that any negative credit data would clearly indicate a violation of the bank's lending policy.

Finally, a lending policy should be supplemented with other written guidelines for specific departments of the bank. Written policies and procedures that are approved and enforced in various departments should be referenced in a bank's general lending policy. The absence of written policies, guidelines, and procedures is a major deficiency and a sign that a board of directors is not properly executing its fiduciary responsibilities.

7.3 Review of Lending Function and Operations

When carrying out its duties on behalf of both depositors and shareholders, a board of directors must ensure that a bank's lending function fulfills three fundamental objectives:

- loans should be granted on a sound and collectible basis;

- ☒ funds should be invested profitably for the benefit of shareholders and the protection of depositors;
- ☐ the legitimate credit needs of economic agents and/or households should be satisfied.

The purpose of a review of lending operations is to evaluate whether the process meets these criteria. In other words, it is crucial to assess if lending is well-organized, policies well-reflected in internal procedures and manuals, staffing adequate and diligent in following established policies and guidelines, and the information normally available to participants in the lending process timely, accurate, and complete.

Lending process review. The integrity and credibility of the lending process depend on objective credit decisions that ensure an acceptable risk level in relation to the expected return. A review of the lending process should include analysis of credit manuals and other written guidelines applied by various departments of a bank, and of the capacity and actual performance of all departments involved in the credit function. It should also cover the origination, appraisal, approval, disbursement, monitoring, collection, and handling procedures for the various credit functions provided by the bank. Specifically, the review should comprise the following:

- ☐ a detailed credit analysis and approval process including samples of loan application forms, internal credit summary forms, internal credit manuals, and loan files;
- ☐ criteria for approving loans, determining loan pricing policy and lending limits at various levels of the bank's management, and for making arrangements for lending through the branch network;
- ☐ collateral policy for all types of loans and actual methods and practices concerning revaluation of collateral and files related to collateral;
- ☐ administration and monitoring procedures, including responsibilities, compliance and controls;
- ☐ a process for handling exceptions.

The review should involve interviews with all middle-level managers of all departments that have a credit function. It should also include

reviews of individual credit files. A review of the volume of the credit applications that have been appraised versus those that have been approved in the past six or 12 months (in terms of both total numbers and dollar amount) would be one indication of the quality of credit appraisal.

Human resources analysis. This assessment should identify the staff involved in credit origination, appraisal, supervision, and processes to monitor credit risk. Specifically, their number, levels, age, experience, and specific responsibilities should be identified. Staff organization, skills, and qualifications should be analyzed in relation to policies and procedures. All ongoing training programs for a bank's credit staff should be reviewed and their adequacy assessed. The quality and frequency of staff training is usually a good indicator of the level of lending skills.

Information flows. Since the lending function is usually spread throughout an organization, a bank must have efficient systems for monitoring adherence to established guidelines. This can best be accomplished through an internal review and reporting system that informs the directorate and senior management of how policies are being carried out and that provides them with sufficient information to evaluate the performance of lower-echelon officers and the condition of the loan portfolio. Since information is the basic element of the credit management process, its availability, quality, and cost effectiveness should be analyzed. In addition, because information needed in the credit management process may be dispersed in different parts of the bank, an analysis should pay particular attention to information flows, in particular whether the information actually supplied is complete and available in a timely and cost-effective manner. Such an analysis is also closely linked to a review of human resources, organizational and control structures, and/or information technology.

7.4 Credit Portfolio Quality Review

The characteristics and quality of a bank's loan portfolio are also assessed through a review process. A loan portfolio reflects a bank's market position and demand, its business and risk strategy, and its credit extension capabilities. When feasible, the loan portfolio review should normally include a random sampling of loans so that approximately 70 percent of

the total loan amount and 30 percent of the number of loans are covered. It should also consider at least 75 percent of the total loan amount and 50 percent of the number of all foreign currency loans and of all loans with maturities greater than one year. In addition, a detailed credit portfolio review should include the following:

- all loans to borrowers with aggregate exposure larger than 5 percent of the bank's capital;
- all loans to shareholders and connected parties;
- all loans for which the interest or repayment terms have been rescheduled or otherwise altered since the granting of the loan;
- all loans for which cash payment of interest and/or principal is more than 30 days past due, including those for which interest has been capitalized or rolled over;
- all loans classified as substandard, doubtful, or loss.

In each of these cases, a loan review should consider documentation in the borrower's file and involve a discussion of the borrower's business, near-term prospects, and credit history with the responsible credit officer. When the total amount due exceeds 5 percent of a bank's capital, the analysis should also consider the borrower's business plans for the future and the potential consequences for debt service capacity and principal repayment.

The specific objective of these reviews is to assess the likelihood that the credit will be repaid, as well as whether or not the classification of the loan proposed by the bank is adequate. Other considerations include the quality of collateral held and the ability of the borrower's business to generate necessary cash.

Beyond loans, interbank deposits are the most important category of assets for which a bank carries the credit risk. This category may account for a significant percentage of a bank's balance sheet, particularly in countries that lack convertibility but allow their citizens and economic agents to maintain foreign exchange deposits. Other reasons for interbank deposits are the facilitation of fund transfers, the settlement of securities transactions, or because certain services are more economically or efficiently performed by other banks due to their size or geographical loca-

BOX 7.1 CONTENT OF A LOAN REVIEW FILE

For each of the loans reviewed, a summary file should be made showing the following:

- borrower's name and line of business;
- use of proceeds;
- date credit granted;
- loan maturity date, amount, currency, and interest rate;
- principal source of repayment;
- the nature and value of collateral/security (or valuation basis, if a fixed asset);
- total outstanding liabilities, including loan principal and interest due and all other real and contingent liabilities, in cases where the bank is absorbing the credit risk;
- delinquency or nonperformance, if any;
- description of monitoring activities undertaken for the loan;
- financial information, including current financial statements and other pertinent information;
- specific provisions that are required and available.

tion. A review of interbank lending typically focuses on the following aspects:

- the establishment and observation of counterparty credit limits, including a description of existing credit limit policy;
- any interbank credits for which specific provisions should be made;
- the method and accuracy of reconciliation of *nostro* and *vostro* accounts;
- any interbank credits with terms of pricing that are not the market norm;
- the concentration of interbank exposure with a detailed listing of banks and amounts outstanding as well as lending limits.

From a credit risk management perspective, interbank deposits should be treated just like any other credit risk exposure. A bank's policy should

require that correspondent banks be carefully reviewed with regard to exposure limits, as well as their ability to provide adequate collateral. Banks from regulatory environments that are strict, well-supervised, and in tune with international standards are customarily treated as a lesser risk than banks from developing countries.

All **off-balance-sheet commitments** that incur credit exposure should also be reviewed. An assessment should be made of the adequacy of credit risk analysis procedures and the supervision and administration of off-balance-sheet credit instruments, such as guarantees. An off-balance-sheet portfolio review should be carried out with the same principles and in a manner similar to a loan portfolio review. The key objective of a review of individual off-balance-sheet items is to assess the ability of the client to meet particular financial commitments in a timely manner.

Loan portfolio review. An analysis of the aggregate loan portfolio and its characteristics usually provides a good picture of a bank's business profile and business priorities, as well as the type of credit risk that the bank is expected and willing to take. An aggregate loan portfolio analysis should include the following:

- a summary of the major loan types, including details of the number of customers, average maturity, and the average interest rate earned;
- distribution of the loan portfolio, including various perspectives on the number of loans and total amounts, for example according to currency, short- (less than one year) and long-term (more than one year) maturities, industrial and/or other pertinent economic sectors, state-owned and private borrowers, and corporate and retail lending;
- loans with government or other guarantees;
- loans by risk classification;
- nonperforming loans.

The tools used by an analyst allow for a comprehensive assessment of the profile and characteristics of the aggregate loan portfolio, including **to whom, what, and for how long** the bank has lent. To illustrate this

process, Figure 7.1 shows the profile of a bank's borrowers, including individuals and public sector and other enterprises. This profile highlights the target customer segments that pose an acceptable risk to a bank. The figure also traces the shift of target customer profiles from public sector enterprises toward the private sector.

Figure 7.2 illustrates the various products that a bank can lend out in response to market demand. Changes in a bank's target customers clearly affect the distribution of its lending products. Figure 7.3 traces the evolution of the maturity structure (or length) of a bank's loans to customers. Changes in maturity structure may be influenced by shifts in customers and lending products, as well as by a bank's risk factors and/or macroeconomic trends.

7.5 Nonperforming Loan Portfolio

The concept of nonperforming assets is typically introduced as part of a discussion on asset classification. Nonperforming assets are those not gen-

FIGURE 7.1 LOANS TO CUSTOMERS PER BORROWER GROUP

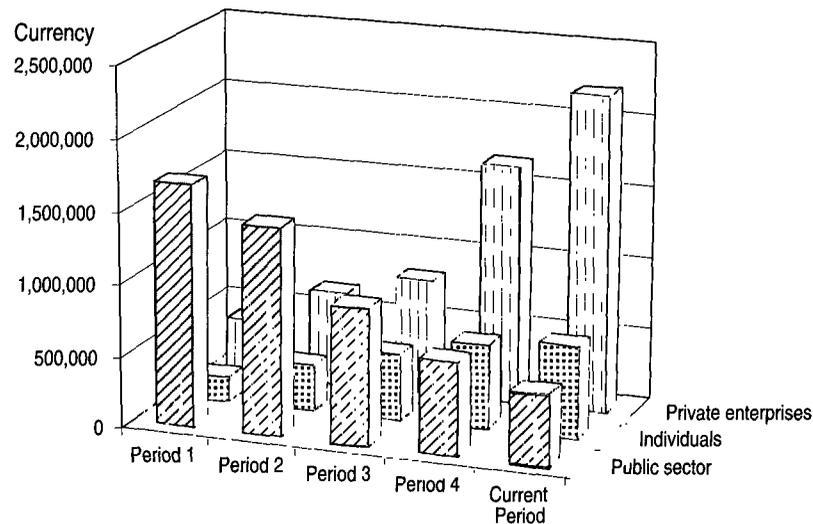


FIGURE 7.2 CUSTOMER LOANS BY PRODUCT

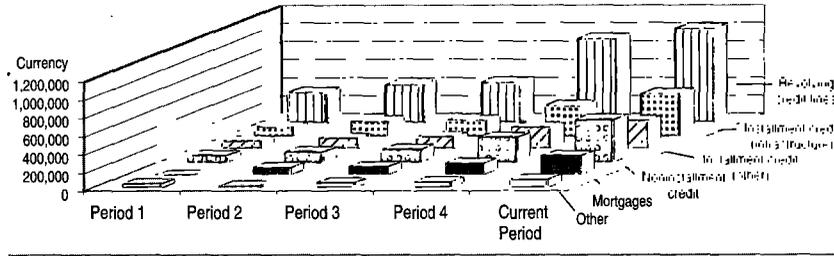
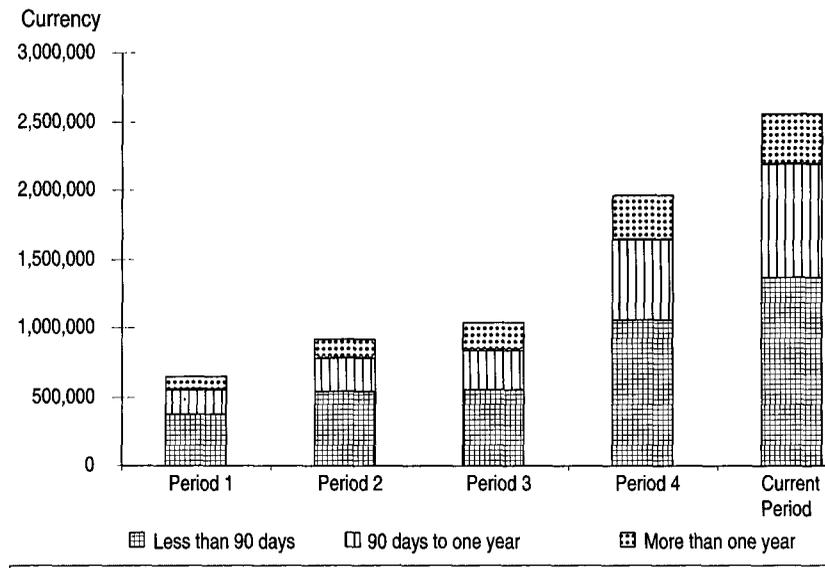


FIGURE 7.3 MATURITY OF LOANS TO CUSTOMERS



erating income. As a first step, loans are often considered to be nonperforming when principal or interest on them is due and left unpaid for 90 days or more (this period may vary by jurisdiction). Loan classification and provisioning entails much more than simply looking at amounts overdue. The borrower's cash flow and overall ability to repay amounts owing

are significantly more important than whether the loan is overdue or not (see Section 7.8 and Box 7.3).

For financial reporting purposes, the principal balance outstanding, rather than delinquent payments, is used to identify a nonperforming loan portfolio. The nonperforming loan portfolio is an indication of the quality of the total portfolio and ultimately that of a bank's lending decisions. Another such indicator is the bank's collection ratio. Table 7.1 and Figure 7.4 illustrate aspects of nonperforming loans over a period of time and the level of provisions put in place to record potential losses.

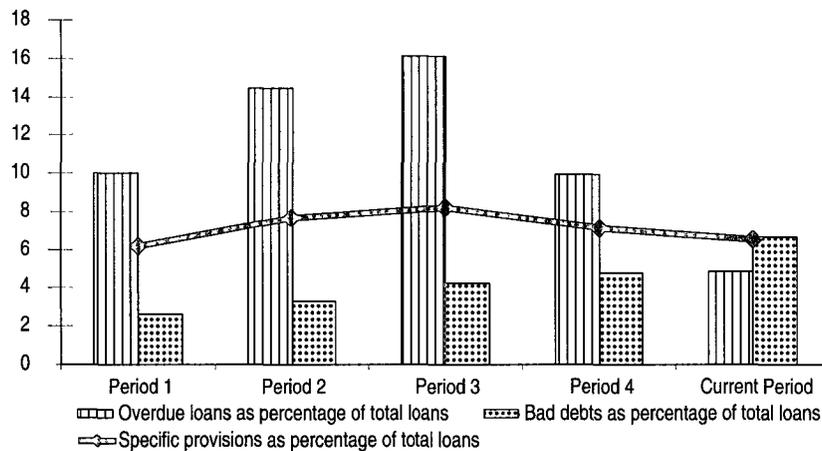
When assessed within the context of nonperforming loans, the aggregate level of provisions indicates the capacity of a bank to effectively accommodate credit risk. The analysis of a nonperforming loan portfolio should cover a number of aspects, as follows:

- Aging of past-due loans, including principal and interest, by more than 30, 90, 180, and 360 days. These classifications can be broken down by type of customer and branch of economic activity to

TABLE 7.1 LOAN PORTFOLIO STATISTICS

<i>Credit Risk</i>	<i>Prior Periods %</i>	<i>Current Period %</i>	<i>Bench- mark %</i>
Overdue loans as percentage of total loans			
Bad debts as percentage of total loans			
Loan loss provision as percentage of total loans			
Loans to private sector as percentage of total loans (gross)			
Loans to individuals as percentage of total loans (gross)			
Loans to public sector as percentage of total loans (gross)			
20 largest borrowers as percentage of total gross loans portfolio			
20 largest borrowers — percentage of total off-balance-sheet items			
20 largest borrowers as percentage of net interest income			
20 largest borrowers as percentage of total assets			
20 largest borrowers as percentage of qualifying capital			

FIGURE 7.4 LOAN PORTFOLIO STATISTICS



determine overall trends and whether or not all customers are affected equally.

- ❑ Reasons for the deterioration of the loan portfolio quality, which can help identify possible measures that can be undertaken by the bank to reverse a given trend.
- ❑ A list of nonperforming loans, including all relevant details, should be assessed on a case-by-case basis to determine if the situation is reversible, exactly what can be done to improve repayment capacity, and whether or not work-out and/or collection plans have been used.
- ❑ Provision levels should be considered to determine the bank's capacity to withstand loan defaults.
- ❑ The impact on profit and loss accounts should be considered to determine exactly how the bank will be affected by the deterioration of asset quality.

There can be a number of reasons to explain deteriorating loan portfolio quality. It is unavoidable that banks make mistakes in judgment. However, for most failed banks, the real problems are systemic in nature

and rooted in the bank's credit culture. Box 7.2 illustrates the kinds of problems that indicate distortion in a bank's credit culture.

BOX 7.2 SIGNS OF DISTORTED CREDIT CULTURE

In its commercial bank examination manual, the U.S. Federal Reserve system cites the following problems as signs of a distorted credit culture:

- **Self-dealing.** An overextension of credit to directors and large shareholders, or to their interests, while compromising sound credit principles under pressure from related parties. Self-dealing has been the key issue in a significant number of problem banks.
- **Compromise of credit principles.** Arises when loans that have undue risk or are extended under unsatisfactory terms are granted with full knowledge of the violation of sound credit principles. The reasons for the compromise typically includes self-dealing, anxiety over income, competitive pressures in the bank's key markets, or personal conflicts of interest.
- **Anxiety over income.** A situation in which concern over earnings outweighs the soundness of lending decisions, underscored by the hope that risk will not materialize or lead to loans with unsatisfactory repayment terms. This is a relatively frequent problem since a loan portfolio is usually a bank's key revenue-producing asset.
- **Incomplete credit information.** This indicates that loans have been extended without proper appraisal of borrower creditworthiness.
- **Complacency.** This is a frequent cause of bad loan decisions. Complacency is typically manifested in a lack of adequate supervision of old, familiar borrowers, dependence on oral information rather than reliable and complete financial data, and an optimistic interpretation of known credit weaknesses because of survival in distressed situations in the past. In addition, banks may ignore warning signs regarding the borrower, economy, region, industry, or other relevant factors or fail to enforce repayment agreements, including a lack of prompt legal action.
- **Lack of supervision.** Ineffective supervision invariably results in a lack of knowledge about the borrower's affairs over the lifetime of the loan. Consequently, initially sound loans may develop problems and losses because of a lack of effective supervision.
- **Technical incompetence.** This includes a lack of technical ability among credit officers to analyze financial statements and obtain and evaluate pertinent credit information.

BOX 7.2 (CONTINUED)

- **Poor selection of risks.** This tendency typically involves the following:
 - The extension of loans with initially sound financial risk to a level beyond the reasonable payment capacity of the borrower. This is a frequent problem in unstable economies with volatile interest rates.
 - Loans where the bank-financed share of the total cost of the project is large relative to the equity investment of the owners. Loans for real estate transactions with narrow equity ownership also falls into this category.
 - Loans based on the expectation of successful completion of a business transaction, rather than on the borrower's creditworthiness, and loans made for the speculative purchase of securities or goods.
 - Loans to companies operating in economically distressed areas or industries.
 - Loans made because of large deposits in a bank, rather than on sound net worth or collateral.
 - Loans predicated on collateral of problematic liquidation value or collateral loans that lack adequate security margins.

7.6 Credit Risk Management Policies

Credit risk is the most common cause of bank failures, causing virtually all regulatory environments to prescribe minimum standards for credit risk management. The basis of sound credit risk management is the identification of the existing and potential risks inherent in lending activities. Measures to counteract these risks normally comprise clearly defined policies that express the bank's credit risk management philosophy and the parameters within which credit risk is to be controlled.

Specific credit risk management measures typically include three kinds of policies. One set of policies (further discussed in Section 7.7) includes those aimed to **limit or reduce credit risk**, such as policies on concentration and large exposures, adequate diversification, lending to connected parties, or over-exposures. The second set includes policies of **asset classification** (Section 7.8). These mandate periodic evaluation of the collectibility of the portfolio of loans and other credit instruments, including any accrued and unpaid interest, which expose a bank to cred-

it risk. The third set includes policies of **loss provisioning** (Section 7.9), or the making of allowances at a level adequate to absorb anticipated loss — not only on the loan portfolio, but also on all other assets that are subject to losses.

The assessment of a credit risk management function should consider loans and all other extensions of credit (on- and off-balance-sheet) to ensure that the following factors are considered:

- the level, distribution, and severity of classified assets;
- the level and composition of nonaccruing, nonperforming, renegotiated, rolled-over, and reduced-rate assets;
- the adequacy of valuation reserves;
- management's ability to administer and collect problem assets;
- undue concentrations of credit;
- the adequacy and effectiveness of, and adherence to, lending policies and credit administration procedures;
- the adequacy and effectiveness of a bank's process for identifying and monitoring initial and changing levels of risk, or risk associated with approved credit exposure.

Clearly defined levels of authority for credit approval help to ensure that decisions are prudent and are made within defined parameters. Institutions should have procedures in place to govern the collection of principal, interest, and other charges in accordance with established terms of repayment. Some kind of mechanism to address the issue of nonperforming loans should also exist, as well as mechanisms for enforcing a creditor's rights in the case of loss loans. A bank reporting system should generate accurate and timely reports on its credit exposure, while the maintenance of detailed, up-to-date information on borrowers is a prerequisite for ongoing risk assessment.

Workout procedures. Workout procedures are an important aspect of credit risk management. If timely action is not taken to address problem loans, opportunities to strengthen or collect on these poor-quality assets may be missed and losses may accumulate to a point where they threaten a bank's solvency. An assessment of work-out procedures should consider the organization of this function, including departments and responsible staff, and assess what the performance of the work-out units

has been by reviewing attempted and successful recoveries (in terms of both number and volume) and the average time for recovery. The workout methods utilized and the involvement of senior management should also be evaluated.

During a workout process, each loan and borrower should be considered on their own merits. Typical workout strategies include the following:

- ❑ reducing the credit risk exposure of a bank, for example by having the borrower provide additional capital, funds, collateral, or guarantees;
- ❑ working with the borrower to assess problems and find solutions to increase loan service and repayment capacity, such as the provision of advice, the development of a program to reduce operating costs and/or increase earnings, the selling of assets, design of a debt restructuring program, or changed loan terms;
- ❑ arranging for a borrower to be bought or taken over by a more creditworthy party, or arranging for some form of joint-venture partnership;
- ❑ liquidating exposure through out-of-court settlement or by taking legal action, calling on guarantees, foreclosing, or liquidating collateral.

Public-disclosure requirements. The differences in loan classification rules, provisioning requirements, and the treatment of problem loans in various countries, as well as the degree of judgment that bank management exercises, means that it is particularly important that banks make adequate disclosures to allow supervisions and other interested third parties to properly evaluate the financial condition of a bank. Disclosure principles related to sound credit risk should be mandated by regulatory authorities, as recommended by the Basel Committee on Bank Supervision. Specifically, these include disclosure of information about the following:

- ❑ policies and methods used to account for loans and allowances for impairments (i.e., provisions);

- risk management and control policies and practices;
- loans, impaired loans, and past-due loans, including respective general allowances (loan loss reserves) and specific allowances (provisions) by major categories of borrowers and geographical regions and reconciliation of movements in the allowances for loan impairment;
- large exposures and concentration, and exposures to connected parties;
- balances and other pertinent information on loans that have been restructured or are otherwise irregular with respect to the original loan agreement.

7.7 Policies to Limit or Reduce Credit Risk

Large exposures. Bank regulators have traditionally paid close attention to risk concentration by banks. A regulator's objective in credit risk management is to prevent banks from relying excessively on a large borrower or group of borrowers, but not to dictate to whom banks may or may not lend. Modern prudential regulations usually stipulate that a bank not make investments, grant large loans, or extend other credit facilities to any individual entity or related group of entities in excess of an amount that represents a prescribed percentage of the bank's capital and reserves. Within this framework, bank supervisors are in a unique position to monitor both the banking sector and an individual bank's credit exposure in order to protect depositors' interests and to be able to prevent situations that may put a banking system at risk.

Most countries impose a single-customer exposure limit of between 10 and 25 percent of capital, although in some jurisdictions it may be as high as 30–40 percent. The Basel Committee on Banking Supervision has recommended a maximum of 25 percent, with the intention of reducing it to 10 percent as soon as this is practical. The threshold at which reporting to supervisory authorities becomes necessary should normally be set somewhat below the maximum limit. Supervisors can then devote special attention to exposures above the threshold and require banks to take precautionary measures before concentration becomes excessively risky.

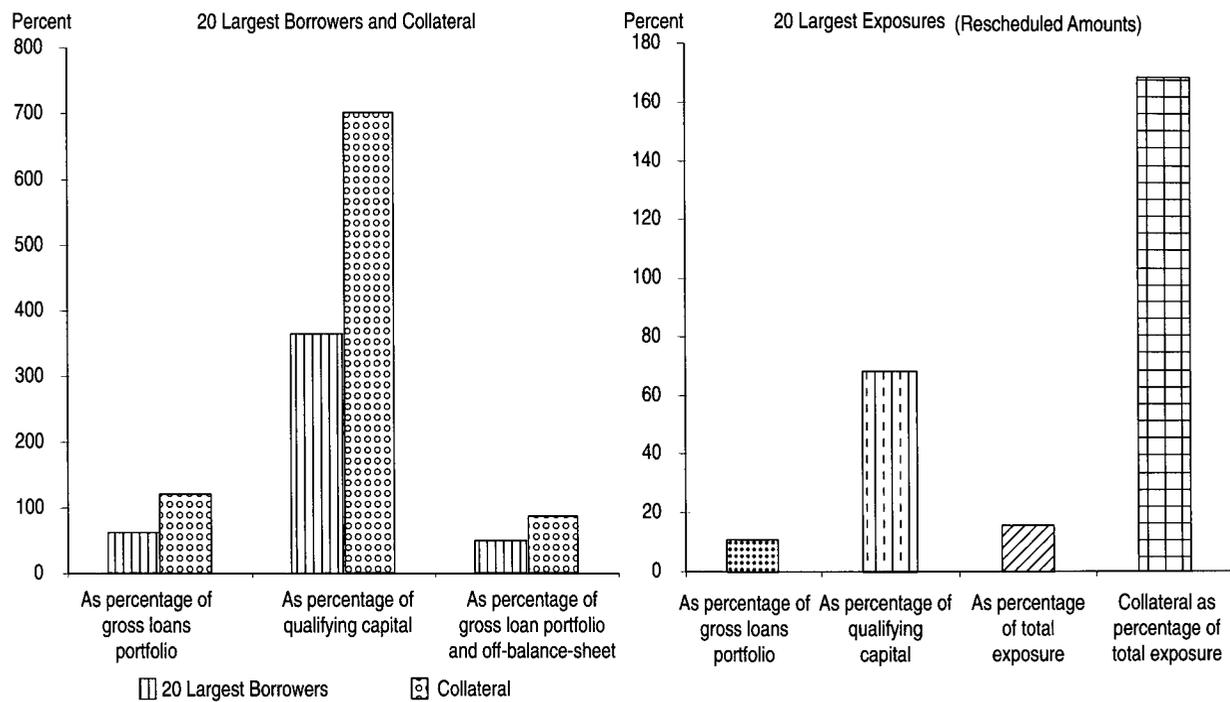
The main difficulty in defining an exposure is to quantify the extent to which less direct forms of credit exposure should be included within the exposure limit. As a matter of principle, contingent liabilities and credit substitutes, such as guarantees, acceptances, and letters of credit, as well as all future commitments should be included, although the treatment of specific instruments may vary. For example, a financial obligation guarantee may have a different treatment compared to a performance risk guarantee. The inclusion of collateral in an assessment of exposure limit is another contentious issue, as the valuation of collateral can be highly subjective. As a matter of prudence, collateral should not be considered when determining the size of an exposure.

Another conceptual question is the definition of the term “single client.” According to international practice, a single client is an individual/legal person or a connected group to which a bank is exposed. Single clients are mutually associated or control (directly or indirectly) other clients, normally through a voting right of at least 15–20 percent, a dominant shareholding, or the capacity to exercise in concert a controlling influence on policy making and management. In addition, these clients’ cumulative exposure may represent a singular risk to a bank if financial interdependence exists and their expected source of repayment is the same.

Figure 7.5 illustrates the exposure of a bank to its 20 largest clients, including the facilities granted and utilized and the ratio of such exposures to capital and reserves. In practical terms, large exposures are usually an indication of commitment by a bank to support specific clients. Banks that become entrapped in lending to large corporate clients are sometimes not objective in appraising the risks associated with such credit.

The issue of management of large exposures involves an additional aspect: the adequacy of a bank’s policies, practices, and procedures in identifying common or related ownership, the existence of effective control, and reliance on common cash flows. Particularly in the case of large clients, banks must pay attention to the completeness and adequacy of information about the debtor. Bank credit officers should monitor events affecting large debtors and their performance on an ongoing basis, regardless of whether or not a debtor is meeting its obligations. When external events present a cause for concern, credit officers should request addition-

FIGURE 7.5 EXPOSURE TO THE 20 LARGEST BORROWERS



al information from the debtor. If there is any doubt that the debtor might have difficulties in meeting its obligation to the bank, the concerns should be raised with the higher level of the credit risk management hierarchy and a contingency plan on how to address the issue should be developed.

Related-party lending. Lending to connected parties is a particularly dangerous form of credit risk exposure. Related parties typically include a bank’s parent, major shareholders, subsidiaries, affiliate companies, directors, and executive officers (Table 7.2). This relationship includes the ability to exert control over or influence a bank’s policies and decision-making, especially concerning credit decisions. A bank’s ability to systematically identify and track extensions of credit to insiders is crucial. The issue is whether credit decisions are made on a rational basis and according to the bank’s policies and procedures. An additional concern is whether credit is based on market terms or is granted on terms that are more favorable with regard to amount, maturity, rate, and collateral, than those provided to the general public.

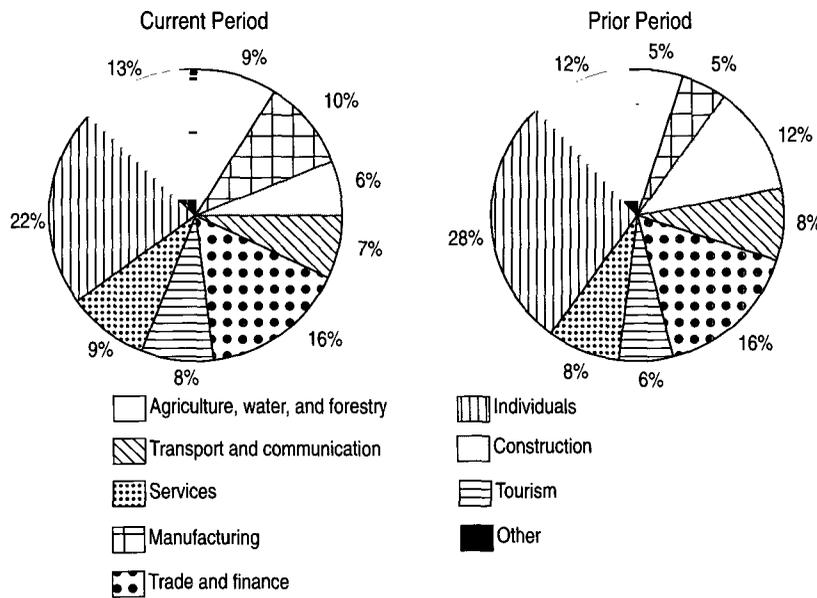
TABLE 7.2 RELATED-PARTY LENDING

	<i>Amount of loans of loans</i>	<i>Amount of loans not in the A (pass) category</i>	<i>Amount of loans, as percentage of qualifying capital</i>	<i>Amount of loans not in the A (pass) category as percentage of qualifying capital</i>	<i>Collateral held</i>
Shareholders holding more than 5 percent of shares					
Shareholders holding less than 5 percent of shares					
Shareholders of any shareholders					
Board of directors					
Executive management					
Entities controlled by the bank					
Entities have control over the bank					
Close relative to any of the above					
Total					

Most regulators establish limits for aggregate lending to related parties, typically stipulating that total lending to related parties cannot exceed a certain percentage of tier 1 or total qualifying capital. If such a limit has not been established by prudential regulations, a bank should be expected to maintain one as a matter of board policy. A prudent banking practice would require all loans to related parties to be approved by the board.

Overexposure to geographical areas or economic sectors. Another dimension of risk concentration is the exposure of a bank to a single sector of the economy or a narrow geographical region. This makes a bank vulnerable to a weakness in a particular industry or region and poses a risk that it will suffer from simultaneous failures among several clients for similar reasons. This concern is particularly relevant for regional and specialized banks or banks in small countries with narrow economic profiles, such as those with predominantly agriculture-based economies or exporters of a single commodity. Figure 7.6 below illustrates aspects of a sectoral analysis that can be performed to identify such problems.

FIGURE 7.6 SECTORAL ANALYSIS OF LOANS



It is often difficult to assess the exposure of banks to various sectors of the economy, as most bank reporting systems do not produce such information. For example, a loan to the holding company of a large, diversified group could be used to finance projects in various industries in which the company operates. In any case, banks, which are by nature exposed to sector risks, should have well-developed systems to monitor such risks and to assess the impact of adverse trends on their loan portfolio quality and on their income statements. Such banks should also have institutionalized mechanisms in place to deal with increased risk.

Renegotiated debt refers to loans that have been restructured to provide a reduction of either interest or principal payments because of the borrower's deteriorated financial position. A loan that is extended or renewed, with terms that are equal to those applied to new debt with similar risk, should not be considered as renegotiated debt. Restructuring may involve a transfer from the borrower to the bank of real estate, receivables or other assets from third parties, a debt-to-equity swap in full or partial satisfaction of the loan, or the addition of a new debtor to the original borrower.

A good practice is to have such transactions approved by the board of directors before concessions are made to a borrower. Bank policies should also ensure that such items are properly handled from an accounting and control standpoint. A bank should measure a restructured loan by reducing its recorded investment to a net realizable value, taking into account the cost of all the concessions at the date of restructuring. The reduction should be recorded as a charge to the income statement for the period in which the loan is restructured. A significant amount of renegotiated debt is normally a sign that a bank is experiencing problems. An exception to this general approach applies in a market environment of falling interest rates, when it may be in the interest of both debtors and creditors to renegotiate the original credit terms.

7.8 Asset Classification

Asset classification is a process whereby an asset is assigned a credit risk grade, which is determined by the likelihood that debt obligations will be serviced and debt liquidated according to contract terms. In general, all assets for which a bank is taking a risk should be classified, including

loans and advances, accounts receivable, investments, equity participations, and contingent liabilities.

Asset classification is a key risk management tool. Assets are classified at the time of origination and then reviewed and reclassified as necessary (according to the degree of credit risk) a few times per year. The review should consider loan service performance and the borrower's financial condition. Economic trends and changes in respective markets and the price of goods also affect evaluation of loan repayment. The evaluation of certain classes of smaller loans, however, may be based only on repayment performance, in particular small consumer loans such as residential mortgages, installment loans, and credit cards. Assets classified as "pass" or "watch" are typically reviewed twice per year, while critical assets are reviewed at least each quarter.

Banks determine classifications by themselves but follow standards that are normally set by regulatory authorities. Standard rules for asset classification that are currently used in most developed countries are outlined in Box 7.3. The primary emphasis of these rules is placed upon a borrower's ability and willingness to repay a debt, including both interest and principal, from prospective operating cash flow. Some jurisdictions require that all credit extended to an individual borrower (or to a related group of borrowers) should be assigned the same risk classification, while differences in classification should be specifically noted and justified. Other jurisdictions recommend that each asset be assessed on its own particular merits. In cases where assets may be classified differently depending on whether subjective or objective criteria are used, the more severe classification should generally apply. If supervisory authorities, and in many cases external auditors, assign more stringent classifications than the bank itself, the bank is expected to adjust the classification.

In some advanced banking systems, banks use more than one rating level for assets in the pass category. The objective of such a practice is to improve the quality of portfolio analysis and trend analysis to be able to better differentiate among credits of different types, and to improve the understanding of the relationship between profitability and the rating level.

Banks engaged in international lending face additional risks, the most important of which are country, or sovereign, and transfer risks. The former encompass the entire spectrum of risks posed by the macroeconomic,

BOX 7.3 ASSET CLASSIFICATION RULES

According to international standards, assets are normally classified in the following categories:

- **Standard, or pass.** When debt service capacity is considered to be beyond any doubt. In general, loans and other assets that are fully secured (including principal and interest) by cash or cash-substitutes (e.g., bank certificates of deposit and treasury bills and notes) are usually classified as standard regardless of arrears or other adverse credit factors.
- **Specially mentioned, or watch.** Assets with potential weaknesses that may, if not checked or corrected, weaken the asset as a whole or potentially jeopardize a borrower's repayment capacity in the future. This, for example, includes credit given through an inadequate loan agreement, a lack of control over collateral, or without proper documentation. Loans to borrowers operating under economic or market conditions that may negatively affect the borrower in the future should receive this classification. This also applies to borrowers with an adverse trend in their operations or an unbalanced position in the balance sheet, but which have not reached a point where repayment is jeopardized.
- **Substandard.** This classification indicates well-defined credit weaknesses that jeopardize debt service capacity, in particular when the primary sources of repayment are insufficient and the bank must look to secondary sources for repayment, such as collateral, the sale of a fixed asset, refinancing, or fresh capital. Substandard assets typically take the form of term credits to borrowers whose cash flow may not be sufficient to meet currently maturing debts or loans, and advances to borrowers that are significantly undercapitalized. They may also include short-term loans and advances to borrowers for which the inventory-to-cash cycle is insufficient to repay the debt at maturity. Nonperforming assets that are at least 90 days overdue are normally classified as substandard, as are renegotiated loans and advances for which delinquent interest has been paid by the borrower from his own funds prior to renegotiations and until sustained performance under a realistic repayment program has been achieved.
- **Doubtful.** Such assets have the same weaknesses as substandard assets, but their collection in full is questionable on the basis of existing facts. The possibility of loss is present, but certain factors that may strengthen the asset defer its classification as a loss until a more exact

BOX 7.3 (CONTINUED)

status may be determined. Nonperforming assets that are at least 180 days past due are also classified as doubtful, unless they are sufficiently secured.

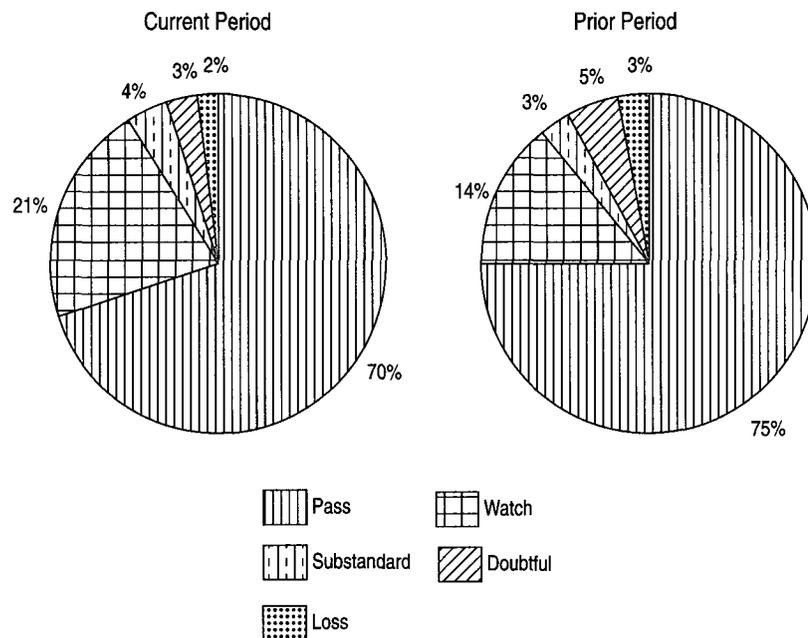
- **Loss.** Certain assets are considered uncollectible and of such little value that the continued definition as bankable assets is not warranted. This classification does not mean that an asset has absolutely no recovery or salvage value, but rather that it is neither practical nor desirable to defer the process of writing it off, even though partial recovery may be possible in the future. Nonperforming assets that are at least one year past due are also classified as losses, unless such assets are very well secured.

political, and social environment of a country that may affect the performance of borrowers. Transfer risks are the difficulties that a borrower might have in obtaining the foreign exchange needed to service a bank's loan. The classification of international loans should normally include both country and transfer risk aspects. A bank may be asked to provision for international loans on a loan-by-loan basis, whereby the level of necessary provisions is increased to accommodate additional risk. Alternatively, a bank may determine aggregate exposures to country and transfer risks on a country-by-country basis, and provide special reserves to accommodate for risk exposures.

Additionally, foreign currency risk aspects may also affect loan classification in cases where a debtor has borrowed in one currency but generates cash flow in another currency. In effect, the foreign currency risk aspect magnifies the credit risk taken by a bank. Such cases are especially relevant in emerging market economies or in economies where the domestic currency is unstable and/or lacks full convertibility. The loan classification should, in such cases, also include considerations related to the likelihood of currency devaluation, the ability of the debtor to cover or hedge the risk of devaluation, or the debtor's capacity to adjust product or service pricing.

Figure 7.7 illustrates the asset quality of a bank. When aggregate assets in the substandard to loss categories represent 50 percent or more

FIGURE 7.7 CLASSIFICATION OF LOANS



of a bank's capital, a strong likelihood exists that the bank's solvency and profitability is impaired. Such a bank will most likely be considered by supervisors to be a problem bank, although other factors must also be considered. These include the ability or actual performance of management to strengthen or collect problem assets, and the severity of the classified assets. For example, a bank with assets that are classified as doubtful and loss would be in more serious trouble than one with a similar amount of problem assets in the substandard category. Additional considerations are the stability of funding sources and the bank's access to new capital.

Overdue interest. In order to avoid the overstatement of income and ensure timely recognition of nonperforming assets, bank policies should require appropriate action on uncollected interest. Two basic methods exist for handling both the suspension and nonaccrual of interest. First, in cases where the interest is suspended, it is accrued or capitalized and an

offsetting accounting entry is made for a category called “interest in suspense.” For reporting purposes the two entries must be netted, otherwise the assets will be inflated.

Second, when a bank places a loan in nonaccrual status, it should reverse uncollected interest against corresponding income and balance sheet accounts. For interest accrued in the current accounting period, the deduction should be made directly from current interest income. For prior accounting periods, a bank should charge the reserve for possible loan losses or, if accrued interest provisions have not been provided, the charge should be expensed against current earnings. A nonaccruing loan is normally restored to accruing status after both arrears principal and interest have been repaid or when prospects for future contractual payments are no longer in doubt.

In some jurisdictions, a bank may avoid taking action on interest in arrears if the obligation is well-secured or the process of collection is underway. A debt is considered to be well-secured if it is backed by collateral in the form of liens on or pledges of real or personal property. Such collateral, including securities, must have a realizable value that is sufficient to discharge the debt in full according to contract terms or a financially responsible party. A debt is “in the process of collection” if collection is proceeding in due course, either through legal action or through collection efforts that are expected to result in repayment of the debt or in its restoration to current status.

7.9 Loan Loss Provisioning Policy

Asset classification provides a basis for determining an adequate level of provisions for possible loan losses. Such provisions, together with general loss reserves that are normally counted as tier 2 capital and are not assigned to specific assets, form the basis for establishing a bank’s capacity to absorb losses. In determining an adequate reserve, all significant factors that affect the collectibility of the loan portfolio should be considered. These factors include the quality of credit policies and procedures, prior loss experiences, loan growth, quality of management in the lending area, loan collection and recovery practices, changes in national and local economic and business conditions, and general economic trends.

Assessments of asset value should be performed systematically, consistently over time, and in conformity with objective criteria. They should also be supported by adequate documentation.

Policies on loan-loss provisioning range from mandated to discretionary, depending on the banking system. The tax treatment of provisions also varies considerably from country to country, although many economists believe that provisions should be treated as business expenses for tax purposes. Tax considerations should not, however, influence prudent risk management policies. In some highly developed countries, it is left to the banks to determine the prudent level of provisions. While some merit exists in estimating loss potential on a case-by-case basis, particularly for large borrowers, it may be more practical to assign a level of required provisions based on each classification category. In many countries, in particular those with fragile economies, regulators have established mandatory levels of provisions which are related to asset classification.

The established level of mandatory provisions is normally determined by certain statistics. In countries where the legal framework for debt recovery is highly developed, such as the United States, studies have demonstrated that approximately 10 percent of substandard assets eventually deteriorate into loss. The percentages for doubtful and loss classifications are approximately 50 percent and 100 percent, respectively. In developing countries where the legal frameworks and traditions for debt collection may be less effective, provisions in the range of 20 to 25 percent of substandard assets may be a more realistic estimate of loss potential. Table 7.3 can be used as a guide to the level of provisions in countries with less-developed legal frameworks.

TABLE 7.3 RECOMMENDED PROVISIONS

<i>Classification</i>	<i>Recommended Provisions</i>	<i>Qualification</i>
Pass	1–2 percent	(Tier 2) General loss reserve, if disclosed
Watch	5–10 percent	Specific provision
Substandard	10–30 percent	Specific provision
Doubtful	50–75 percent	Specific provision
Loss	100 percent	Specific provision

Two approaches exist for dealing with loss assets. One is to retain loss assets on the books until all remedies for collection have been exhausted. This is typical for banking systems based on the British tradition; in such a case, the level of loss reserve may appear unusually large. The second approach requires that all loss assets be promptly written off against the reserve, i.e., removed from the books. This approach is typical of the U.S. tradition and is more conservative in that loss assets are considered to be nonbankable but not necessarily nonrecoverable. By immediately writing off loss assets, the level of the reserve will appear smaller in relation to the outstanding loan portfolio. In evaluating the level of provisions established by a bank, an analyst must clearly understand whether the bank is aggressively writing off its losses or is simply providing for them. The approach used in a particular country often depends on the taxation applied to provisions by the fiscal authorities.

Estimates of the level of necessary loan loss provisions necessarily include a degree of subjectivity. However, management discretion should be exercised in accordance with established policies and procedures. An analysis of adequacy of the overall allowance for losses should include the following aspects:

- A survey of the bank's existing provisioning policy and the methodology used to carry it out. In particular, the value attributed to collateral and its legal/operational enforceability should be considered.
- An overview of asset classification procedures and the review process, including the time allotted for review.
- Any current factors that are likely to cause losses associated with a bank's portfolio and that differ from the historical experience of loss. These may include changes in a bank's economic and business conditions or in its clients, external factors, or alterations of bank procedures since the last review.
- A trend analysis over a longer period of time, which serves to highlight any increases in overdue loans and the impact of such increases.
- An opinion of the adequacy of the current policy and, on the basis of the loans reviewed, extrapolation of additional provisions necessary to bring the bank's total loan-loss provisions to a level in line with International Accounting Standards (IAS).

CHAPTER 8

LIQUIDITY RISK MANAGEMENT

KEY MESSAGES

Liquidity management is a key banking function and an integral part of the asset liability management process.

Most banking activity depends on a bank's ability to provide liquidity to its customers. Most financial transactions or commitments have implications for a bank's liquidity.

Banks are particularly vulnerable to liquidity problems, on an institution-specific level and from a systemic/market viewpoint.

The source of deposits (who supplies the funding) adds to the volatility of funds, as some creditors are more sensitive to market and credit events than others. Diversification of funding sources and maturities enables a bank to avoid the vulnerability associated with the concentration of funding from a single source.

Bank liquidity management policies should comprise a risk management (decisionmaking) structure, a liquidity management and funding strategy, a set of limits to liquidity risk exposures, and a set of procedures for liquidity planning under alternative scenarios, including crisis situations.

8.1 Introduction: The Need for Liquidity

Liquidity is necessary for banks to compensate for expected and unexpected balance sheet fluctuations and to provide funds for growth. It represents a bank's ability to efficiently accommodate the redemption of

deposits and other liabilities and to cover funding increases in the loan and investment portfolio. A bank has adequate liquidity potential when it can obtain needed funds (by increasing liabilities, securitizing, or selling assets) promptly and at a reasonable cost. The price of liquidity is a function of market conditions and the market's perception of the inherent riskiness of the borrowing institution.

Liquidity risk management lies at the heart of confidence in the banking system, as commercial banks are highly leveraged institutions with a ratio of assets to core (Tier 1) capital in the region of 20:1. The importance of liquidity transcends the individual institution, because a liquidity shortfall at a single institution can have systemwide repercussions. It is in the nature of a bank to transform the term of its liabilities to different maturities on the asset side of the balance sheet. Since the yield curve is typically upward sloping the maturity of assets generally tends to be longer than that of liabilities. The actual inflow and outflow of funds do not necessarily reflect contractual maturities, and yet banks must be able to meet certain commitments (such as deposits) whenever they come due. A bank may therefore experience liquidity mismatches, making its liquidity policies and liquidity risk management key factors in its business strategy.

Liquidity risk management therefore addresses market liquidity rather than statutory liquidity. The implication of liquidity risk is that a bank may have insufficient funds on hand to meet its obligations. (A bank's net funding includes its maturing assets, existing liabilities, and standby facilities with other institutions. It would sell its marketable assets in the stable liquidity investment portfolio [see Chapter 10] to meet liquidity requirements only as a last resort.) Liquidity risks are normally managed by a bank's asset-liability management committee (ALCO), which must therefore have a thorough understanding of the interrelationship between liquidity and other market and credit risk exposures on the balance sheet.

This chapter focuses on the management of expected cash flows. Understanding the context of liquidity risk management involves examining a bank's approach to funding and liquidity planning under alternative scenarios. As a result of the increasing depth of interbank (money) markets, a fundamental shift has taken place in the attitude that the authorities have toward prudent liquidity management. Supervisory authorities now tend to concentrate on the maturity structure of a bank's assets and liabil-

ities rather than solely on its statutory liquid asset requirements. They do this using maturity ladders for liabilities and assets during specific periods (or time bands), a process that represents a move from the calculation of contractual cash outflows to the calculation of expected liquidity flows.

8.2 Liquidity Management Policies

In day-to-day operations, the management of liquidity is typically achieved through the management of a bank's assets. In the medium term, liquidity is also addressed through management of the structure of a bank's liabilities. The level of liquidity deemed adequate for one bank may be insufficient for another. A particular bank's liquidity position may also vary from adequate to inadequate according to the anticipated need for funds at any given time. Judgment of the adequacy of a liquidity position requires analysis of a bank's historical funding requirements, its current liquidity position and its anticipated future funding needs, the options it has for reducing funding needs or attracting additional funds, and the source of funding.

The amount of liquid or of readily marketable assets that a bank should hold depends on the stability of its deposit structure and the potential for rapid loan portfolio expansion. Generally, if deposits are composed primarily of small, stable accounts, a bank will need relatively low liquidity. A much higher liquidity position normally is required when a substantial portion of the loan portfolio consists of large long-term loans, when a bank has a somewhat high concentration of deposits, or when recent trends show reductions of large corporate or household deposit accounts. Situations also can arise in which a bank should increase its liquidity position; for example, when large commitments have been made on the asset side and the bank expects the client to start utilization.

The liquidity management policies of a bank normally comprise a decision-making structure, an approach to funding and liquidity operations, a set of limits to liquidity risk exposure, and a set of procedures for liquidity planning under alternative scenarios, including crisis situations. The decisionmaking structure reflects the importance generally that management places on liquidity: banks that stress the importance of liquidity normally institutionalize the structure for liquidity risk management in the

ALCO and assign ultimate responsibility for setting policy and reviewing liquidity decisions to the bank's highest management level. The bank's strategy for funding and liquidity operations, which should be approved by the board, sets specific policies on particular aspects of risk management, such as the target liabilities structure, the use of certain financial instruments, or the pricing of deposits.

Liquidity needs usually are determined by the construction of a maturity ladder that comprises expected cash inflows and outflows over a series of specified time bands. The difference between the inflows and outflows in each period (i.e., the excess or deficit of funds) provides a starting point from which to measure a bank's future liquidity excess or shortfall at any given time. Once its liquidity needs have been determined, a bank must decide how to fulfill them. Liquidity management is related to a net funding requirement; in principle, a bank may increase its liquidity through asset management, liability management, or (and most frequently) a combination of both. In practice, a bank may meet its liquidity needs by disposing of highly liquid trading portfolio assets or assets that are nearly liquid; or by selling less-liquid assets such as excess property or other investments. On the liabilities side, this can be achieved by increasing short-term borrowings and/or short-term deposit liabilities, by increasing the maturity of liabilities, and ultimately by increasing capital.

Banks traditionally have met their liquidity needs by manipulating their asset structure. Many banks, particularly smaller ones, tend to have little influence over the total size of their liabilities. Their liquid assets enable such banks to provide funds to accommodate fluctuations in deposit levels and to satisfy increases in loan demand. Banks that rely solely on asset management to maintain liquidity in the face of shifts in customer asset and liability preferences concentrate on adjusting the price and availability of credit and the level of liquid assets that they hold.

Asset liquidity, or how "salable" the bank's assets are in terms of both time and cost, is central to asset-liability management. To maximize profitability, bank management must weigh the full return on liquid assets (yield plus insurance value) against the higher return associated with less-liquid assets. In most cases, liquid assets normally are maintained only as a liquidity buffer that banks can use should they encounter funding prob-

lems and depositors have to be refunded. Banks otherwise prefer to invest in assets with higher yields. Income derived from higher-yield assets nonetheless may be offset by a forced sale, which may in turn become necessary due to adverse balance sheet fluctuations.

The number of banks that rely solely on manipulation of the asset structure to meet liquidity needs is declining rapidly, as the interbank (money) markets develop. Seasonal, cyclical, or other factors often can cause aggregate outstanding loans and deposits to move in opposite directions, resulting in a loan demand that exceeds available deposit funds. A bank that relies on asset management should restrict loan growth to a level that can be supported by available deposit funds. As an alternative, liquidity needs may be met through liability sources such as money markets. Liability management may both supplement asset liquidity and serve as an alternative source of liquidity when assets are available.

Another challenge for liquidity management is contingent liabilities, such as letters of credit or financial guarantees. These represent potentially significant cash outflows that are not dependent on a bank's financial condition. While outflows in normal circumstances typically may be low, a general macroeconomic or market crisis can trigger a substantial increase in cash outflows because of the increase in defaults and bankruptcies in the enterprise sector that normally accompanies such events. These crises are normally characterized by diminished levels of market liquidity, which can further exacerbate funding shortfalls.

Foreign currencies aspects. The existence of multiple currencies also increases the complexity of liquidity management, particularly when the domestic currency is not freely convertible. A bank may have difficulty raising funds or selling assets in foreign currencies in the event of market disturbances or changes in domestic monetary or foreign exchange policies. In principle, a bank should have a management (i.e., measurement, monitoring, and control) system for its liquidity positions in all major currencies in which it is active. In addition to assessing its aggregate liquidity needs, it should also perform a separate analysis of its liquidity strategy for each currency. Key decisions in managing liquidity in individual foreign currencies center on the structure of such management, on who is responsible for liquidity and liquidity risk in each currency, and within what parameters.

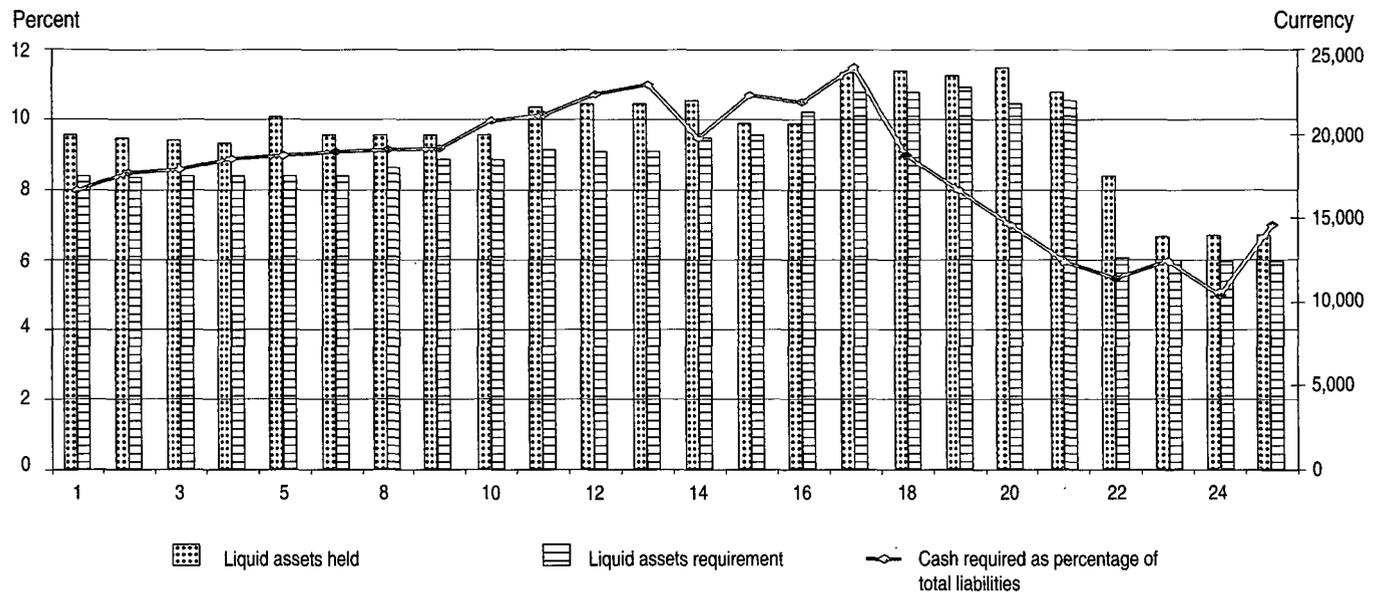
A bank that operates in foreign currencies but does not maintain branch offices abroad typically undertakes the liquidity management of foreign currencies at its headquarters. A typical scheme for a bank with offices abroad is that policy setting and overall coordination and supervision are kept at headquarters, but the responsibility for the bank's liquidity in a major foreign currency is delegated to the branch office in the country issuing that currency. The liquidity strategy for each currency, or exactly how its foreign currency funding needs will be met, should be a central concern of the bank. The bank must also develop a back-up liquidity strategy for circumstances in which its usual approach to liquidity funding is disrupted. Depending on the size of its foreign exchange operations and its portfolio in each currency, the bank may define a back-up liquidity strategy for all currencies or may draw up a separate contingency plan for each.

8.3 The Regulatory Environment

The most significant development in prudential liquidity regulation in the last 15 years has been the assessment of liquidity needs by calculating expected cash flows based on the maturity structure of a bank's assets and liabilities. However, even regulators that have adopted the cash-flow methodology believe that the stock (of liquid assets) approach has an important, if supplementary, role to play and should not be neglected (see Figure 8.1). This stance is based on the perception that the increasingly important role of liquidity management, in addition to being an asset-liability management tool, has significant implications for the stability of the banking system as a whole. Certain crucial premises influence this stability, including the confidence of banks in each other, the confidence of major suppliers of funds in banks, and the existence of normal market conditions.

Trends in the prudential supervision of liquidity, as in other areas of regulation, have tended to lag behind market trends. In addition, less progress has been made in the international coordination and convergence of liquidity regulation than, for example, in the field of capital adequacy. Nevertheless, some important changes have taken place, including the following:

FIGURE 8.1 STATUTORY LIQUIDITY REQUIRED VERSUS ACTUAL LIQUID ASSETS HELD



- a relative decline in the importance of liquid asset requirements as a supervisory tool, in favor of the cash-flow or maturity-profile approach;
- emphasis on the continual need for a stock of stable liquid assets as a supplementary method of controlling risk;
- a shift away from statutory requirements toward a more flexible approach to the setting of guidelines and the monitoring of liquidity;
- greater emphasis on the evaluation of the liquidity of individual banks, rather than an across-the-board approach;
- greater efforts by supervisors to improve bank standards for the information and control systems that are used to manage liquidity;
- incorporation into the regulatory framework of off-balance-sheet products and new methods of asset-liability management.

Most countries now make a clear distinction between instruments of prudential supervision and monetary control. This applies particularly to the holding of specific liquid assets. In recent years, a greater reliance on control of the money supply as a major policy instrument, together with structural changes in the banking environment, has highlighted the incompatibility of and inconsistency between prudential supervision and monetary control. When banks attempt to circumvent the impact of monetary policy instruments such as the cash-reserve requirement, which forms part of the prudential liquid asset requirements (for example, by moving liabilities related to repurchase agreements off the balance sheet), liquidity risk management may be negatively affected.

Banking legislation normally contains specific liquidity requirements that banks must meet. These prudential requirements should not be viewed as the primary method for the management of liquidity risk; the opposite in fact is true. Given the importance of liquidity, a bank with prudent management should establish certain policy guidelines for risk management in addition to determining responsibility for planning and day-to-day fund management. Typical liquidity regulations (or a bank's own liquidity guidelines) are illustrated in Box 8.1.

The approach to supervision is therefore increasingly focused on the independent evaluation of a bank's strategies, policies, and procedures and

BOX 8.1 TYPICAL LIQUIDITY REGULATIONS OR INTERNAL LIQUIDITY GUIDELINES

- A limit on the loan-to-deposit ratio
- A limit on the loan-to-capital ratio
- Guidelines on sources and uses of funds
- Liquidity parameters; for example, that liquid assets should not fall below "X" percent or rise above "Y" percent of total assets
- A percentage limit on the relationship between anticipated funding needs and available resources to meet these needs; for example, that the ratio of primary sources over anticipated needs should not fall below "X" percent
- A percentage limit on reliance on a particular liability category; for example, that negotiable certificates of deposit should not account for more than "X" percent of total liabilities
- Limits on the minimum/maximum average maturity of different categories of liabilities; for example, the average maturity of negotiable certificates of deposit should not be less than "X" months

its practices related to the measurement, monitoring, and control of liquidity risk. The emphasis increasingly is on the management structures necessary to effectively execute a bank's liquidity strategy and on the involvement of senior management in the liquidity risk management process.

8.4 The Structure of Funding: Deposits and Market Borrowing

Deposits. Funding structure is a key aspect of liquidity management. A bank with a stable, large, and diverse deposit base is likely to have fewer liquidity problems than a bank lacking such a deposit base. The assessment of the structure and type of deposit base and evaluation of the condition (i.e., the stability and quality) of the deposits thus is the starting point for liquidity risk assessment. The type of information that is necessary to conduct this assessment includes the following:

- **Product range.** The different types of deposit products available should be noted, along with the number of accounts and the balance raised for each. This information is best presented in a sched-

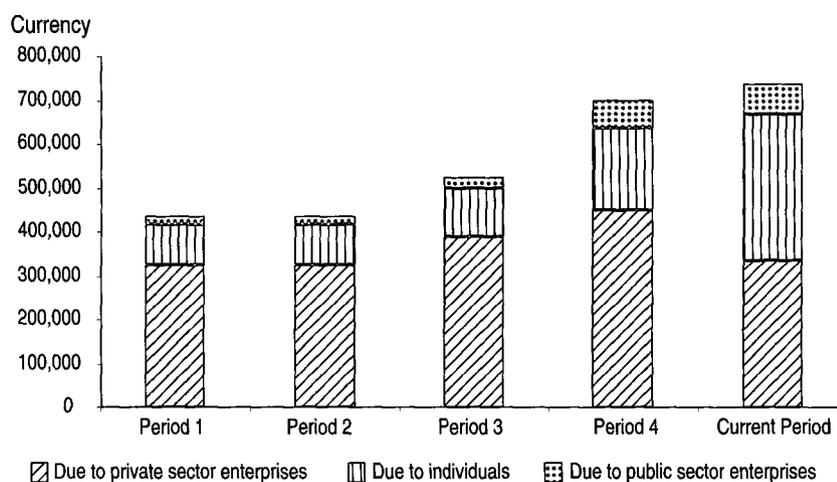
ule that shows the product type, such as savings or checking account, six-month deposit, or deposit with maturity over six months. (Product types are defined in accordance with a bank's own product range.) The nature of the depositor (e.g., corporate or retail) should also be shown, since each type of depositor has a certain behavioral pattern. Breakdowns by terms of deposit, including currency, maturity, and interest rates, should also be included.

- **Deposit concentration**, including itemization for all customers with deposits that aggregate to more than a certain amount of total assets, with term and pricing shown on each.
- **Deposit administration**, including information on the adequacy of the systems that record and control depositor transactions and internal access to customer accounts, as well as on the calculation and form of payment of interest (e.g., average daily or period-end balance).

Because of the competition for funds, most corporations and individuals seek to minimize their idle funds and the effect of disintermediation on a bank's deposit base. A bank's management therefore typically will adopt and pursue a development and retention program for all types of deposits. In addition to deposit growth, management also must look at the quality of the deposit structure to determine what percentage of the overall deposit structure is based on stable or hard-core deposits, fluctuating or seasonal deposits, and volatile deposits. This step is necessary if funds are to be invested with a proper understanding of anticipated and potential withdrawals. Figure 8.2 illustrates the source of deposits (i.e., from whom they have been received, including households and public and private sector enterprises) for the particular bank under observation. Deposit management is a function of a number of variables, some of which are not under the direct control of bank management.

Financial market borrowings. Another key ingredient of a liquidity profile is a bank's ability to obtain additional liabilities (also known as its liquidity potential). The marginal cost of liquidity (i.e., the cost of incremental funds acquired) is of paramount importance in evaluating the sources of liquidity. Consideration must be given to such factors as the frequency with which a bank needs to refinance maturing purchased liabilities

FIGURE 8.2 CUSTOMER DEPOSITS BY SECTOR



and its ability to obtain funds through the money market. For a bank that operates frequently in short-term money markets, the crucial determinant of the ability to borrow new funds is its standing in the market.

The obvious difficulty of estimating the ability to borrow is that until a bank enters a market, the availability of funds at a price that will give a positive yield spread cannot be determined with certainty. Changes in money market conditions may cause a bank's capacity to borrow at a profitable rate to decline rapidly. In times of uncertainty, large investors and depositors tend to be reluctant to trade with small banks because they are regarded as risky. The same pattern may also apply to larger banks if their solvency comes into question.

8.5 Maturity Structure and Funding Mismatches

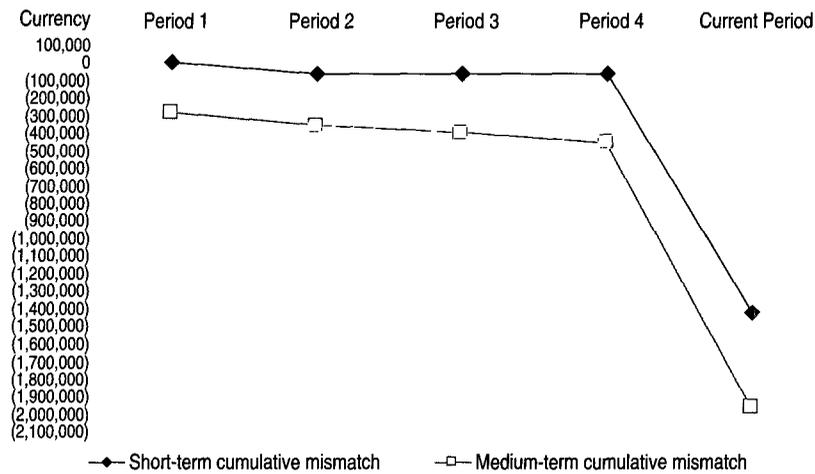
Maturity mismatches are an intrinsic feature of banking, including the short-term liability financing of medium-term and long-term lending. The crucial question is not whether mismatching occurs — because it always does — but to what extent, and whether this situation is reasonable or potentially unsound. Put another way, one can ask how long, given its cur-

rent maturity structure, a bank could survive if it met with a funding crisis, and what amount of time would be available to take action before the bank became unable to meet its commitments. These questions should be asked by banks, regulators, and, ultimately, policymakers. This aspect of liquidity risk management also implies that access to the central bank, as the lender of last resort, should be available only to solvent banks that have temporary liquidity problems.

Figure 8.3 provides a view of a bank's maturity ladder. The trend toward a short-term mismatch is reviewed over time to determine whether or not the mismatches are increasing. An increased mismatch could be due to problems in obtaining long-term funding for the bank or could reflect a deliberate decision based on the bank's view of future interest rate movements. For example, banks tend to increase their short-term mismatches if they expect interest rates to fall.

The focus of such an analysis is not only the size of the mismatch but also its trends over time, as these could indicate if the bank has a potential funding problem. When reviewing the short-term mismatch as a percentage of total liabilities, an analyst will need to determine the proportion of the total funding that has to be renewed on a short-term basis. Liquid

FIGURE 8.3 MATURITY MISMATCH



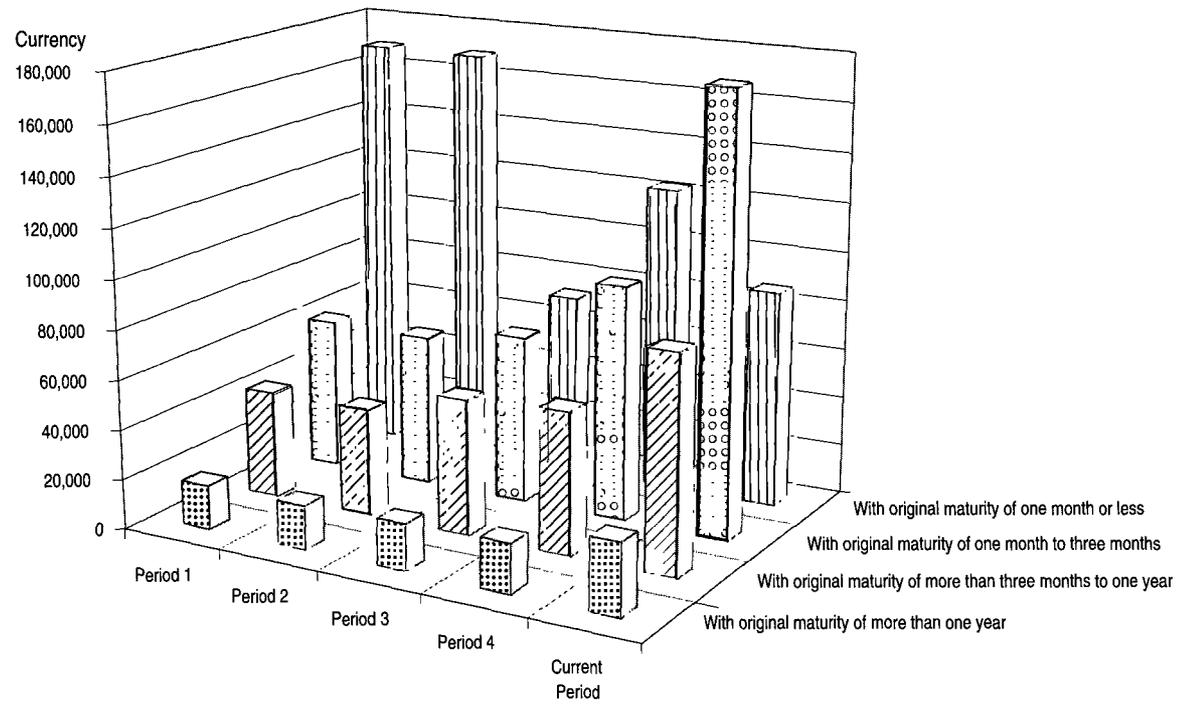
assets actually held can then be compared to the value of the short-term mismatch, to assess how much of the latter is in fact covered by a buffer stock of high-quality liquid assets. In addition, other readily marketable securities should be considered.

The contractual maturity-term structure of deposits over time can be used to ascertain if a funding structure is changing. If it is, the analyst should determine whether the bank is experiencing funding shortages or is deliberately changing its funding structure. Figure 8.4 provides a trend analysis of the maturity profile of the deposit base. This analysis can be used to evaluate whether a bank's policy change is of a permanent or erratic nature, as well as to assess the regularity of funding problems (i.e., the amount of funding that has to be renegotiated contractually on a short-term basis).

While it is apparent that the maturity structure of deposits for the observed bank has changed, the reasons are not straightforward or easy to determine. For example, in volatile economies characterized by high inflation and in countries where the public lacks confidence in the banking system, the maturity of deposits tends to be much shorter than in stable economies. The shortening of maturities could have been triggered by the worsening of the observed bank's economic environment. At the same time, it is apparent that the bank's source of deposits changed during the period, with individual household deposits (see Figure 8.2) as a percentage of total deposits increasing, and private enterprise deposits decreasing. The change in average maturity could therefore be at least partly attributed to changes in funding sources.

Once the contractual mismatch has been calculated, it is important to determine the expected cash flow that can be produced by the bank's asset-liability management model. Neither the contractual nor the expected mismatch will be accurate, but both will indicate the amount of funding that a bank might be required to obtain from nonclient sources. The sources available to banks could include the central bank's liquidity support facilities (geared toward liquid assets held by the individual banks) and money market funding. The amount remaining for utilization of central bank facilities indicates the size of the expected money market shortage. This critical variable is used by the money market committees of central banks to determine the monetary policy options that are available to them for market interventions.

FIGURE 8.4 MATURITIES OF DEPOSITS PAYABLE IN LOCAL CURRENCY



An additional aspect that should also be assessed is the potential impact of credit risk on liquidity. Should large exposures or excessive sector risk materialize, there could be significant consequences for liquidity. The type of credit risk exposure, especially sector concentration, should be considered and specifically evaluated. For example, many banks in the United States have become insolvent due to poor real estate and oil sector lending practices.

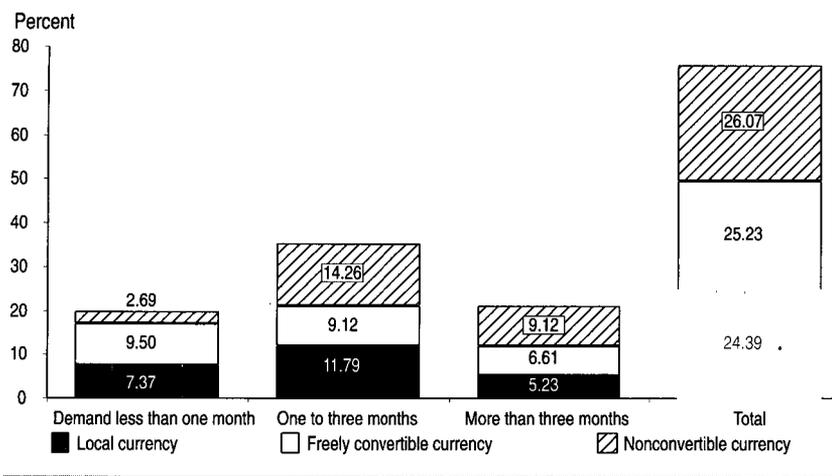
8.6 Deposit Concentration and Volatility of Funding

Another critical aspect of liquidity risk management is dependence on a single source of funding (also known as concentration risk). If a bank has a few large depositors and one or more withdraw their funds, enormous problems will occur if alternative sources of funding cannot quickly be found. Most banks therefore monitor their funding mix and the concentration of depositors very closely, to prevent excessive dependence on any particular source. The sensitivity of banks to large withdrawals in an uncertain environment cannot be overemphasized. Regulators increasingly are focusing on mismatches in liquidity flows and on the ability of banks to fund such mismatches on an ongoing basis, rather than on statutory liquid assets and traditional access to the central bank.

An appraisal of a bank therefore must give adequate attention to the mix between wholesale and retail funding and, in connection to this, to the exposure to large depositors and whether or not an undue reliance on individual sources of funds exists. Figure 8.5 illustrates an assessment of concentration in the bank under observation. The aim of such an assessment is to establish if the bank is exposed to a creditor large enough to cause a liquidity crisis if it were to withdraw its funding.

By calculating the percentage of the short-term mismatch that large deposits represent, an analyst can obtain a picture of the sensitivity of the bank or of the banking sector as a whole to withdrawals by large suppliers of funds. The proportion of wholesale funding to retail funding is another means of measuring sensitivity to large depositors. Overall, the increasing volatility of funding is indicative of the changes in the structure and sources of funding that the banking sector is undergoing.

FIGURE 8.5 TEN LARGEST SOURCES OF DEPOSITS AS PERCENTAGE OF TOTAL CUSTOMER DEPOSITS



To assess the general volatility of funding, a bank usually classifies its liabilities as those that are likely to stay with the bank under any circumstances — for example, enterprise transaction accounts — and those that can be expected to pull out if problems arise. The key issues to be determined for the latter are their price sensitivity, the rate at which they would pull out, and which liabilities could be expected to pull out at the first sign of trouble.

8.7 Liquidity Risk Management Techniques

The framework for liquidity risk management has three aspects: measuring and managing net funding requirements, market access, and contingency planning.

Forecasting possible future events is an essential part of liquidity planning and risk management. The analysis of net funding requirements involves the construction of a maturity ladder and the calculation of the cumulative net excess or deficit of funds on selected dates. Banks should regularly estimate their expected cash flows instead of focusing only on the contractual periods during which cash may flow in or out. For exam-

ple, cash outflows can be ranked by the date on which liabilities fall due, by the earliest date a liability holder can exercise an early repayment option, or by the earliest date that contingencies can be called.

An evaluation of whether or not a bank is sufficiently liquid depends on the behavior of cash flows under different conditions. Liquidity risk management must therefore involve various scenarios. The “going-concern” scenario has established a benchmark for balance sheet–related cash flows during the normal course of business. This scenario is ordinarily applied to the management of a bank’s use of deposits. A second scenario relates to a bank’s liquidity in a crisis situation when a significant part of its liabilities cannot be rolled over or replaced — implying contraction of the bank’s balance sheet. This scenario relates to many existing liquidity regulations or supervisory liquidity measures.

A third scenario refers to general market crises, wherein liquidity is affected in the entire banking system, or at least in a significant part of it. Liquidity management under this scenario is predicated on credit quality, with significant differences in funding access existing among banks. From the perspective of liquidity management, an implicit assumption can be made that the central bank will ensure access to funding in some form. The central bank in fact has a vested interest in studying this scenario because of the need it would create for a total liquidity buffer for the banking sector, and for a workable means of spreading the burden of liquidity problems among the major banks.

Table 8.1 provides a simple forecasting tool for liquidity needs under normal business conditions, under conditions of liquidity crisis, and under conditions of general market crisis. Projections for a bank’s liquidity in a crisis situation should start to be derived systematically and rigorously as soon as the bank foresees persistent liquidity shortfalls or experiences difficulties rolling over or replacing its liabilities. Projections of liquidity during a market crisis should start to be derived at the first indication that the macroeconomic situation is changing, or that assumptions regarding the behavior of the bank’s assets or liabilities under normal business conditions are not holding. A bank may preempt a potential crisis by deliberately changing the behavior of its assets or liabilities; for example, by becoming more aggressive in the market, by forgoing expected profits, or by severing its relationships with certain types of borrowers.

TABLE 8.1 MATURITY LADDER UNDER ALTERNATIVE SCENARIOS

<i>Cash Inflows</i>	<i>Normal Business Conditions</i>	<i>Bank-Specific Crisis</i>	<i>General Market Crisis</i>
Maturing assets (contractual)			
Interest receivable			
Asset sales			
Drawdowns			
Others (specify)			
Total inflows			
Cash inflows			
Maturing liabilities (contractual)			
Interest payable			
Disbursements on lending commitments			
Early deposit withdrawals			
Operating expenses			
Others (specify)			
Total outflows			
Liquidity excess (shortfall)			

Diversified liabilities and funding sources usually indicate that a bank has well-developed liquidity management. The ability to readily convert assets into cash and access to other sources of funding in the event of a liquidity shortage also are very important. For example, to bridge short-term fluctuations and to prevent problems from occurring, banks may ensure that lines of credit or funding are available through other financial institutions. The level of diversification can be judged according to instrument types, the type of fund provider, and geographical markets.

In practice, however, it may be difficult to obtain funding when a dire need for it exists. Certain unusual situations also may have an impact on liquidity risk, including internal or external political upheavals (which can cause large withdrawals), seasonal effects, increased market activity, sectoral problems, and economic cycles.

Management must evaluate the likely effect of these trends and events on funding requirements. All banks are influenced by economic changes, but sound financial management can buffer the negative changes and accentuate the positive ones. Management must also have contingency plans in case its projections prove to be wrong. Effective

planning involves the identification of minimum and maximum liquidity needs and the weighing of alternative courses of action to meet those needs.

Large banks normally expect to derive liquidity from both sides of the balance sheet, and maintain an active presence in interbank and other wholesale markets. They look to these markets as a source for the discretionary acquisition of short-term funds on the basis of interest rate competition, a process that can help them meet their liquidity needs. Conceptually, the availability of asset and liability options should result in a lower cost for liquidity maintenance. The costs of available discretionary liabilities can be compared to the opportunity cost of selling various assets, since banks also hold a range of short-term assets that can be sold if necessary. These assets also serve as reassurance to the potential suppliers of funds, thus enhancing a bank's ability to borrow.

The major difference between liquidity in larger and smaller banks is that, in addition to deliberately determining the asset side of the balance sheet, larger banks are better able to control the level and composition of their liabilities. They therefore have a wider variety of options from which to select the least costly method of generating required funds. Discretionary access to the money market also reduces the size of the liquid asset buffer that would be needed if banks were solely dependent upon asset management to obtain funds.

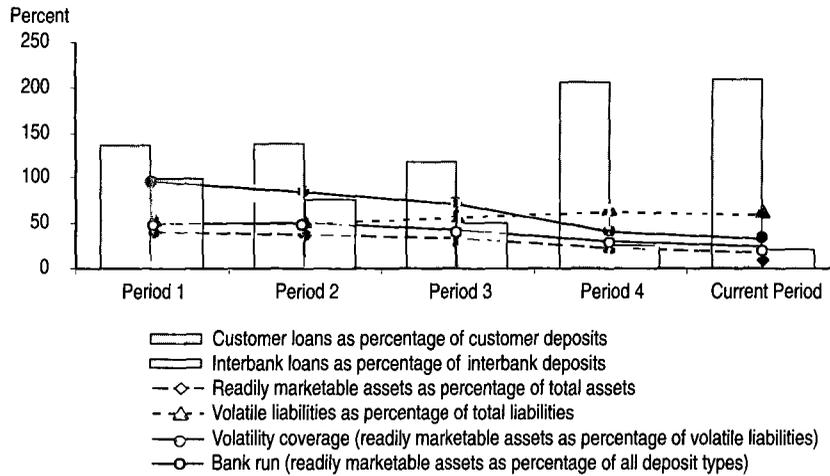
When large volumes of retail deposits and lending are at stake, outflows of funds should be assessed on the basis of probability, with past experience serving as a guide. Banks with large volumes of wholesale funds can also manage liquidity through maturity matching. This means that an appropriate degree of correspondence between asset and liability maturities must be sought, but not that an exact matching of all assets and liabilities is necessary.

Table 8.2 and Figure 8.6 illustrate the liquidity management of a bank and how the bank's liquidity position has deteriorated over time. The percentage of loans funded from the bank's own sources has steadily decreased. In contrast, the percentage of volatile liabilities has increased, and volatility coverage has become significantly worse. Unfortunately, simple graphs such as that in Figure 8.6 cannot tell the whole story. The assessment of bank liquidity, whether by banks themselves, by their super-

TABLE 8.2 LIQUIDITY RATIOS
(PERCENT)

<i>Liquidity</i>	<i>Period 1</i>	<i>Period 2</i>	<i>Period 3</i>	<i>Period 4</i>	<i>Current Period</i>	<i>Benchmark</i>
Readily marketable assets as percentage of total assets	40.43	37.18	33.38	21.56	17.13	
Volatile liabilities as percentage of total liabilities	50.13	49.19	55.95	62.13	58.79	
Volatility coverage (readily marketable assets as percentage of volatile liabilities)	95.84	84.69	70.04	40.82	33.01	
Bank run (readily marketable assets as percentage of all deposit-type liabilities)	48.06	47.96	40.60	27.95	21.99	
Customer loans to customer deposits	136.57	138.65	117.20	205.46	208.76	
Interbank loans as percentage of interbank deposits	98.95	76.17	50.51	25.87	20.58	
Net loans and investments as percentage of total deposits	119.45	129.25	111.44	119.19	118.86	
Demand deposits as percentage of customers deposits	7.98	5.98	17.10	16.91	12.18	
Deposits with maturities longer than three months as percentage of customer deposits	30.78	23.09	22.18	19.83	19.72	
Less than 90 days deposits as percentage of customer deposits	59.77	44.84	27.00	44.89	33.88	
Certificates of deposit as percentage of customer deposits	1.47	11.28	11.41	14.21	14.25	
Ten largest deposits as percentage of customer deposits	87.92	65.96	35.33	30.50	26.68	

FIGURE 8.6 LIQUIDITY STATISTICS



visors, or by outside analysts, is a complex process that cannot be reduced to any single technique or set of formulae.

In reality, a bank's position and reputation within the financial community influence its liquidity management options. This connection is based on many factors, the most crucial of which is the bank's past and prospective profitability. Properly understood, a maturity profile can be a useful indicator of a bank's position and may yield important information, for example when a sudden increase in maturity mismatches occurs. However, maturity profiles should be analyzed in conjunction with information about the bank's off-balance-sheet business, management objectives, and systems of control. Some banks are better positioned than others to quickly alter the maturity pattern of their balance sheet.

Although the acquisition of funds in a market at a competitive cost enables profitable banks to meet the expanding customer demand for loans, the misuse or improper implementation of liability management can have severe consequences. The following risks are associated with the practice of market funding-based liquidity management:

- Purchased funds may not always be available when needed. If the market loses confidence in a bank, the bank's liquidity may be threatened.
- Over-reliance on liability management may cause a tendency to minimize the holding of short-term securities and to relax asset liquidity standards, and may result in a large concentration of short-term liabilities that support assets with longer maturities. During times of tight money, this tendency could squeeze earnings and give rise to illiquid conditions.
- Due to rate competition in the money market, a bank may incur relatively high costs when obtaining funds, and may be tempted to lower its credit standards to invest in high-yield loans and securities.
- If a bank purchases liabilities to support assets that are already on its books, the high cost of purchased funds may result in a negative yield spread.
- When national monetary tightness occurs, interest rate discrimination may develop, making the cost of purchased funds prohibitive to all but a limited number of large banks. Small banks with restricted funding should therefore avoid taking excessive loans from money market sources.
- Preoccupation with obtaining funds at the lowest possible cost and with insufficient regard to maturity distribution can greatly intensify a bank's exposure to the risk of interest rate fluctuations.

CHAPTER 9

TREASURY ORGANIZATION AND RISK MANAGEMENT

KEY MESSAGES

The treasury function is normally divided into a market operations unit, a risk analytics and compliance unit, and a treasury operations unit.

Allocation of tasks between the units may differ from bank to bank, but risk management *principles* for the various functions do not change.

Compliance with laws, regulations, policies, and guidelines is paramount, as it is the culture of compliance that determines the environment within which trading decisions are made.

The objective of risk management is to provide an independent measurement and monitoring of the market and other risks being undertaken across various treasury businesses.

Operational risk management has become increasingly complex, with the risk considered to be greatest when manual interventions take place.

Treasury risk management requires clear reporting, with parameters (metrics) linked to the control of risks arising from trading and other treasury processes.

9.1 Introduction: Overview of Treasury Functions

This chapter deals with the treasury policy and risk management environment. It should be read in the context of the risk management discussions covered in Chapters 7 through 13.

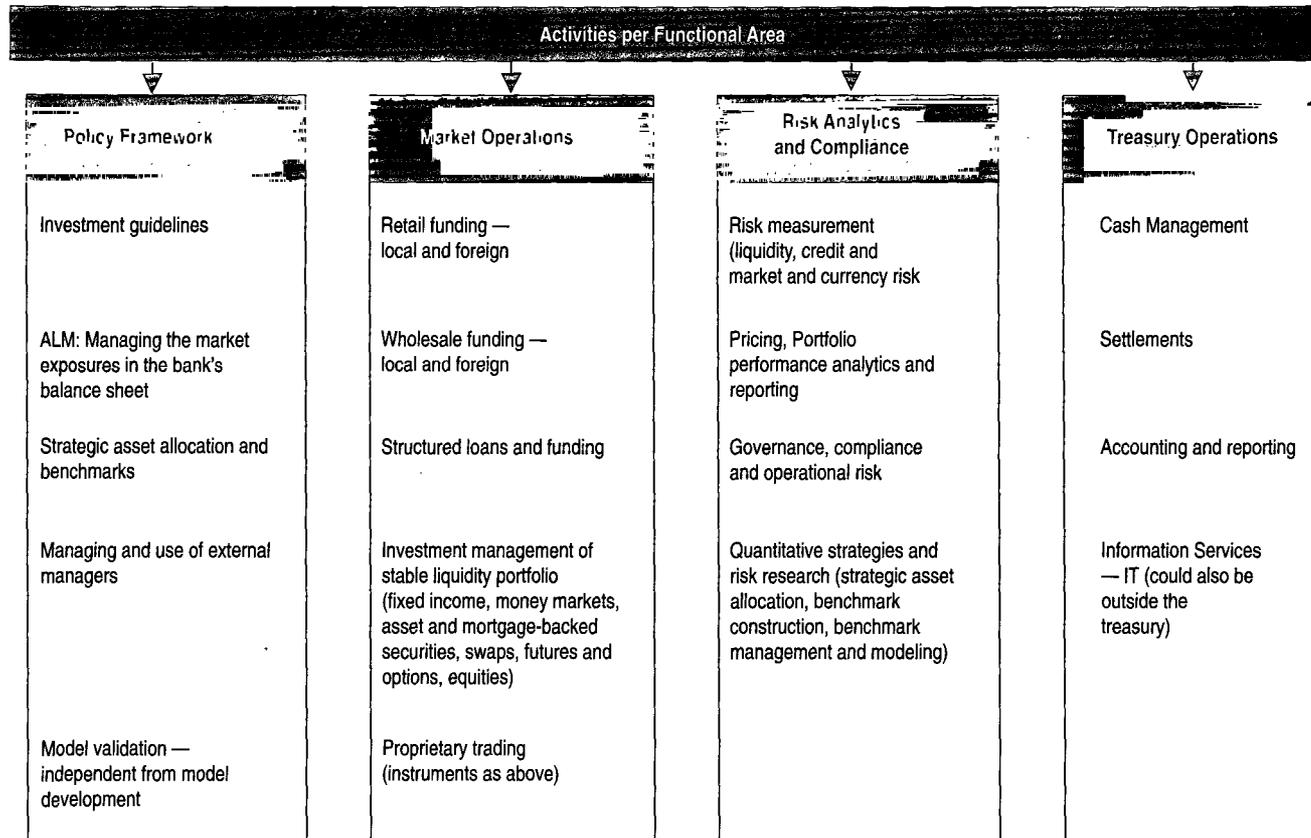
Figure 9.1 provides an overview of the key functions typically performed by a bank's treasury. The precise internal organization of the treas-

ury typically is determined by the individual bank's management, as is the question of whether some tasks be further subdivided (for example, funding often is split into local and foreign funding and will normally be separated from investment activities; asset-liability management, in contrast, sometimes is a stand-alone function).

Once the bank analyst understands the organizational structure, it is important next to understand the objectives, processes, and risk management of each functional area (see Section 9.6). An overview of the following functions and activities of the treasury is provided:

- Establishing the overall policy framework
 - General policy directives
 - ALM: asset-liability management
 - Strategic asset allocation
 - Benchmarking
 - Use of external managers
 - Model validation
- Market operation activities (funding and investment of expected shortfalls and surpluses) — *often called the front office*
 - Treasury funding of the bank
 - Investment and cash flow management
- Risk analytics and compliance — *also referred to as the middle office*
 - Risk measurement (liquidity, counterparty/credit, market, and currency risk)
 - Performance measurement, analysis, and reporting
 - Compliance
 - Quantitative strategies and risk research (model development, benchmark construction, etc.)
- Treasury operations — *sometimes referred to as the back office*
 - Cash management
 - Correspondent bank accounts (banking relations)
 - Settlements
 - Accounting
 - Information services (IT)

FIGURE 9.1 HOLISTIC VIEW OF THE TREASURY ENVIRONMENT



9.2 Establishing the Overall Policy Framework

General policy directives. Prior to the commencement of any funding, market operations, or risk management activities, senior management decides on policies governing the various treasury functions.

Typically it is the board of directors or a delegated senior committee that specifies the types of funding and investments in which a bank might engage. The authorization thus issued normally would include a list of eligible instruments and their derivatives and would specify rules pertaining to allowable counterparties, currencies, and maturity structures. These policy directives may also specify the principles underlying the asset-liability management of the balance sheet. If bank management is allowed to use external asset management firms for the purpose of managing its investments, the general policy directives furthermore would provide explicit authority for this.

Responsibility for the establishment and maintenance of a control framework (risk management framework) and the list of officers authorized to transact on behalf of the bank normally is specified in internal guidelines. These operational guidelines may be approved at a treasury or investment policy committee level in contrast with corporate policy, which should be approved by the board of directors.

As financial markets are subject to constant change, it is imperative that policy guidelines be reviewed on a regular basis.

ALM: Asset-liability management. Asset-liability management — the management of the overall balance sheet — comprises the strategic planning and implementation and the control processes that affect the volume, mix, maturity, interest rate sensitivity, quality, and liquidity of a bank's assets and liabilities. These key elements are highly interdependent.

ALM, with a focus on interest-rate risk, is discussed in Chapter 12. Liquidity management and its associated risks have been discussed in Chapter 8, and currency risk management in Chapter 13.

The central objective of this process — to stabilize and maximize the spread between interest paid to raise funds and interest earned on the bank's assets, and at the same time to ensure adequate liquidity and to constrain risk to acceptable levels — is as old as banking business itself. The

BOX 9.1 ALM MISSION STATEMENT

In managing the Bank's balance sheet, our objective is to ensure that the currency, interest rate, and maturity characteristics of the Bank's liabilities and assets are well-aligned, so that the Bank is not exposed to material currency, interest rate, or maturity mismatch risks.

We aim to ensure adequate funding for each product at the most attractive cost, and to manage the currency composition, maturity profile, and interest rate sensitivity characteristics of the portfolio of liabilities supporting each lending product in accordance with the particular requirements for that product and within prescribed risk parameters.

We shall achieve our objectives through implementation of an asset and liability management (ALM) framework leading to a portfolio-wide assessment and monitoring of balance sheet risks. This framework will enable us to advance broader balance sheet risk management issues such as:

- upgrading the Bank's approach to management of its equity, income immunization techniques, and loan portfolio credit risk management*
- consolidating the portfolio-wide approach to hedging and managing the balance sheet risks so as to exploit transaction netting opportunities and reduce transaction costs*
- executing and implementing currency and interest rate swap transactions as needed to manage all aspects of the Bank's balance sheet risks*

—World Bank Treasury ALM Group

practices, norms, and techniques of asset-liability management have, however, changed substantially in recent years, with many commercial banks using the ALM process to take risk in order to enhance income. Moreover, given the complexity and volatility of modern financial markets, the need for good asset-liability management has significantly increased. Adoption of a formal approach to asset-liability management is therefore a prerequisite for an integrated approach to managing the risks associated with balance sheet and off-balance-sheet items.

The operational aspects of asset-liability management center around the structuring of a bank's balance sheet such that the bank can maintain

an adequate liquidity and risk profile throughout an interest rate cycle. Bank balance sheets are not totally flexible, in part due to assets with long maturities that are impossible to securitize or sell. Because it can take some time to change the asset portfolio structure, raise alternative sources of funding, and execute the necessary transactions, the repositioning process normally starts even before the next interest rate cycle begins.

ALM decisions should be coordinated across the relevant operational divisions and must be effectively executed. This necessitates the establishment of a formal institutional structure responsible for ALM. In most banks, this structure typically is an asset-liability management committee (ALCO), the membership of which should include senior line managers of all relevant functional and business processes.

For ALCO decisions to be meaningful, the committee should have at its disposal a broad range of essential information, related to investment and trading portfolios, the historical, current, and projected structure of the bank's assets and liabilities and relevant information on maturities, yields, interest rates and spreads, and repricing capacity and structure. The ALCO should also be informed about the competitive position of the bank's assets, liability rates, and yields in relation both to the market and to the bank's major competitors. The projected balance sheet structure and the repositioning strategy should normally be based on a quantitative model of the balance sheet, following a simulation of various interest rate and (re)pricing scenarios and their effects on the bank's earnings, liquidity, and capital.

The asset-liability management strategy and related decisions should take into account and be able to accommodate all relevant limitations and/or potential distractions. The actions of both bank and nonbank competitors can affect (re)pricing potential. Unforeseen developments on the domestic or international front, such as the financial crisis in East Asia, or changes in expectations can influence customer or market behavior and require complex adjustments.

Strategic asset allocation (SAA). The objective of the strategic asset allocation process is to maximize the expected return within the ALM constraints relating to liquidity, income, and capital volatility. This process is of critical importance in central banks and banks with large asset man-

agement portfolios, but may be of less importance in a commercial banking environment.

The goal of SAA is therefore to determine the policy mix of asset classes that, when applied, becomes the benchmark portfolio; such that, subject to the constraints mentioned above, the value of that portfolio is maximized (or its cost minimized). It uses a quantitative framework to optimize the risk and return characteristics of assets through projections of contingencies which may affect the future liability structure.

The SAA framework is used by asset managers to make a periodic determination of the optimal policy mix of asset classes. The process is a two-step exercise: the first step is to propose duration, liquidity, and asset class constraints that are acceptable and that would enable net worth and liquidity goals to be met; the second step is to select a benchmark that is replicable and that would maximize expected return within these constraints.

Critical senior management inputs to the SAA exercise are normally expressed by the board of directors through an Investment Policy Statement (IPS), which is outlined below:

Investment policy objectives (earnings and risk tolerance):

- ☐ minimum income requirement
- ☐ credit risk (the tolerance of outright default)
- ☐ market risk (the tolerance of volatility of returns over the investment horizon)
- ☐ business risks (consideration of any correlation between asset classes and the core business of the bank)

Investment policy constraints:

- ☐ liquidity requirements
- ☐ investment time horizon under normal and adverse circumstances
- ☐ legal, regulatory and tax considerations
- ☐ unique needs, such as foreign currency composition, based on currency composition of actual or contingent liabilities

The importance of the SAA process in terms of the returns generated by each dimension of the portfolio management function is underscored by the finding that SAA typically accounts for more than 90 percent of long-term performance. Tactical trading is therefore a much less significant driver of portfolio risk and return.

Benchmarking. From an investment portfolio perspective, a benchmark portfolio can be defined as a *notional portfolio*, approved by senior management, that embodies the investment objectives of the financial institution in a replicable “notional” portfolio. A benchmark portfolio represents the best feasible *passive strategy*, given the objective of holding liquidity, the risk tolerance of the institution, and other constraints (such as capital preservation). The setting of an investment benchmark can also be described as the “operationalization” of the strategic asset allocation process.

Benchmarks are critical for evaluating performance versus long-term strategy; they also are used as *fall-back positions* when the portfolio manager has a neutral market view or a stop-loss is triggered. In essence, the long-term objective of the benchmark function — a neutral strategy — is to provide a replicable portfolio with a constant risk profile versus the market. It is used to evaluate both the value-added in returns and the risk exposure resulting from active management.

Benchmarks can be set for liabilities as well as assets. A liability benchmark could compare the cost of funding of the institution to that of comparable bond issues of similar institutions with the same credit rating and market standing. However, establishment of a funding benchmark is complicated, as there are no standard funding transactions in the market, with the credit rating of the issuer being only one factor that influences price. Maturity of the issue and specific call or other features also have a major impact on the cost of funding. Only the market environment is really common to all issuers.

The construction of a benchmark focuses on areas that are less emphasized during the SAA process. Benchmarks typically specify a target currency composition, allocation to specific assets or indices, and a duration target. Figure 9.2 illustrates the bridging aspects of the benchmarking process — providing a context for the evaluation of managers’ portfolio performance, in line with the policies decided on during the SAA phase.

FIGURE 9.2 BENCHMARKING — OPERATIONALIZATION OF STRATEGIC ASSET ALLOCATION

Benchmarking: Link Between Strategic Asset Allocation and Portfolio Management		
Strategic Asset Allocation (SAA)	Investment Benchmark	Portfolio Management
Responsibilities		Responsibilities
Management or Board of Directors		Portfolio managers
Investment Horizon		Investment Horizon
Medium to long-term (> 1 year)		Daily trading to 3 month horizons
Decision-Making Parameters		Decision-Making Parameters
Risk-return tradeoff for various asset classes and sectors		Performance - expected excess return vs the benchmark
Stress testing for worst-case scenarios		Risk or possible deviation of returns vs the benchmark
Positions / Holdings		Positions / Holdings
Long - actual SAA view		Deviation from the benchmark (security / sector / duration / currency selection)
Value-Added	Value-Added	
Policy framework	Active management - excess return	

Benchmarking is a critical risk management tool, providing a yardstick for the measurement of performance and actual risk from active management. For a benchmark to be *realistic*, it must represent a simple and unambiguous, flexible, investable, and replicable portfolio, easily implemented with no impact on market prices. Rules pertaining to the benchmark must be transparent. Its characteristics, constituents, and rebalancing rules have to be agreed in advance and be available or easily accessible for portfolio risk management purposes.

A good benchmark is *comprehensive*, and should include all opportunities under normal market conditions. It should provide a fair, realistic baseline strategy. Changes must be few and understandable, and the benchmark should not preclude participants who may not invest in the specific segments or countries addressed by the benchmark. Transaction and tax costs ought to be predictable and transparent. If the above criteria are met, performance can be measured against objective indices, as illustrated in Figure 9.2 above.

Use of external asset managers. Bank boards of directors may sometimes authorize management to outsource the management of a specific percent-

age of liquid assets or investments to try to obtain a higher portfolio return or to secure a transfer of technology. The use of external managers is an effective way to obtain professional management of a bond portfolio while a bank is building internal capacity. It is important to recall, however, that at least 90 percent of the risk and return of the portfolio will come from the selection of the benchmark (through the SAA process); no more than 10 percent is likely to come from active management by external managers.

To avoid any negative surprises, it is therefore critical that management understands the differences in expected risk and return from different benchmarks, and that the benchmarks selected for external managers have acceptable risk/return attributes. In addition, it is essential to determine how much risk external managers be permitted, compared with the benchmark. This can be expressed in terms of an acceptable level of underperformance as measured in basis points of return.

Before embarking on an external manager program, there are important steps to take:

- determination of selection criteria and the selection process
- determination of the benchmarks and risk limits to be incorporated into the investment management agreements
- determination of fee basis (i.e., flat versus performance fees)
- performance review and criteria (e.g., tracking error, Sharpe ratios) for firing managers
- monitoring of manager compliance with risk limits
- payment of management fees
- service requirements for training

The bank management may choose to outsource targeted amounts in stages, to enable evaluation of how well the external managers are fulfilling their mandate. Knowing that the size of their mandate could be increased could also be an important incentive for the external managers to do well.

Model validation. Validation of the models used in the treasury environment is raised as a policy issue to ensure that the analyst is aware of the importance of segregating the responsibility for model development and usage from the

checking and validation of such models. Figure 9.1 places model development in the risk analytics function and identifies model validation as a policy issue to highlight the importance of independent checks and balances.

9.3 Market Operations

Treasury funding of the bank. By their nature, banks transform the term of their liabilities to different maturities on the asset side of the balance sheet. At the same time, banks must be able to meet their commitments (such as deposits) at the point at which they come due or are called. The actual inflow and outflow of funds will not necessarily be reflected in contractual terms and may vary according to market conditions. A bank therefore is inherently exposed to liquidity mismatches, with the result that liquidity policies and liquidity risk management are by necessity key elements of its business strategy. (The importance of managing liquidity risk is more fully discussed in Chapter 8).

Access to cost-effective funding can be influenced by rates and the spread environment, by the activities of competitors in the market, by demand for credit, by a bank's credit rating, and by the local environment (e.g., the availability of arbitrage markets). The structure of a bank's funding is a key aspect of liquidity management.

A bank with a stable, large, and diverse deposit base is likely to have fewer liquidity problems than one lacking such a deposit base. Assessment of the structure and type of deposit base and the evaluation of the condition (stability and quality) of the deposits therefore is the starting point for liquidity risk assessment. The type of information that is necessary to conduct an assessment of the funding environment includes the following:

- product range
- deposit concentration
- deposit administration
- funding structure
- approach to potential sources of funding.

With respect to borrowings, management should ensure that the funding risks are properly managed. Unauthorized transactions or changes

(i.e., those without proper approval or those made by unauthorized staff) could cause potential financial and/or reputation risks for the bank. Transaction information — especially when complex funding structures such as index-linked bonds and swaps are utilized — that is not captured correctly or in a timely manner could result in settlement delays or failures, and the poor timing of transaction execution may cause opportunity costs. Inappropriate behavior on the part of employees (for example, favoring certain counterparties) or imperfect execution could also cause potential monetary losses and harm to the bank's reputation.

From an operational risk perspective, some funding structures require manual intervention during the life of the instrument, because treasury computer software may be unable to capture the required rates or intervention triggers. Transactions executed in excess of a counterparty's credit line limit, in a case where derivatives are used as a part of a funding structure, would increase exposure. Incorrect determination of derivative parameters such as notional amounts, periodic coupon cash flows, dates, and day count conventions also can cause potential financial losses.

Investment and cash flow management. In a commercial banking environment, the investment and trading process assists in smoothing short-term liquidity shortfalls and surpluses, to maximize returns with minimum cash balances and to provide cash flows to all internal and external clients. The investment function also manages longer-term assets as a contingent source of liquidity, while earning a reasonable return on the investment portfolio. (Investment management of the stable liquidity portfolio is discussed in Chapter 10, and proprietary trading (market risk management) in Chapter 11).

Box 9.2 specifies the asset classes that may be included in the investment portfolio. As the risk profiles of these instruments can differ markedly, different portfolio managers normally take responsibility for subportfolios in different asset classes and of differing maturity profiles. A complicating factor in the investment management process arises when a bank requires collateral from counterparties (e.g., for swaps). The calculation and secure management of such collateral usually involves a custodian, which requires a mechanism to ensure accurate computation and record-keeping capacity.

BOX 9.2 ASSET CLASSES**Public sector (central government and agencies) bonds****Corporate bonds****Structured products**

Asset-backed securities

Mortgage-backed securities

Asset swaps

Money market instruments (LIBOR spread products)

Certificates of deposit

Time deposits

Repurchase agreements

Resale agreements

Derivatives (swaps, futures and options)**9.4 Risk Analytics and Compliance**

Risk measurement. Risk measurement and management focuses on providing a disciplined approach to risk control in portfolio management. The objective of the function is to provide an independent assessment of the market risks being taken across the various treasury businesses. This assessment is for the benefit of risk budget decisionmakers (traders) as well as management. The risk factors normally covered by market risk measurement include interest rates, exchange rates, equity prices, and commodity prices.

Risk measurement requires the periodic computation of risk positions (daily, monthly, quarterly). It normally provides daily risk reporting to the portfolio managers, to assist their decision-making in regard to their portfolio management responsibilities and to support periodic benchmark rebalancing. It therefore benefits the risk decision-makers by providing them with feedback on their positions and by facilitating the determination of future positions. Management in turn uses the outputs of the risk analytics and compliance function to monitor the risks being taken across the various business lines and to ensure compliance with established guidelines.

A prerequisite of the risk measurement function is to ensure that all securities are properly valued (i.e., are “marked to market”). This is done by mapping investments to the appropriate pricing source. Proper pricing will lead to accurate measurement of total returns and performance.

Because the models used to assess the risks on treasury businesses are often run on a variety of systems and, in some cases, by third-party vendors, the risk measurement function should take responsibility for managing the complex array of risk systems and vendors. To maintain their knowledge of best practice and leading edge technologies/techniques, persons working in this area should maintain extensive relationships with the vendors of risk management and measurement systems as well as with their market counterparts, such as pension fund and asset managers, and with broker dealers and other industry experts.

Performance measurement and analysis. The objective of performance measurement is to determine the total return of the benchmark and the total return of the portfolio, and to report the results to management.

Performance analysis (and attribution) is the process of decomposing the total return or cost of a portfolio into a series of primary risk factors, to quantify the extent to which key risk decisions (such as sector allocations, security selection, and benchmark or manager risk) have contributed to portfolio performance. This can be done on either an absolute or a relative basis (i.e., versus an index).

The objective of the performance analysis function is to develop tools and methodologies capable of measuring the contributions to performance of different levels of decision-making. The goal is to have models that assess and attribute performance on an absolute basis and also relative to benchmarks, thus providing a basis for refining and improving the decision-making process. Performance attribution both contributes to and facilitates the development of the risk budgeting and risk management frameworks.

Reporting. Accurate and timely reporting is essential to support decision-making processes and to support the monitoring of a treasury's performance in pursuit of its objectives. Risk-based reporting thus is a critical part of investment management and of the risk management of portfolios.

A risk reporting team should have a library of standard reports to evaluate the key performance and risk statistics needed for the assessment of investment and funding decisions; it should also have the necessary tools for ad hoc, in-depth analysis. Figure 9.3 provides an example of some of

FIGURE 9.3 POTENTIAL RISK ANALYTICS REPORTS

Risk Area	Title	Reference	Potential Reports - Details	Frequency			
				Daily	Weekly	Monthly	Periodic
Counterparty Risk			All customer approved lines and unused facilities / Exception reports - transactions requiring approval / Current status of all client transactions / Overall exposure to individual clients / accompanied by their ratings / Concentration of exposure to groups of companies	D		M	Q
Market Risk			VAR: Daily VAR / Change in VAR for the day / change in portfolio value/ duration of portfolio and modified durations (for all derivatives, fixed income and foreign exchange positions) / simulations for different investment strategies / stress tests (PV01) / the existing portfolio risk as measured by the tracking error or value at risk / Profits and losses divided by daily VAR / VAR values during a specified period indicating low, median and high values during the period and the end-of-period values / Risk contribution vs. benchmark / Position limit reports / Stop-loss reports / Stress test reports.	D		M	
Liquidity risk			Maturity gap analysis: from 0-15 days up to greater than 360 days / Daily movements in key balance sheet items for the past 7 days / Loans made, the bank's inter-bank accounts and a deposit history for the past 3 years / Repurchase agreements, treasury note rates, the Central Bank discount rate, CD rates / Deposits maturing the following day, new CDs issued, movements in deposits / Cash flow statement / Large movements in deposits by type of deposit, CDs in excess of a certain amount / Inflows of stable deposits / Tables and graphs to illustrate trends in these areas.	D	W		
Currency risk			Liquidity gap analysis: from 0-15 days up to greater than 360 days / Open positions in major currencies at end of reporting period / Highest open position during previous month / Daily profit (loss), volatility of forward markets / duration of holdings in number of days / open positions in foreign currency and forward contracts; market interest rates and exchange rate history; performance against budgets / Positions with counterparties / Country exposures / Exceptions from policy guidelines.	D		M	
Performance measurement and analysis			Composition of the portfolio versus the benchmark / Performance to date of the portfolio and the benchmark / Performance attribution / Comparison of risk estimates with actual outcomes / Descriptive analysis of market strategies, market movements, and results.	D		M	Q

the reports that may be applied to various risk categories, listed by frequency of reporting.

Portfolio reports must deliver information that is both adequate and timely enough to enable portfolio managers to evaluate their portfolio risk and size their positions such that they remain within a tolerable risk level. This information should include performance and risk measures such as duration, sensitivity, value at risk (VAR), and yield curve risk.

Reporting for each functional area should be the responsibility of that area. For example, daily compliance and risk reports should be produced respectively by the compliance and risk management teams; daily performance reports for a fixed-income portfolio (and monthly performance and attribution reports) may be generated by the treasury operational unit in collaboration with the performance attribution function. Responsibility for regular and ad hoc market-related reports may be assigned to a quantitative strategies function. Where information from multiple functional areas in a treasury is presented in a joint report, the risk analytics and compliance unit's role should be to coordinate the preparation and ensure the consistency and timely production of the report.

Compliance. The purpose of the compliance function is to ensure that all treasury transactions and business activities comply with appropriate laws, regulations, policies, guidelines, and ethical standards. A good compliance function is an important cornerstone to counterparty and client confidence that the treasury function will act appropriately and in their best interests.

It is important that the monitoring of compliance with investment, borrowing, swap authorities, and other guidelines be centralized for an entire banking group and its asset management clients. Figure 9.4 provides an example of how the compliance function can ensure that the operating units adhere to all applicable laws and policies.

Additional areas of responsibility include:

- participating in due diligence meetings with external service providers and asset managers to ensure they have the capacity to assess compliance with given guidelines;
- assisting in the drafting of guidelines that are measurable and consistent;

FIGURE 9.4 EXAMPLE OF DAILY/MONTHLY CHECKLIST OF PORTFOLIO COMPLIANCE ISSUES

Daily/Monthly Checklist							
Date	Reference	Short Description	Investment Management Agreement	Calculation of Compliance	Reporting Tool	Interpretation of Measure	Portfolio Reviewed
1. LAWS							
2. REGULATIONS							
3. INSTITUTIONAL POLICIES							
3.1 Risk limits	1	Stop Loss = -xxx basis points	The stop-loss limit of xxx bps on a fiscal-year-to-date basis versus the benchmark has not been triggered.	Excess return over benchmark, fiscal-year-to-date			
4. INSTITUTIONAL GUIDELINES							
4.1 Investment Restrictions	2.1	No leverage	The Investment Manager shall NOT subject the portfolio to margin debt.		Compliance Report (#28)		
	2.2	No FX exposure (non-USD)	The Investment Manager shall NOT subject the portfolio to foreign exchange risk.				
4.2 Allowable Duration Range	3	Duration from -9 months to 15 months	The average Duration for the Portfolio shall be 3 months plus or minus 1 year.	Effective Duration	Long & Total Positions Rpt / Interest Rate Risk		
4.3 Limit to Duration Range	4	Max (long to average duration) = 24 months	The difference between the total duration of all long positions in the Portfolio and the average duration of the Portfolio shall not exceed 24 months.	Total Duration of Long positions - Average duration	Long & Total	Interest Rate Risk	
4.4 Eligible Instruments	5	Listing of instruments					
4.5 Issuer's Credit Rating	6	AA "Government Agencies" limit=xx%	No security described in Section 4.4 with a rating of AA shall be purchased if, after giving effect to such purchase, the aggregate Credit Exposure from such securities would exceed xx% of the market value of the portfolio.	Clean Market Value divided by portfolio NAV	Compliance Report (#4)		
4.6 Eligible Currency	7	No currency mismatches were permitted during securities REPO/Reverse REPO transactions.	The cash and securities involved in any individual transaction must be in the same currency (i.e., no currency mismatches will be permitted).				
5. OPERATIONAL GUIDELINES							
5.1 Issuer Concentration	8		Single issuer		Compliance Report (#11)		

- designing portfolio management policies for treasury portfolios; for example, trading limits, selection of vendors, procedures, reporting requirements, and introduction of new financial instruments;
- liaising with both the internal and external auditors;
- assisting in the development of a treasury code of ethics.

While the compliance staff must monitor compliance with guidelines and report exceptions, they must also work internally with colleagues and externally with counterparties to remedy infractions and prevent their recurrence. A mature compliance function will be able to assist with the development of treasury systems infrastructure and to participate in data quality meetings with colleagues from treasury operations and other areas.

Quantitative strategies. The primary objective of a quantitative strategies function is to help strengthen the investment processes by increasing the use of analytical tools and techniques and by conducting quantitative modeling and research. Quantitative strategies apply to the disciplines of strategic asset allocation, and market analysis; the quantitative strategies function also conducts financial modeling for the benefit of the investment, liquidity, funding, and asset-liability management businesses of a bank. In major banks, this function supports external clients or even other asset managers.

Models and analytical tools are used to support risk management decision-making at the day-to-day business level as well as strategic risk-reward decision-making at the portfolio level. As it is essential that the data used for modeling are consistent and reliable, responsibility should lie with the modeling function for ensuring that the infrastructure by which data are centralized is adequate.

The responsibilities of the quantitative strategies function include the development and production of monthly market analysis charts; the tracking and dissemination of the market views and sentiment indicators of market strategists and participants; and the systematic synthesis and dissemination of investment research and views.

These analyses should be performed internally by economists and financial analysts and externally by market and industry experts. For this

function to be credible, it must develop and maintain extensive relationships with external quantitative market strategists at broker dealers, with pension fund managers, and with asset managers.

9.5 Treasury Operations

Management of the treasury operations function has become increasingly complex with changes in the financial markets, regulatory requirement changes, and technological advances.

Risk in this area is considered to be the highest when manual interventions take place. The management response has been a focus on automation of the activities of recording and settling trades — “straight through” processing. Automation of the treasury operations function focuses a significant portion of the risk on the market operations activity where electronic inputs are made, necessitating greater control over the payment approval/release function, including enhanced control over the confirmation of transactions and the reconciliation of bank accounts at other institutions (nostro accounts).

In recent years many traditional treasury operations functions have been outsourced and the risk analytics function (see Section 9.4) combined with those operations functions that have remained in the treasury. The traditional operational functions are as follows:

- cash management
- banking relations
- settlement of trades
- accounting and reporting for treasury activities (ALM, funding, and investing)
- information technology support, security, and business continuity

Cash management and banking relations. (The banking relations function could justifiably be considered to belong outside of the treasury operations area, but for the sake of simplicity is discussed here). The major objectives of the cash management and banking relationship functions are to optimize cash planning and to facilitate the straight-through processing of funds. To achieve these objectives, staff in these areas must ensure the timely processing of payments and receipts, provide an efficient corre-

spondent banking infrastructure, foster a high customer service level for client investigations, and minimize the operational risk associated with cash processing by following through on outstanding and suspense items.

Some risks associated with this dual function are as follows:

- Unauthorized instructions for transfers may occur if access to terminals is not strictly enforced.
- Transactions can be delayed or rejected if data are not entered in the system correctly.
- Loss and misappropriation of funds or fraud may occur, due to improper unauthorized changes to SWIFT (Society for Worldwide Interbank Financial Telecommunication) messages.
- Checks may be misplaced, deposited to a wrong account, or not deposited at all.
- Delivery of funds to the wrong account can delay receipt of funds by the rightful beneficiary. This creates a reputational risk and may result in monetary claims for late delivery.
- Delivery of payment to the incorrect beneficiary will result in loss of funds should those payments prove unrecoverable.
- Discrepancies in value date, mismatching, and human error may result in inaccurate data and therefore incorrect cash reconciliations.
- Incorrect cash positions are reported to trading floor cash managers, resulting in potential financial losses to the bank.

The settlement of trades. Settlement risk is the risk that settlement in a transfer system will not take place as expected because one party defaults on its clearing obligations to another party or parties. A default on settlement leads to both credit (counterparty) and liquidity risk. The best manner in which to mitigate settlement risk is clearly to have a safe and efficient payment system.

The settlement function must ensure the proper settlement of transactions executed by the portfolio management and funding sides of the treasury. The role of settlement staff, by ensuring strict adherence to stated controls, is to minimize the operational risk associated with the settlement process. To summarize, this function has to:

- ensure that all transactions are confirmed (verbally or through SWIFT) on a timely basis;
- ensure that all payments are made accurately and in a timely manner;
- ensure that all receipts are recorded accurately and in a timely manner;
- ensure all securities are delivered and received accurately and in a timely manner;
- maintain all standard reference and static data, such as standard settlement instructions, authentication and test keys between banks, and customer information files (including phone and telex/fax numbers, bank contacts, and addresses).

All failed transactions must be monitored and followed up until resolved. Lack of notification regarding failed transactions can lead to prolonged exposure to financial and reputational risk. All failed transactions should be communicated to the trading floor, as a lack of communication between settlement staff and traders regarding fails will prevent the teams from exploring ways to eliminate avoidable failed transactions.

Risks associated with the settlement function include the following:

- Transactions may be improperly entered in the trading system software. Inaccurate or incomplete trade entry could result in settlement, accounting, financial reporting, and valuation errors.
- Actionable events (reset triggers, reset rates, or other “ticklers”) may be missed, resulting in inaccurate interest accruals, cash flows, settlement, accounting, financial reporting, and valuation errors.
- Derivative (legal) documentation between the bank and its counterparts may not be executed and finalized, creating possible differences in the understanding of trade details.

Accounting and reporting for treasury activities. Record-keeping is of key importance in risk management. A sound record-keeping system should keep track of transactions on a trade-date basis and should maintain all supporting information. Postings to the general ledger and memorandum accounts should originate with and be reviewed by persons who

do not have the authority to execute transactions. Ledgers should be reconciled frequently with the respective account statements, and confirmations held by the staff executing the transactions. Record-keeping should be subject to internal audit on a regular basis.

The role of the accounting function in treasury operations is to measure treasury results and reflect them in the financial statements and supporting reports. Accountants have to ensure the accuracy of any market data used in valuations and generate any accounting entries required by generally accepted accounting practice, such as the adjustment of financial assets and liabilities to fair values.

These are challenging requirements, as they require the treasury accounting function to field a full complement of personnel who are trained not only in the accounting function, but also in the substance of the various trading and derivative products. The challenge is compounded by the fact that the essential investment data typically must be sourced from many different systems, and few of these systems provide reports that could be described as user-friendly — with the result that some management information reports must be prepared manually, with the attendant risk of data integrity errors. One way in which treasury operations managers attempt to address multiple sourcing of data is by relying on integrated operational databases, or “data warehouses,” from which management reports can be customized.

To ensure the consistency of data and reporting sources, the accounting function also may be split into two areas: one for pure reporting, and the other for reconciling key data and reports produced by different systems (see Figure 9.5).

The following is an overview of some of the accounting-related and reconciliation-related activities in the accounting area of the treasury operations:

Accounting-related activities

- ensure that accounting is set up to accommodate new business requirements/products in a timely manner
- perform daily accounting data review and control for all portfolios
- review performance reports for all portfolios as an additional validation/control of accounting information
- review new and changed trades

FIGURE 9.5 TREASURY OPERATIONS: REPORTING (FUNDING AND INVESTING BUSINESS)

Reporting Area	Title	Reference	Sub-Report Types	Frequency			
				Daily	Weekly	Monthly	Periodic
A. Reports							
Financial reports			Trial Balance / Balance Sheet / Income Statement / Trade details / Settlement entries				
Holdings reports			Inventory / Asset allocations / Performance (return on investments) reports				
B. Control Reports							
Internal reconciliations			Systems-to-systems / Control accounts (suspense accounts)				
External reconciliations			Custodian reconciliations / cash account maintained by internal treasury function				
Cash			Control accounts with external banks / cash accounts with internal clients				
C. Pricing Reports							
Source reports			Reuters / Bloomberg / Brokers / Other pricing services				
Exception (Diagnostic reports)			Unusual fluctuations / New instruments				
Valuation reports			Fair value accounting (IAS 39)				
Analysis reports			Trends				
D. Operational Reports							
Transactional reports			Cash flows / Resets / Deal volumes / Call volumes / Settlement reports				
Operational risk			Analysis of trend impacts				
E. Regulatory Reports							
Security commissioners							
Central Bank							

- review profit and loss accounts
- prepare regulatory reports
- review (especially manual) accounting entries

Reconciliation activities

- reconcile data from different systems for accuracy, completeness, and agreement
- reconcile accounting system with custodian system to ensure all securities are accounted for (a custodian is a financial institution that keeps custody and records of a bank's or other institution's securities)
- ensure that all manual entries are appropriate

Information technology support, security, and business continuity (IT). Although this function may be housed outside of the treasury, systems security requirements would often dictate that the treasury IT function rather be closely aligned with treasury operations. Wherever located, it should provide the systems mechanism and infrastructure to support treasury activities. The primary success indicator of the IT function is the ability of the treasury to participate competitively in the financial markets without suffering financial losses due to systems-related problems.

The IT specialist in a treasury has to provide trading floor and accounting systems capable of real-time capture of all market data, from all providers, that are needed to value any defined instrument type. Market data should be retrievable for repricing, reporting, historical analysis, and other purposes, and the treasury systems should support trade maintenance applications, including automated rate resetting, money market rollovers, and other repetitive tasks.

The main risks and difficulties facing the treasury IT specialist include the following:

- High dependence on outside vendors. Outsourcing normally takes place as a response to a lack internally of the necessary skills.
- Documentation of user requirements for system development projects may be threatened by "scope creep": the tendency of

users to resist signing off on documented requirements and to make changes well into the implementation phase.

- ❑ Provision of consistent reporting from a centralized database. The production of official reports can involve numerous workflow procedures, raising the risk that data, translated into different spreadsheets using different calculation routines, will be altered.
- ❑ Information security of assets: data, workstations, and application systems. The IT industry is advancing too quickly for most treasury security teams to keep pace, and the risks of virus attack and break-ins are increasing.
- ❑ Provision of an adequate disaster recovery facility. Particularly in remote locations, there is a danger that business continuity could not be sustained in the event of a major systems failure.
- ❑ Outsourcing of hardware and system management. External standards of support may not be as stringent as those maintained internally.
- ❑ Maintaining support of application systems that utilize a diverse set of development software. The rapid advance of IT technology exposes legacy systems to the inevitable danger of market expertise becoming increasingly hard to find.

9.6 Corporate Governance and Operational Risk Assessment

Operational risk has already been discussed in Chapter 6. This section proposes that well-structured management information, reviewed regularly as part of the governance process, will contribute significantly to the identification and management of operational risk.

There is often a temptation in treasury environments to think of risk as being exclusively that which is quantifiable. The challenge therefore exists to find a framework for the measurement of operational risk and governance that appeals to quantitatively oriented people and into which non-quantitative risk can be seamlessly integrated.

Figure 9.6 presents a methodology whereby one can view the overall objective of each treasury function and determine how that function is affected by the marketplace and by the legal, regulatory and internal policy environment.

FIGURE 9.6 RISK MANAGEMENT IN THE TREASURY

1. Rationale for Activity – Major Objectives & Outputs					2. External Environment - Current Market Issues					
3. Laws & Regulations					4. Policies and Guidelines					
5	6	7	8	9	10	11	12	13	14	15
Processes	Risks	Risk Management (control activities)	Impact of Process & Control	Best Market Practice (key market indicators)	Key Performance Indicators (Performance metrics validate that risk is managed)	Overall Reporting and MIS (in which reports are key indicators included?)	Compliance Testing	Assessment of Process	Action Plans	Internal Audit / External Audit Assessment
COSO OBJECTIVES	1. Efficiency and effectiveness of operations (9,10,11,13 & 14)		2. Reliability of financial reporting (1-15)		3. Compliance with laws and regulations (3,4,12, & 14)					
COSO COMPONENTS	1. Control environment (informal controls and attitudes) (6,12 & 14)		2. Risk assessment (8 & 13)		3. Control activities (3,4,7,11,12 & 14)		4. Information & Communication (1,2,11 & 14)		5. Monitoring (11,14 & 15)	

Once the rationale for the function and its major outputs are determined (see cell number 1), one can list the processes and/or workflows required to achieve those outputs or functional objectives (cell 5). The risks pertaining to each process are identified, and for each risk, management must determine how it will manage (or control) that risk (cells 6 and 7).

By linking the risk management function to overall reporting and performance metrics (key risk indicators; cells 10 and 11), management is provided with risk-based management information that focuses on the risks identified by each process and the risk management activities that pertain to each process and risk. The risk metrics include operational issues related to the trading activity, such as the monitoring of rate resets and other triggers on structured trades, settlement issues and legal confirmations with respect to derivatives, and debt service.

Figure 9.6 includes information related to the impact, or importance of each process, the compliance testing performed on the risk management processes, and management's assessment of how well the controls are actually functioning throughout the year. As the risk management process matures, management can begin to incorporate best market practices and internal/external audit assessments into the process.

Management normally would have to prove to its auditors (see also Chapter 3, Sections 3.7 and 3.8) that it has complied with its own stated risk management processes. One way of integrating compliance testing into routine management activities would be to require that any analysis or discussion of significant financial/risk trends and fluctuations, and any performance or reporting problems highlighted in quarterly financial reports, be linked to management's own description of its risk management processes (as described in Figure 9.6). Including the risk matrix as an agenda item in the quarterly reporting would ensure that any changes to processes or risk management controls made during the quarterly financial reporting cycle are documented in a timely manner. Such reviews should also identify new risks and necessary changes to existing processes and internal controls.

Internal control can be described as the process, effected by an entity's board of directors, management, and other personnel in order to provide reasonable assurance regarding the achievement of objectives in the

following categories: effectiveness and efficiency of operations; reliability of financial reporting; and compliance with applicable laws and regulations. This includes the safeguarding of assets.

Controls can be either formal or informal. Formal controls include policy manuals, procedures, hierarchy, and regulations. Informal controls include ethics, competence, morale, trust, skills, leadership, processes, culture, information, resources, measurements, policies, communication, teamwork, and procedures.

Figure 9.6 also contains information disclosing how each element is linked to the COSO process, discussed below.

COSO. The Committee of Sponsoring Organizations of the Treadway Commission (commonly referred to as COSO) was convened by the U.S. Congress in response to the well-publicized financial irregularities that occurred in the late 1980s.¹ The Committee formulated an internal control framework designed to help organizations reduce the risk of asset loss, ensure the reliability of financial statements and compliance with laws and regulations, and promote efficiency.

COSO published a report in 1992 titled “Internal Controls — Integrated Framework” that is recognized by many public sector and professional bodies as a standard for the evaluation of internal control and the risk environment. At its broadest level, the COSO report provides a framework by which an organization can evaluate the adequacy of its control in terms of meeting its business objectives.

The emphasis on behavior in the COSO control model is a recognition of reality, namely that policies specify what management wants to happen — what actually happens, and which rules are obeyed, bent, or ignored, is determined by corporate culture.

1. Yanni Liakakis of the World Bank Controllers unit assisted in refining our understanding of the COSO framework, and Philip Mitchell of the same unit contributed to this material on control self-assessments, enabling a linkage between the COSO framework and risk management, governance, and compliance as promoted in this publication. More information related to current work on COSO is available at www.coso.org.

Under the COSO framework, the effectiveness of an internal control system is measured by its capacity to provide reasonable assurance to management and to the board of directors of their bank's achievement of its objectives in the following three categories:

- effectiveness and efficiency of operations
- reliability of financial reporting
- compliance with applicable laws and regulations

The COSO internal control model consists of five interrelated components, which are inherent in the way management runs the organization. The components are linked, and serve as criteria for determining whether or not the system is effective. The five COSO components are:

- control environment
- risk assessment
- control activities
- monitoring and learning
- information and communication

The **control environment** sets the tone of an organization, influencing the control consciousness of its people. It is the foundation for all other components of internal control, providing discipline and structure. Control environment factors include the integrity, ethical values and competence of the people; management's philosophy and operating style (tone at the top); the way management assigns authority and responsibility and organizes and develops its people; and the attention and direction provided by the board of directors.

Risk is defined as anything that hinders the ethical achievement of sustainable business objectives and results. This includes the failure to exploit opportunities and to maintain organizational relevance. Every organization faces a variety of risks from external and internal sources that must be assessed. A precondition to **risk assessment** is establishment of business objectives that are internally consistent and in alignment with an organization's strategy and mission. Risk assessment is the identification and analysis of those risks that potentially jeopardize the achievement of

business objectives. Risk assessment forms a basis for determining how risks should be managed.

Control activities are the policies and procedures that help ensure that management directives are carried out. They help ensure that necessary actions are taken to address any risks that would threaten achievement of the organization's objectives. Control activities occur throughout the organization, at all levels, and in all functions. They include activities such as approvals, authorizations, verifications, reconciliation, reviews of operating performance, security of assets, and segregation of duties.

Internal control systems need to be **monitored**, a process that assesses the quality of the system's performance over time. This is accomplished through ongoing monitoring activities and separate evaluations. Ongoing monitoring occurs in the course of business, and includes regular management and supervisory activities and other actions staff may take in the performance of their duties. The scope and frequency of separate evaluations will depend primarily on an assessment of risks and on the effectiveness of ongoing monitoring procedures. Internal control deficiencies should be reported upstream as part of regular reporting to senior management, and should in turn initiate analytical investigation of the reasons for fluctuations and errors, to determine if such occurrences are due to the development of new risks or to the failure of existing risk management processes. This approach operationalizes the risk management process as a normal part of the management process, ensuring that risk assessment is not merely something which is performed once a year to satisfy some external reporting requirement.

Pertinent **information** must be identified, captured, and communicated in a form and within a timeframe that enables people to carry out their responsibilities. Information systems produce reports containing the operational, financial, and compliance-related information that make it possible to run and control a business. They deal not only with internally generated data, but also with the information about external events and activities and conditions that is necessary for informed decision-making and external reporting. **Effective communication** must also occur in a broader sense, flowing down, across, and from the bottom upward. In a healthy control environment communications are open, and when a business objective is in jeopardy "bad news" flows rapidly, enabling corrective

action to be taken in a timely manner. All personnel must receive a clear message from top management that their control responsibilities must be taken seriously. They must understand their own role in the internal control system and understand how their individual activities relate to the work of others. They must have a means of communicating significant information upstream. There also needs to be effective communication with external parties, such as customers, suppliers, regulators, and shareholders.

CHAPTER 10

MANAGEMENT OF THE STABLE LIQUIDITY INVESTMENT PORTFOLIO

KEY MESSAGES

A bank's stable liquidity investment portfolio serves as a source of prudential liquidity to cover short-term liabilities in a situation in which the bank may not have access to normal sources of funding.

The stable liquidity investment portfolio is also a source of return, and is usually actively managed versus a benchmark to generate a positive spread over the cost of funds.

A liquidity policy typically sets out the minimum size of the stable liquidity investment portfolio, usually in terms of coverage of short-term liabilities.

The liquidity policy also sets out risk limits to control credit, interest rate risk, and foreign currency risk, to ensure the necessary level of liquidity and to protect earnings and capital. The stable liquidity investment portfolio typically is managed against a benchmark portfolio based on the underlying funding or on the holder's liabilities.

10.1 Nature of the Stable Liquidity Investment Portfolio

For commercial banks, the stable liquidity investment portfolio traditionally was one of the key tools for liquidity management, providing a back-up source of funds to meet unexpected levels of withdrawals or net redemptions.¹ The development of deep and liquid interbank markets,

1. The term "stable liquidity investment portfolio" is used as a substitute for "investment portfolio," firstly to distinguish it from the proprietary trading portfolio and secondly, to accentuate the prudential nature and minimum level of liquidity that it signifies.

however, means that banks now can borrow to meet any funding shortfalls, with the result that day-to-day liquidity operations have become a liability management issue.

The stable liquidity investment portfolio nonetheless has remained as a fall-back source of liquidity to meet liabilities coming due should a bank choose not to — or should it find itself unable to — access alternative sources of funding. The tightening or closing of interbank markets can occur either during periods of systemic risk, when lenders will not provide funds because of broad risk aversion, or because of a negative event specific to the institution.

The objective of investment management is to maximize the return on a portfolio within such policy constraints that address liquidity and market value volatility. In most cases, the stable liquidity investment portfolio is structured to generate positive carry (i.e., the return is higher than the cost of funds and contributes positively to the net income of the bank). This is typically achieved by the assumption of credit risk and interest rate risk. In the case of credit risk, the bank invests in securities that have a lower credit standing and thus a higher yield than do the bank's funding instruments. This is called credit transformation. In the case of interest rate risk, management will take advantage of the upward slope of the yield curve and invest in assets that have a slightly longer duration than do its funding instruments. This is called maturity transformation. Both of these positions normally result in a profit for the bank, but income and capital can be at risk in the case of credit deterioration, yield curve inversion, or upward shifts in yields. These risks need to be tightly controlled to protect bank income and capital from unacceptable levels of loss.

For commercial banks, the size of the stable liquidity investment portfolio relative to total assets will tend to increase during periods of slow economic growth, when the demand for commercial and industrial loans is low. Conversely, a pick-up in economic growth typically leads to a decline in the stable liquidity investment portfolio as funds are redeployed toward loans with higher expected returns. For prudential liquidity portfolios, the investment policy should specify a minimum size relative to short-term liabilities, to ensure that the portfolio can fulfill its role as a provider of liquidity in times of stress.

10.2 Investment Policy

The investment policy sets out the rationale for holding a liquidity portfolio and defines any target levels, usually in terms of short-term debt coverage. (From a regulatory perspective, the target level normally would be described as a liquid asset ratio.) The investment policy also sets out broad credit and market risk parameters.

The most neutral market risk position, from the perspective of the balance sheet, matches the risk profile of the stable liquidity investment portfolio with the risk profile of the liabilities with respect to currency, duration, and credit. This neutral position is frequently referred to as the benchmark position. Any deviation from this position would give rise to risk to income and capital and thus would be constrained. At the policy level, it is important to specify the baseline position for the stable liquidity investment portfolio (the benchmark) and the tolerance for risk due to active management. One efficient way to express this tolerance is in terms of a “risk budget,” whereby the board or its delegates approves an acceptable level of income or capital loss. This risk budget can then be implemented into a risk management structure, wherein risks are independently measured and limited to ensure that the board’s risk tolerance is not exceeded.

Central banks additionally hold foreign currency reserves portfolios, to meet the country’s need for foreign currency when it is unable to borrow from other sources. In broad terms, the optimal long-term risk profile for these reserves is set with respect to the rationale for holding such reserves, rather than according to the composition of the central bank’s balance sheet. This is particularly true for emerging market and other countries that do not enjoy deep and certain access to the capital market borrowings that otherwise could serve to finance any external imbalances. The investment policy for a central bank therefore should set out a strategic asset allocation based jointly on the rationale for holding reserves and on the amount of reserves that could be considered adequate relative to any actual and contingent claims. The strategic asset allocation should specify the neutral currency composition, portfolio duration, and eligible instruments. The considerations of reserves adequacy and any minimum return requirements should be the main determinants of the desirable risk-return profile for the reserves; this profile should then be embodied in a benchmark portfolio.

10.3 Eligible Instruments

Financial instruments are approved for investment in the investment policy when they meet certain criteria based on the rationale for holding these funds. For liquidity portfolios, the main criterion should be the instrument's liquidity — i.e., the capability inherent in the instrument to realize funds in a timely fashion, without negatively affecting the price of the instrument. The precondition for liquidity is the existence of deep and broad markets with multiple market makers who stand ready to buy (bid) for the assets. Liquidity is provided through both cash and futures markets because dealers generally are more willing to make continuous markets in instruments in which they can, in turn, offset their risk by using futures.

In assessing the required level of liquidity, policymakers need to consider the investment horizon over which the funds would need to be drawn down. Instruments suitable for working capital or daily liquidity needs are quite different from those that would be liquidated over a longer-term horizon of several months or more. For prudential liquidity portfolios, it is also important to consider the liquidity of the instruments during times of systemic crisis. As noted, systemic crises may exogenously affect a bank's ability to access funds. During such a crisis, the bank may be selling assets in stressed markets, characterized by much lower levels of liquidity.

10.4 Credit Risk

Credit risk here refers to the risk of default, but it is also related to liquidity, as markets for low-rated credits generally are thinner than those for higher-rated credits, and their liquidity will significantly worsen during systemic crises. For both of these reasons, the investment policy should constrain the credit risk of the investment instrument both at the specific issuer level and at the portfolio level.

With respect to specific credit risk, most banks rely on multiple independent credit rating agencies when establishing minimum ratings for eligible assets. When different agencies have split ratings, the policy should specify which rating prevails. The allowable level of exposure to any one institution typically also is constrained, with the exposure level set usually as a percentage of the creditor institution's own funds.

At the portfolio level, credit risk is controlled through global limits, expressed as a percentage of the total portfolio. A fundamental risk management tool is diversification; typically the stable liquidity investment portfolio will constrain the exposure to any one institution as a maximum percentage of the total portfolio. In addition, the investment policy may seek to minimize the vulnerability of the portfolio to systemic risks. A systemic risk is defined as a risk that affects a class of institutions that share a common business, country of origin, or type of asset. The investment policy may thus also set a percentage limit to the share of the portfolio that may be exposed to any single country, industry, or sector.

Table 10.1 gives a breakdown of types of credit risk and risk management tools.

10.5 Market Risk

Market risk is defined as the volatility of income or market value due to fluctuations in underlying market factors such as currency, interest rates, or credit spreads. For commercial banks, the market risk of the stable liquidity investment portfolio arises from mismatches between the risk profile of the assets and their funding. The benchmark portfolio, which should be based on the currency, duration, and credit characteristics of the underlying liabilities, stands as a proxy for the liabilities. Any deviation from the benchmark portfolio would thus give rise to risk and should be constrained.²

10.6 Benchmark Portfolio

A benchmark portfolio represents the optimal risk profile for the stable liquidity investment portfolio with respect to the rationale for holding funds and the characteristics of the underlying liabilities. As discussed in Chapter 9, a good benchmark is a replicable, transparent portfolio strate-

2. For central banks in nonindustrialized countries, the rationale for holding foreign currency reserves is typically that these reserves provide backing for some portion of the country's foreign currency liabilities and assist its management of the exchange rate. The strategic asset allocation and ensuing benchmark portfolio in such cases thus reflect these underlying contingent liabilities, rather than balance sheet values.

TABLE 10.1 CREDIT RISK MANAGEMENT TOOLS

<i>Credit Risk</i>	<i>Risk tool</i>	<i>Benchmark Limits</i>
Specific creditor risk	Credit rating	Minimum rating requirements
	Size of exposure	Maximum exposure as a percentage of the institution's capital base
	Diversification	Maximum exposure to any one institution as a percentage of total assets
Systemic risk		Maximum exposure to any industry or sector in a single country as a percentage of total assets
Country risk	Credit rating	Maximum exposure per country as a percentage of total assets
		Minimum credit ratings
Sector risk	Sector groupings	Maximum exposure per sector as a percentage of total assets

gy that complies with risk constraints. The benchmark provides the baseline for measuring both risk and performance.

A benchmark is typically constructed using externally available market indices. These indices may comprise a set of specific securities that meet defined characteristics, or the index may be based on a synthetic market indicator such as LIBOR (London Interbank Offered Rate) or a swap rate. A few examples of the market indices generated and made available by index providers are shown in Table 10.2.

These indices should be combined in such a way as to create a benchmark portfolio that meets the currency, duration, liquidity, and credit constraints set out in the investment policy.

TABLE 10.2 EXAMPLES OF U.S. DOLLAR MARKET INDICES

<i>Market Sector</i>	<i>Indices</i>
U.S. government securities	1–12-month treasury bills
	1–10-year treasury bonds
Banks	Overnight federal funds
	3-month LIBID
Mortgage-backed securities	Master Mortgage Index
AAA Asset-backed securities	Floating rate: ROF1; Fixed rate: ROA1
Large capitalization equities	Standard and Poor's 500

10.7 Active Management

Active management is the investment process by which an institution's portfolio is repositioned versus the benchmark portfolio, within the allowable level of risk authorized by the board, to seek excess returns (performance). The investment process of the institution ought to be well-defined and repeatable, and should have clear objectives, processes, and accountabilities.

There is no standard investment process. Individual institutions may emphasize different styles of risk taking according to their investment policy, business philosophy, and strengths relative to the market. Some investment processes are fairly centralized, using team-based decisions; others are completely decentralized, allocating to individual risk takers a part of the risk budget within which they manage quite independently. Other investment processes are hybrids, with teams making the fundamental decisions relating to sector exposures but individual managers implementing these decisions through security selection and tactical trading decisions.

Portfolio management decisions may be based on fundamental analysis of the macro and microeconomic drivers of value, on technical analysis (charting) of the market, or on exploitation of arbitrage possibilities between different markets using quantitative pricing models. While a few institutions, particularly hedge funds, may focus on only one of these techniques, most banks will use a combination of fundamental, technical analysis, and modeling to develop their investment strategies.

In assessing the adequacy of risk management systems it is important to understand the process and style with which investments are made, because the approach of an institution to risk taking dictates the level of sophistication that is required of the risk management system. For example, a highly leveraged portfolio management style would require sophisticated risk measurement and monitoring systems, because any losses would be multiplied by the leverage factor. Even low-risk, so called "arbitrage" trades, can result in devastating losses when highly leveraged, as was seen in the **Long Term Capital Management (LTCM)** failure of 1999. At the other extreme, some banks or institutions take much more conservative positions with regard to the benchmark, opting for minimal outright market exposure. This management style obviously requires a less sophisticated risk management support system.

10.8 Risk Management and Risk Budgets

A risk budget establishes the tolerance of the board or its delegates to income or capital loss due to market risk over a given horizon, typically one year because of the accounting cycle. (Institutions that are not sensitive to annual income requirements may have a longer horizon, which would also allow for a greater degree of freedom in portfolio management.)

Once an annual risk budget has been established, a system of risk limits needs to be put in place to guard against actual or potential losses exceeding the risk budget. There are two types of risk limits, and both are necessary to constrain losses to within the prescribed level (the risk budget). The first type is **stop-loss limits**, which control cumulative losses from the mark-to-market of existing positions relative to the benchmark. The second is **position limits**, which control potential losses that could arise from future adverse changes in market prices.

Stop-loss limits are set relative to the overall risk budget. The allocation of the risk budget to different types of risk is as much an art as it is a science, and the methodology used will depend on the set-up of the individual investment process. Some of the questions that affect the risk allocation include the following:

- What are the significant market risks of the portfolio?
- What is the correlation among these risks?
- How many risk takers are there?
- How is the risk expected to be used over the course of a year?

The risk positions arising from different markets and risk takers generally are not perfectly correlated, and the aggregate of individual stop-loss limits may exceed the risk budget. Compliance with stop-loss limits requires frequent, if not daily, performance measurement. Performance is the total return of the portfolio less the total return of the benchmark. The measurement of performance is a critical statistic for monitoring the usage of the risk budget and compliance with stop-loss limits.

Position limits also are set relative to the overall risk budget, and are subject to the same considerations discussed above. The function of posi-

tion limits, however, is to constrain potential losses from future adverse changes in prices or yields (see also Chapter 11). Table 10.3 lists the main market risks or market factor sensitivities and the types of position limits that are commonly used to constrain these risks to acceptable levels.

10.9 Management Reporting

A key element in the delegation of risk taking authority is accountability for the risks taken. This usually is effected through management reports (see also Chapter 9.4). These reports should focus on key statistics relating to:

- ☐ the composition of the portfolio versus the benchmark;
- ☐ the performance to date of the portfolio and the benchmark;
- ☐ the existing portfolio risk as measured by the tracking error or value at risk

TABLE 10.3 MARKET RISK MANAGEMENT TOOLS

<i>Market Risk</i>	<i>Factor Sensitivity</i>	<i>Benchmark Limits</i>
Foreign currency	Open position	% Deviation
Interest rate risk	Modified duration DV01 ³	Duration deviation limits Net DV01 limits
Yield curve exposure	Key rate duration	***
Credit spread risk	DV01 of credit positions	Net DV01 limits
Options:		
Directional risk	Delta position	
Convexity	Gamma	
Volatility	Vega	
Portfolio risk	Value at risk (VAR)	*** (% of capital)

***Important risk statistics but not conducive to implementation as hard limits.

3. The DV01 is the dollar value of a basis point, and gives the change in the market value in absolute terms for a basis point change in yields. The modified duration gives the percentage change in the market value for a basis point change in yields.

Management reports should also include descriptive analysis of market strategies, market movements, and results. Performance attribution is also extremely useful, as it allows for an ex-post critique of the results from specific risk-taking activities. This can help an institution refine its investment process to focus on those activities in which it has a proven track record and to eschew those activities in which it has been unable to generate excess returns.

CHAPTER 11

MARKET RISK MANAGEMENT AND PROPRIETARY TRADING

KEY MESSAGES

Banks use leveraged funds with shorter-term maturity — often repurchase agreements — for their proprietary trading activities.

Both the stable liquidity investment and proprietary trading portfolios are subject to market risk.

Market risk results from the volatility of positions taken in the four fundamental economic markets: interest-sensitive debt securities, equities, currencies, and commodities.

The volatility of each of these markets exposes banks to fluctuations in the price or value of marketable financial instruments.

In sophisticated market environments, banks with sufficient liquidity can normally hedge against market volatility. The resulting net effective open position determines the amount of the portfolio that remains exposed to market risk.

Capital has to be retained as a buffer against potential losses due to market risk; such capital is referred to as Tier 3 capital.

11.1 Introduction: Market Risk Characteristics

Market risk is the risk that a bank may experience loss due to unfavorable movements in market prices. Exposure to such risk may arise as a result of the bank taking deliberate speculative positions (proprietary trading) or may ensue from the bank's market-making (dealer) activities.

Sources of market risk. Market risk results from changes in the prices of equity instruments, commodities, money, and currencies. Its major components are therefore equity position risk, commodities risk, interest rate risk, and currency risk. Each component of risk includes a general market risk aspect and a specific risk aspect that originates in the specific portfolio structure of a bank. In addition to standard instruments, market risk also applies to various derivatives instruments, such as options, equity derivatives, or currency and interest rate derivatives.

Volatility. The price volatility of most assets held in stable liquidity investment and trading portfolios is often significant. Volatility prevails even in mature markets, though it is much higher in new or illiquid markets. The presence of large institutional investors, such as pension funds, insurance companies, or investment funds, has also had an impact on the structure of markets and on market risk. Institutional investors adjust their large-scale stable liquidity investment and trading portfolios through large-scale trades, and in markets with rising prices, large-scale purchases tend to push prices up. Conversely, markets with downward trends become more skittish when large, institutional-size blocks are sold. Ultimately, this leads to a widening of the amplitude of price variances and therefore to increased market risk.

Proprietary trading versus stable liquidity investment portfolio management. The increasing exposure of banks to market risk is due to the trend of business diversification from the traditional intermediation function toward market-making and proprietary trading activities, whereby banks set aside “risk capital” for deliberate risk taking activities. The proprietary trading portfolio must be distinguished from the stable liquidity investment portfolio (see Chapter 10). Proprietary trading is aimed at exploiting market opportunities with leveraged funding (for example, through the use of repurchase agreements), whereas the stable liquidity investment portfolio is held and traded as a buffer/stable liquidity portfolio. As stated earlier, both proprietary trading and stable liquidity investment portfolios are subject to market risk.

Value at risk. VAR is a modeling technique that typically measures a bank’s aggregate market risk exposure and, given a probability level, estimates the amount a bank would lose if it were to hold specific assets for a certain period of time.

Inputs to a VAR-based model include data on the bank's positions and on prices, volatility, and risk factors. The risks covered by the model should include all interest, currency, equity, and commodity and option positions inherent in the bank's portfolio, for both on- and off-balance-sheet positions. VAR-based models typically combine the potential change in the value of each position that would result from specific movements in underlying risk factors with the probability of such movements occurring. The changes in value are aggregated at the level of trading book segments and/or across all trading activities and markets. The VAR amount may be calculated using one of a number of methodologies (see Section 11.5).

The measurement parameters include a holding period, a historical time horizon at which risk factor prices are observed, and a confidence interval that allows for the prudent judgment of the level of protection. The observation period is chosen by the bank to capture market conditions that are relevant to its risk management strategy.

An appraisal of capital charges or mark-to-market exposures critically depends on availability of information that meaningfully expresses a bank's exposure to market risk. The information provided (to senior management, board, and third parties, such as bank supervisors) should include both aggregated and disaggregated exposures at certain control points (in time) and performance information about risk and return, including a comparison of risk and performance estimates with actual outcomes. The disaggregation could be either by standard risk categories or asset classes (e.g., equity, fixed-income, currency, commodity) or by some other criterion that more correctly characterizes a bank's risk profile (for example, by business units or risk types). According to the Basel Committee on Banking Supervision, the disclosure requirements for each portfolio should include:

- Value at risk (VAR), broken down by type of risk or asset class and in the aggregate, estimated for one-day and two-week holding periods, and reported in terms of high, median, and low values over the reporting interval and at period end.
- Information about risk and return in the aggregate, including a comparison of risk estimates with actual outcomes, such as a histogram of daily profit/loss (P/L) divided by daily VAR, or some

other representation of the relationship between daily P/L and daily VAR.

- Qualitative discussion to help in comparison of P/L and VAR, including a description of differences between the basis of the P/L and the basis of VAR estimates.
- Quantitative measure of **firm-wide** exposure to market risk, broken down by type of risk, that in the bank's judgment best expresses exposure to risk, reported in terms of high, medium and low values over the reporting period and at period end.

Table 11.1 illustrates typical disclosures recommended by the Basel Committee on Banking Supervision.

Risk capital. In recognition of the increasing exposure of banks to market risk, and to benefit from the discipline that capital requirements normally impose, the Basel Committee amended the 1988 Capital Accord in January 1996 by adding specific capital charges for market risk. Part of the 1996 amendment is a set of strict qualitative standards for the risk management process that apply to banks basing their capital requirements on the results of internal models.

11.2 Portfolio Risk Management Policies

By its very nature, market risk requires constant management attention and adequate analysis. Prudent managers should be aware of exactly how a bank's market risk exposure relates to its capital. Market risk manage-

TABLE 11.1 DISCLOSURES OF MARKET RISK
Value-at Risk by Category and for Entire Institution

<i>Type of Risk / Asset Classes</i>	<i>Values during Period</i>			
	<i>High</i>	<i>Median</i>	<i>Low</i>	<i>End of Period</i>
Fixed Income				
Equity				
Currency				
Commodity				
Diversification Effect				
Aggregate VAR or other measure of risk				

ment policies should specifically state a bank's objectives and the related policy guidelines that have been established to protect capital from the negative impact of unfavorable market price movements. Policy guidelines should normally be formulated within restrictions provided by the applicable legal and prudential framework. While policies related to market risk management may vary among banks, there are certain types of policies typically present in all banks.

Marking to market. This refers to the (re)pricing of a bank's portfolios to reflect changes in asset prices due to market price movements. This policy requires that the asset be (re)priced at the market value of the asset in compliance with International Accounting Standard 39. The volume and nature of the activities in which a bank engages generally determine the prudent frequency of pricing. It is considered prudent for a bank to evaluate and (re)price positions related to its stable liquidity investment portfolio on at least a monthly basis. Since assets in a trading portfolio are sold and bought on an ongoing basis, price positions related to a bank's trading portfolio should be evaluated and marked to market at least once per day. The reports prepared in this process should be submitted to and reviewed by the senior bank managers responsible for the bank's investment, asset-liability, and risk management.

Other matters that should be addressed by the marking to market policy are pricing responsibility and the method used by a bank to determine the new (market) price of an asset. Risk management policy should stipulate that prices be determined and the marking to market be executed by officers who are independent of the respective dealer or trader and his or her managers. Some jurisdictions have enacted prudential regulations that specifically cover the process of marking to market the value of a bank's assets, sometimes with a high level of detail. In practice, the pricing of positions would be less than effective if independent, third-party price quotes were not taken into consideration. A bank should routinely acquire the latest price and performance information available from external sources on assets held in its portfolios.

Position limits. A market risk management policy should provide for limits on positions (long, short, or net positions), bearing in mind the liquidity risk that could arise on execution of unrealized transactions such as open contracts or commitments to purchase and sell securities (e.g., option

contracts or repurchase agreements). Such position limits should be related to the capital available to cover market risk. Banks, especially those with large stable liquidity investment and/or trading portfolios, would also be expected to set limits on the level of risk taken by individual traders and/or dealers. These limits are related to several factors, including the specific organization of investment/trading functions and the technical skill level of individual dealers/traders. The sophistication and quality of analytical support that is provided to the dealers/traders may also play a role, as do the specific characteristics of a bank's stable liquidity investment or trading portfolios and the level and quality of its capital. This type of policy should specify the manner and frequency of position valuations and position limit controls.

Stop-loss provisions. Market risk management policy should also include stop-loss sale or consultation requirements that relate to a predetermined loss exposure limit (risk budget). The stop-loss exposure limit should be determined with regard to a bank's capital structure and earning trends, as well as to its overall risk profile. When losses on a bank's positions reach unacceptable levels, the positions should either be automatically closed or consultations with risk management officers or the ALCO (asset and liability committee) initiated in order to establish or reconfirm the stop-loss strategy.

Limits to new market presence. Financial innovations involve profits that are much higher than those of standard instruments, because profit is a key motivating factor to innovate. In a highly competitive market environment, innovation also places pressure on competitors to engage in new business to make profits or to not lose a market presence. However, innovation involves a special kind of risk taking, requiring that a bank be willing to invest in or trade a new instrument even though its return and variance may not have been tested in a market setting, or even though the appropriate market for the instrument may not yet exist.

A prudent bank should have risk management policies that proscribe its presence in new markets and its trading in new financial instruments. Limits related to a new market presence should be frequently reviewed and adjusted. Because the high spreads initially available in new market segments attract competitors, markets may pick up at a fast pace. Increasing use of a new instrument also helps to increase the breadth and

depth of related secondary markets and to increase their liquidity. Once a market becomes established and sufficiently liquid, a bank should readjust the limits to levels applicable to mature markets.

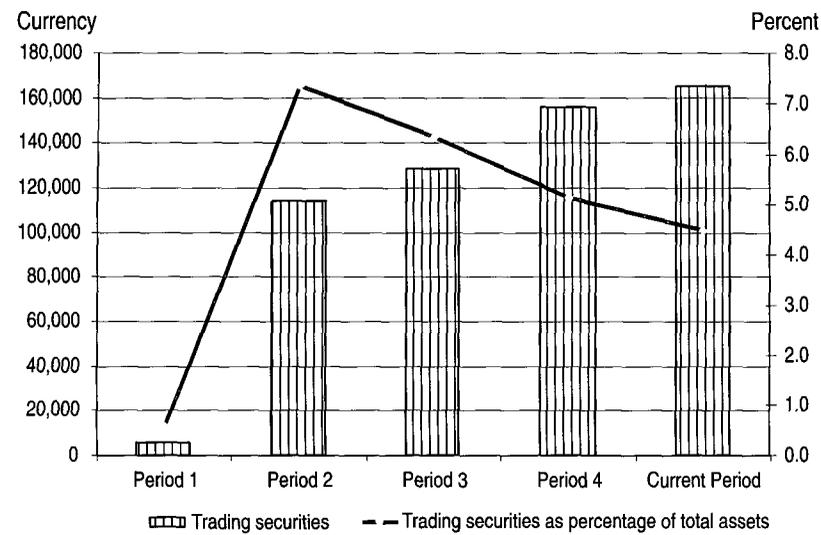
11.3 Trading Book and Management of Trading Activities

The availability of sophisticated computer technology in recent years has been instrumental in developing many new instruments. Technology has improved the quality of and access to information, and this in turn has increased the efficiency and liquidity of related secondary markets. Modeling and analytical tools that are supported with timely and accurate information and that are internally consistent provide the technical support necessary to conduct transactions and make decisions. Sophisticated computer programs additionally have enabled the simultaneous processing and risk evaluation of transactions, providing bank management and staff with the information needed to understand in real time the exact nature of risk and the value of open positions.

It is this technological capacity that has enabled banks to engage in trading — i.e., to take positions in financial instruments, including positions in derivative products and off-balance-sheet instruments. The bank takes these positions with the intention of benefiting in the short term from actual or expected differences between buying and selling prices, or from other price or interest rate variations. A bank's trading book may also include positions arising from brokering or market making, as well as certain instruments taken to hedge the risk exposures inherent in some trading activities. Figure 11.1 provides a picture of volumes and trends in the trading activities of banks in transitional economies.

Trading activities in most banks are carried out in organizational units that are held separate from standard banking activities. Most banks also recognize a portion of capital that is specifically allocated to cover the risk related to trading, and which is partially covered by Tier 3 capital (see Chapter 6). The management process for the bank's trading activities comprises elements similar to those of investment management. This includes decisions regarding the total volume of the trading book, the portfolio selection, and the security selection — i.e., the specific types of financial instruments and the shares that they constitute of the bank's trading book.

FIGURE 11.1 TRADING PORTFOLIO



The major difference is in management of the trading portfolio. The positions in the trading book are by definition held for short-term resale, and transactions are normally triggered by market price movements. The triggers proposed to and endorsed by the responsible senior management are expressed in terms of bid-offer spreads. The structure of the trading portfolio therefore is in constant flux throughout the trading day.

Trading activities require highly skilled analytical support. Traders must use some form of technical analysis to gauge market movements and market opportunities. A fundamental analysis of classes of securities and of market behavior is also needed for the trader to be able to anticipate price movements and position the portfolio accordingly. Ex-post analysis is also important to understand how market movements have affected profit and loss.

Due to the fast-changing nature of a bank's trading book and the complexity of risk management, banks engaged in trading must have market risk measurement and management systems that are conceptually sound and that are implemented with high integrity. The Basel Committee on Banking Supervision's capital adequacy standard for market risk specifies

a set of qualitative criteria that must be met for a bank to be eligible for application of the minimum multiplication factor for market risk capital charges. These criteria include (see also Chapters 6 and 9):

- ☐ An independent risk control unit responsible for the design and implementation of the bank's market risk management system. The unit should be independent from business trading units and should report directly to senior management of the bank. It should produce daily reports on and analysis of the output of the bank's risk measurement model, as well as analysis of the relationship between the measures of risk exposure and trading limits.
- ☐ Board and senior management who are actively involved in the risk control process and who regard risk control as an essential aspect of business. The daily reports prepared by the independent risk control unit should be reviewed by management that has sufficient seniority and authority to enforce reductions in the positions taken by individual traders and reductions in the bank's overall risk exposure.
- ☐ A market risk measurement system that is closely integrated into the daily risk management process of a bank and that is actively used in conjunction with trading and exposure limits. The risk measurement system should be subject to regular back-testing — i.e., to ex-post comparison of the risk measure generated by the bank's internal model against daily changes in portfolio value and against hypothetical changes based on static positions. The ultimate test remains actual profits or losses compared to the budgeted profits.
- ☐ A routine and rigorous program of stress testing to supplement the risk analysis provided by the risk measurement model. The results of stress testing should be subject to review by senior management and should be reflected in the policies and limits to market risk exposure, especially where stress tests reveal particular vulnerability to a given set of circumstances.
- ☐ A process to ensure compliance with a documented set of bank policies, controls, and procedures concerning the trading activities and the operation of the risk measurement system.

11.4 Market Risk Measurement

Given the increasing involvement of banks in investment and trading activities and the high volatility of the market environment, the timely and accurate measurement of market risk is a necessity, including measurement of the exposures on a bank's stable liquidity investment and trading portfolios and on- and off-balance-sheet positions. A simplistic approach to market risk assessment treats every market to which the bank is exposed as a separate entity and does not take into account the relationships that may exist among various markets (see Table 11.1). Each risk is therefore measured on an individual basis. A more comprehensive approach assumes risk assessment from a consolidated perspective, which takes into consideration the relationships among markets and the fact that a movement in one market may impact several others. For example, a fluctuation in the exchange rate may also affect the price of bonds issued in a particular currency.

Market risk factors include interest rates, exchange rates, equity prices, and commodity prices. **Interest rate risk** relates to positions in fixed-income securities and their derivatives (e.g., exchange-traded futures, forward rate agreements, swaps, and options). Risk factors related to interest rate risk are estimated in each currency in which a bank has interest-rate-sensitive on- and off-balance-sheet positions. The risk factors refer to the aggregate market sensitivity of the portfolio, where the short and long positions in different instruments may be offset.

Equity risk relates to taking or holding trading-book positions in equities or instruments that display equity-like behavior (e.g., convertible securities) and their derivatives (e.g., futures and swaps on individual equities or on stock indices). Similarly, equity-related risk is calculated for the specific risk of holding a security (beta) and for the position in a market as a whole. For derivatives, the risk is measured by converting the derivative into a notional equity position in the relevant underlying instrument.

Commodity risk refers to holding or taking positions in exchange-traded commodities, futures, and other derivatives. Commodity prices may be volatile, as commodity markets are often less liquid than financial markets and changes in supply and demand can have dramatic effects on prices. Managing a commodity book can be a complex task, as it entails

directional risk from changes in spot prices; basis risk due to changes in the price relationship between two similar, but not identical, commodities; and gap risk, which captures the changes in forward prices arising from maturity mismatches. Another operational aspect of commodities risk relates to delivery risk and the necessity to close out positions before delivery.

Currency risk refers to proprietary trading positions in currencies and gold. Excluded from this treatment are the so-called “structural positions,” — i.e., positions of a nondealing or nontrading nature such as investments in foreign branches (see Chapter 13). The net open position in a currency normally includes the spot position, the forward position, the delta-based equivalent of the total book of foreign currency options, and any other items in the trading books that represent profit or loss in foreign currencies.

The capacity to systematically assess and measure risk and to effectively manage the net open position is crucial. Methods range from calculation of the net open position (or market factor sensitivity) to value at risk and other more sophisticated estimates of risk. Table 11.1 provides an example of a simplistic but practical method to aggregate assets, as reflected on the balance sheet, to arrive at a net open position. Once forward and unsettled transactions are taken into account, a projected position is determined at book value, translated into market value, and then disclosed in terms of a common denominator representing the equivalent position in the cash markets. This methodology belongs to the static type of market risk measurement tools known as standard or table-based tools. Based on the net open position one can estimate the potential earnings or capital at risk by multiplying the net open position (market risk factor sensitivity) by the price volatility. This estimate provides a simple, one-factor value at risk; it does not, however, take into consideration the correlation between positions.

Risk is based on probabilistic events, and it is apparent that no single measurement tool can capture the multifaceted nature of market risk. Even the simplest aspects of market risk management can present a problem in real-life situations — particularly so when a bank does not have adequate portfolio systems. At an absolute minimum, marking to market is a fundamental measure that should be taken to protect a bank’s capital. Both the stable liquidity investment portfolio and the trading book should be marked to market on a daily basis to ensure that the real value of positions

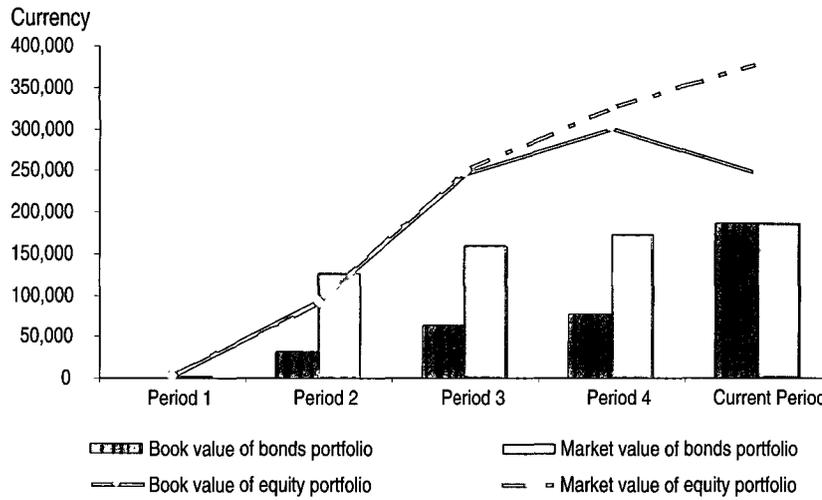
TABLE 11.2 SIMPLISTIC CALCULATION OF NET OPEN POSITIONS
(assuming uniform instruments in every market)

<i>Position</i>	<i>Commodities</i>	<i>Fixed-income</i>	<i>Equities</i>	<i>Currencies</i>
Net book value of assets per balance sheet				
Forward transactions				
Position at book value				
Position at market value before transactions in derivatives				
Position in derivatives (delta-equivalent position in options)				
Net effective open position after transactions in derivatives				
Possible movements in market prices (price volatility)				
Impact on earnings and capital				

is maintained. Figure 11.2 illustrates the differences between the nominal and market value of a bank's securities portfolios. For a bank's managers, analysts, and supervisors such a figure indicates the actual value of the stable liquidity investment and the trading portfolio and indicates the necessary steps that should be taken to protect capital.

The mark-to-market process explicitly recognizes market value gains and losses, which either flow directly through the income statement or which have to be accounted in a capital/reserves account. (For proprietary trading activities, IAS 39 requires that positions be marked-to-market, with the difference in market value then to flow through the income statement. See Chapter 14.) While the process is conceptually simple, marking to market can be difficult in markets that are shallow or lack liquidity. While most banks quantify market risks by tracing the historical loss experienced by various instruments and markets, banks in volatile or illiquid market environments, often without the benefit of sophisticated technology, face the problem of how to transform this complex analysis into a workable solution that can be effectively applied to their everyday business.

FIGURE 11.2 MARKING TO MARKET



One problem encountered by analysts and supervisors is that of banks deliberately avoiding or delaying recognition of losses. One such practice is the transfer of low-quality investment assets from one institution to another (or to the permanent investment category “held to maturity”). The transfer between institutions may be accomplished through simultaneous purchases and sales or through asset swaps with other banks or nonbank financial institutions. For example, bond swapping involves simultaneously selling and purchasing a security at a price above the (impaired) prevailing market value. IAS 39 has closed this loophole as the security would still be disclosed at fair value (if not held-to-maturity).

Underdeveloped infrastructure in a secondary market also could increase risk and complicate risk measurement. For example, in some markets settlement takes place several days or weeks after transactions are concluded. This lengthy settlement period necessitates an accurate assessment of counterparty risk — i.e., the risk that the position will move into the money during the settlement period and the counterparty fail to deliver. In some countries, markets in financial instruments are not liquid, resulting in potentially much higher market price volatility and therefore greater exposure to risk. The widespread development of derivative instruments has

allowed banks to hedge their open positions in ever more sophisticated ways; however, because market liquidity is a crucial precondition for the use of such instruments, concern has grown regarding the valuation and effectiveness of hedges made in less developed markets.

11.5 Value at Risk

Most of the large banks that are major players with high market risk exposures have developed sophisticated risk indices and tools for risk assessment and measurement that can be applied across different markets. While specific arrangements may differ, these internal risk measurement models usually fit a common conceptual framework. The models typically measure a bank's aggregate market risk exposure and, given a probability level, estimate the amount the bank would lose if it were to hold specific assets for a certain period of time. Since such VAR-based models cover a number of market risks, the bank is able to fine-tune its portfolio structure, drawing on a range of options for portfolio diversification to reduce the risk to which it is exposed and/or the associated capital requirements.

Inputs to a VAR-based model include data on the bank's positions and on respective prices, volatility, and risk factors such as the duration of assets. The data should be sufficiently comprehensive to capture all risks inherent in a bank's on- and off-balance-sheet positions. The risks covered by the model should include all interest, exchange rate, equity, and commodity and option positions inherent in the bank's portfolio. The measurement parameters include a holding period, a historical time horizon at which risk factor prices are observed, and a confidence interval that allows for prudent judgment of the optimal level of protection (i.e., that identifies the maximum acceptable losses). The observation period will be chosen by the bank to capture those market conditions that are relevant to its risk management strategy.

Internal models typically combine the potential change in the value of each position that would result from specific movements in the underlying risk factors with the probability of such movements taking place. The changes in value are aggregated at the level of trading-book segments and/or across all trading activities and markets. The VAR amount may be calculated using one of a number of methodologies:

- The **historical simulation approach** calculates the hypothetical change in value of the current portfolio, based on the historical past movements of risk factors (at a 99 percent confidence level, one could take the lowest of 100 daily observations and apply that return to the current portfolio to determine the maximum loss over the following day).
- The **delta-normal or variance/covariance methodology** is the methodology most widely used by portfolio managers. This approach assumes that the distribution of asset returns is normal and that returns are serially independent (i.e., are not influenced by the previous day's return). To calculate the potential change in value of the current portfolio, one computes the mean and standard deviation of asset returns to achieve a combination of risk factor sensitivities of individual positions in a covariance matrix, representing risk factor volatilities and correlations between each asset.
- The **Monte Carlo simulation method** constructs the distribution of the current portfolio using a large sample of random combinations of price scenarios, the probabilities of which are typically based on historical experience. This approach is more flexible than the other two methodologies and does not rely on assumptions regarding the normality of returns, but the number of scenarios grows rapidly with the complexity of a portfolio and its risk factors.

The Basel Committee has established certain quantitative standards for internal models when they are used in the capital adequacy context. The quantitative standards include a 99th percentile, one-tailed confidence interval; a “holding period” of 10 trading days; and an historical observation period of a minimum of one year (if recent price volatility has been high, however, a shorter observation period would yield a higher value than the horizon, covering a longer but overall less volatile period). VAR numbers should be aggregated on a simple sum basis across risk factor categories, taking into consideration cross-correlations within each category.

The Basel Committee market risk capital standard (see also Section 6.3) requires that the VAR be computed daily and the market risk-related capital requirements met on a daily basis. The capital requirement is expressed as the higher of the previous day's VAR and the average of the

daily VAR measures for each of the last 60 business days. This is then multiplied by an additional multiplication factor k (which has a minimum value of 3.0), designated by national supervisory authorities and related to the quality of a bank's risk management system.

Supervisors will increase k by a factor of between 0.0 and 1.0 according to the number of times that back-testing of the internal model has shown the projected VAR to have been exceeded. Since this "plus" factor is related to the ex-post performance of the internal model, this measure is expected to introduce a positive incentive to maintain a good quality model. The Basel Committee recommendation also includes a requirement that banks establish and regularly use a "routine and rigorous program" of stress tests to identify events or influences that can negatively impact a bank's capital position.

11.6 Stress Testing

The purpose of stress testing is to identify events or influences that may result in a loss — i.e., that have a negative impact on a bank's capital position. Stress tests should be both qualitative and quantitative in nature. Quantitative criteria should identify plausible stress scenarios that could occur in a bank's specific market environment. Qualitative criteria should focus on two key aspects of stress testing: evaluation of the bank's capacity to absorb potentially large losses, and identification of measures that the bank can take to reduce risk and conserve capital.

It is virtually impossible to develop a standard stress test scenario that has a consistent impact on all banks. Stress testing methodology therefore usually entails a number of steps, including the following:

- Review of information on the largest actual losses experienced during a specific period, compared to the level of losses estimated by a bank's internal risk measurement system. Such a review provides information on the degree of peak losses covered by a given VAR estimate.
- Simulation of extreme stress scenarios, including testing of a current portfolio against past periods of significant disturbance. Such testing should incorporate both the large price movements and the sharp reductions in liquidity that are normally associated with these events.

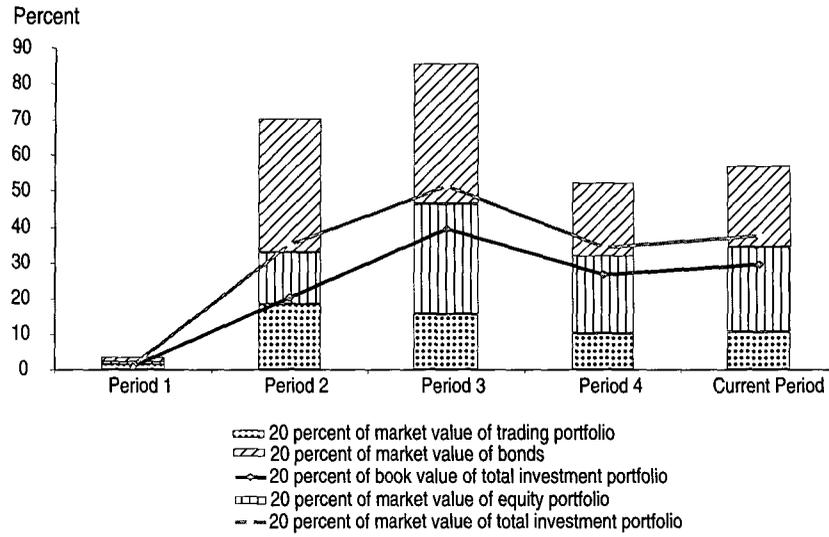
- Evaluation of the degree of sensitivity of a bank's market risk exposure to changes in assumptions about volatilities and correlations. In other words, the bank's current position should be compared to extreme values within the historical range of variations for volatilities and correlations.
- Execution of bank-specific test scenarios that capture specific characteristics of a bank's trading portfolio under the most adverse conditions.

The results of stress tests should be reviewed periodically by senior management and the board and should be reflected, as necessary, in changes in specific risk management policies and exposure limits. If the stress tests reveal a particular vulnerability, the bank should promptly address the situations and risks that give rise to that vulnerability. The stress-test scenarios and the testing results normally are subject to supervisory attention.

The complexity of stress tests normally reflects the complexities of a bank's market risk exposures and respective market environments. Figure 11.3 illustrates a relatively simple analysis for a bank, whereby a certain level of volatility resulting in an assumed percentage loss in value is assigned to each net effective open position in different asset categories (20 percent is assumed in this instance). This allows the calculation of the potential impact of market price volatility on the bank's future profits. The same type of analysis can also be implemented to assess the impact on a bank's capital if the expected market price volatility were to materialize. Management would then be able to determine risks and to make decisions about open positions in financial markets of interest-bearing instruments, equities, and/or currencies. (Another interesting aspect of this analysis is that monetary authorities could use it to determine the effects of an interest rate adjustment on bank income statements and balance sheets.)

Estimates derived in this way can also be used for portfolio evaluation and as a management tool. For example, the estimates can be compared to actual profit earned or loss incurred during the period under review. Comparison of the potential impact on profits with reported profits and losses additionally enables the quality of a bank's market risk management to be evaluated.

FIGURE 11.3 POTENTIAL AMOUNT OF QUALIFYING CAPITAL EXPOSED
(assumed 20 percent volatility)



CHAPTER 12

INTEREST RATE RISK MANAGEMENT

KEY MESSAGES

Interest rate risk is the sensitivity of capital and income to changes in interest rates.

Interest rate risk originates in mismatches in the repricing of assets and liabilities and from changes in the slope and shape of the yield curve.

Banks generally attempt to ensure that the repricing structure of their balance sheet generates maximum benefits from expected interest rate movements. This repricing structure may also be influenced by liquidity issues, particularly if the bank does not have access to interest rate derivatives to separate its liquidity and interest rate views.

The goal of interest rate risk management is to maintain interest rate risk exposures within authorized levels.

Interest rate risk management is one of the key aspects of asset-liability management. The asset-liability management committee (ALCO) addresses the protection of both income and capital from interest rate risk.

12.1 Introduction: Sources of Interest Rate Risk

All financial institutions face interest rate risk. When interest rates fluctuate, a bank's earnings and expenses change, as do the economic value of its assets, liabilities, and off-balance-sheet positions.¹ The net

1. Economic value is the fair value of an asset or liability based on business or other appropriate technical analysis (e.g., discounted cash flow analysis). The value deter-

effect of these changes is reflected in the bank's overall income and capital.

The combination of a volatile interest rate environment, deregulation, and a growing array of on- and off-balance-sheet products have made the management of interest rate risk a growing challenge. At the same time, informed use of interest rate derivatives such as financial futures and interest rate swaps can help banks manage and reduce the interest rate exposure that is inherent in their business. Bank regulators and supervisors therefore place great emphasis on the evaluation of bank interest rate risk management — particularly so since the implementation of market-risk-based capital charges as recommended by the Basel Committee.

Broadly speaking, interest rate risk management comprises the various policies, actions, and techniques that a bank can use to reduce the risk of diminution of its net equity as a result of adverse changes in interest rates. This chapter discusses various aspects of interest rate risk and reviews the techniques available to analyze and manage it. These include, in particular, repricing and sensitivity analyses.

Repricing risk. Variations in interest rates expose a bank's income and the underlying value of its instruments to fluctuations. The most common type of interest rate risk arises from timing differences in the maturity of fixed rates and the repricing of the floating rates of bank assets, liabilities, and off-balance-sheet positions.

Yield curve risk. Repricing mismatches also expose a bank to risk deriving from changes in the slope and shape of the yield curve. Yield curve risk materializes when yield curve shifts adversely affect a bank's income or underlying economic value. For example, a bank's position may be hedged against parallel movements in the yield curve; for instance, a long position in bonds with 10-year maturities may be hedged by a short position in five-year notes from the same issuer. The value of the longer-

mined on the marked-to-market basis is the recoverable value of an item, if it were to be placed on the market at the time when the marking-to-market is being performed. The economic value and marked-to-market value are not necessarily the same, as market prices are primarily supply- and demand-driven. In the medium to long term, economic value and market price should converge.

maturity instrument can still decline sharply if the yield curve increases, resulting in a loss for the bank.

Basis risk, also described as **spread risk**, arises when assets and liabilities are priced off different yield curves and the spread between these curves shifts. When these yield curve spreads change, income and market values may be negatively affected. Such situations can occur when an asset that is repriced monthly based on an index rate (such as U.S. treasury bills) is funded by a liability that also is repriced monthly, but based on a different index rate (such as LIBOR or swaps). Basis risk thus derives from unexpected change in the spread between the two index rates.

Optionality. An increasingly important source of interest rate risk stems from the options embedded in many bank assets and liabilities. Options may be standalone derivative instruments, such as exchange-traded options, or they may be embedded within otherwise standard instruments. The latter may include various types of bonds or notes with call or put provisions, nonmaturity deposit instruments that give depositors the right to withdraw their money, or loans that borrowers may prepay without penalty.

Assessing interest rate risk exposure. Since interest rate risk can have adverse effects on both a bank's earnings and its economic value, two separate but complementary approaches exist for assessing risk exposure. From the perspective of earnings, which is the traditional approach to interest rate risk assessment, the analysis focuses on the impact of interest rate changes on a bank's net interest income. As noninterest income has gained importance, so have shifts in economic value (viewed as the present value of the bank's net expected cash flows) resulting from interest rate changes.

In this sense, the economic value perspective also reflects the sensitivity of a bank's net worth to fluctuations in interest rates, therefore providing a more comprehensive view of the potential long-term effects of interest rate changes than the view provided by the earnings perspective. However, economic value assessments are necessarily driven by myriad assumptions, and their precision therefore depends on the accuracy and validity of those assumptions.

12.2 Risk Management Responsibilities

In principle, the sound management of interest rate risk requires systematic and adequate oversight by senior management. Also needed are risk management policies and procedures that are clearly spelled out and that are commensurate to the complexity and nature of a bank's activities and the level of its exposure to interest rate risk; appropriate risk measurement, monitoring, and control functions; and adequate internal controls. Interest rate risk should be monitored on a consolidated basis, including the exposure of subsidiaries. This does not imply the use of conventional accounting consolidation, which may allow offsets between positions from which a bank may not in practice be able to benefit, because of legal or operational constraints, but rather the use of proper mechanisms to ensure the completeness and integrity of the information on which the risk management decisions are made.

The bank's board of directors has ultimate responsibility for the management of interest rate risk. The board approves the business strategies that determine the degree of exposure to risk and provides guidance on the level of interest rate risk that is acceptable to the bank, on the policies that limit risk exposure, and on the procedures, lines of authority, and accountability related to risk management. The board also should systematically review risk, in such a way as to fully understand the level of risk exposure and to assess the performance of management in monitoring and controlling risks in compliance with board policies.

Senior management must ensure that the structure of a bank's business and the level of interest rate risk it assumes are effectively dealt with, that appropriate policies and procedures are established to control and limit risk, and that resources are available to assess and control it. Reports to senior management should provide aggregate information and a sufficient level of supporting detail to facilitate a meaningful evaluation of the level of risk, the sensitivity of the bank to changing market conditions, and other relevant factors.

In most cases, day-to-day risk assessment and management is assigned to a specialized committee, such as an asset-liability management committee (ALCO). Duties pertaining to key elements of the risk management process should be adequately separated to avoid potential conflicts of inter-

est — in other words, a bank's risk monitoring and control functions should be sufficiently independent from its risk-taking functions. Larger or more complex banks often have a designated, independent unit responsible for the design and administration of balance sheet management, including interest rate risk. Given today's widespread innovation in banking and the dynamics of markets, banks should identify any risks inherent in a new product or service before it is introduced, and ensure that these risks are promptly considered in the assessment and management process.

Banks should also have an adequate system of internal controls to oversee the interest rate risk management process. A fundamental component of such a system is a regular, independent review and evaluation to ensure the system's effectiveness and, when appropriate, to recommend revisions or enhancements. The results of such reviews are often required by the relevant supervisory authorities.

The goal of interest rate risk management is to maintain risk exposure within authorized levels, which may be expressed in terms of risk to income, the market value of equity, or both. The defined limits should be enforced and banks should introduce adequate procedures to keep risk exposures within those limits and to change the limits when they prove inadequate. At a senior level, limits are normally established relative to a bank's total income or capital and then are broken down by portfolios, activities, or business units. The design of the system of limits should ensure that positions which exceed assigned limits are promptly addressed by management.

12.3 Models for the Management of Interest Rate Risk

Banks should have clearly defined policies and procedures for limiting and controlling interest rate risk. The interest rate risk measurement system employed by a bank should comprise all material sources of interest rate risk and should be sufficient to assess the effect of interest rate changes on both earnings and economic value. The system should also provide a meaningful measure of the bank's interest rate exposure and should be capable of identifying any excessive exposures that may arise. It is important that it be based on well-documented and realistic assumptions and parameters. The system should cover all assets, liabilities, and

off-balance-sheet positions, should utilize generally accepted financial concepts and risk measurement techniques, and should provide bank management with an integrated and consistent view of risk in relation to all products and business lines.

Static “gap” model. It was common practice in the 1980s and early 1990s, for financial institutions to analyze their exposure to interest rate risk, using the “gap” approach. This approach is so named because it aims to allocate assets and liabilities to maturity “buckets,” defined according to their repricing characteristics and to measure the “gap” at each maturity point.

In a gap model, the components of the balance sheet are separated into items that are sensitive to interest rates and those that are not. These are in turn sorted by repricing period (or modified duration) and allocated to time periods known as time or maturity buckets. Maturity buckets should be set up based on key rates (described as specific maturity points on the spot rate curve) and should take into consideration the correlation of yields.

It is important to note that the focus of this analysis is on repricing (i.e., the point at which interest rates may be changed); and not on the concept of liquidity and cash flow. In terms of this approach to risk management, the gap is closed when the re-pricing of rate-sensitive assets and liabilities is adequately matched. Table 12.1 illustrates a simplified framework for conducting a repricing gap analysis.

TABLE 12.1 A REPRICING GAP MODEL FOR INTEREST RATE RISK MANAGEMENT

	<i>Repricing Gap</i>		
	<i>Short</i>	<i>Medium</i>	<i>Long</i>
Fixed-rate repricing gap			
Variable rate repricing gap			
Capital and nonrate items			
Subtotal			
Increase/decrease in gap as a result of derivatives			
Repricing gap after derivatives			
Interest rate changes - forecasts			
Impact on income statement of yield curve changes caused by an increase/decrease in bank rate			
Percentage capital exposed as a result of potential bank rate changes			

A positive gap indicates that a higher level of assets than liabilities reprice in the timeframe of the maturity bucket — a balance sheet position that is also referred to as asset-sensitive. This would give rise to higher income should the specific yield increase. The opposite balance sheet position is referred to as liability-sensitive or as negative gap, and describes a situation in which a similar increase in the yields associated with a specific time interval would produce a decrease in net interest income.

Theoretically, once a balance sheet repricing position is known, a framework is put into place to judge the overall exposure of a bank to interest rate fluctuations. Management then has the option of structuring a balance sheet to produce a zero gap, which would presumably immunize a bank from interest rate fluctuations. Such protection may, however, also result in a lower level of net interest margins. Banks generally attempt to ensure that the repricing structure of their balance sheet generates maximum benefits from expected interest rate movements. For example, if a bank expects short term yields to increase, it would want more assets than liabilities to be repriced in the short term. This is not always possible in practice because of the structural difficulties in illiquid markets, or because exchange controls limit access to offshore markets and to instruments that are designed to help manage risk exposure.

One of the benefits of a repricing gap model is the single numeric result, which provides a straightforward target for hedging purposes. Unfortunately, a repricing gap is a static measure and does not give the complete picture. Where management uses only current-year income to judge rate sensitivity, the repricing approach tends to overlook or downplay the effects of mismatches on medium- or long-term positions. Gap analysis also does not take into account variations in the characteristics of different positions within a time band; in other words, all positions within a time band are assumed to mature or reprice simultaneously. In reality, this will happen only to the extent the yields within the maturity bucket are highly or perfectly correlated and reprice off the same yield curve. A cumulative gap can arise from a number of different incremental gap patterns and may obscure yield curve exposures, i.e. sensitivity to the changes in the shape of the yield curve. In addition, gap analysis does not consider *expected* changes in balance sheet structure and ignores both basis risk and the sensitivity of income to option-related positions.

There are other limitations also to the efficacy of gap analysis. The level of net interest margin (the ultimate target of interest rate risk management) is normally determined by the relative yields and volumes of balance sheet items, the ongoing dynamics of which cannot be fully addressed by a static model. Moreover, a static gap model assumes linear reinvestment — a constant reinvestment pattern for forecast net interest income - and that funding decisions in the future will be similar to the decisions that resulted in the bank's original repricing schedule. A static gap model thus usually fails to predict the impact of a change in funding strategy on net interest margins.

Repricing gap models nonetheless are a useful starting point for the assessment of interest rate exposure. Banks also have over time progressed from simple gap analysis to more sophisticated techniques. Ideally, a bank's interest rate measurement system will take into account the specific characteristics of each interest-sensitive position and will capture in detail the full range of potential movements. As this is in practice extremely difficult to accomplish, in most instances an ALCO will employ a variety of methodologies for interest rate risk analysis.

Sensitivity analysis. This process applies different interest rate scenarios to a static gap model of a bank's balance sheet.

Simulation. This process involves constructing a large and often complex model of a bank's balance sheet. Such a model will be dynamic over time and will integrate numerous variables. The objective of a simulation exercise is to measure the sensitivity of net interest income, earnings, and capital to changes in key variables. The risk variables used include varying interest rate paths and balance sheet volumes. Simulation is highly dependent on assumptions, and requires significant time before the inputs made yield meaningful results; it may therefore be more useful as a business planning tool than for interest rate risk measurement. If it is used as a risk measurement tool, the parameters should be highly controlled to generate as objective a measure of risk as possible.

Duration analysis. Modified duration is a measure of price sensitivity to changes in interest rates. Specifically, modified duration gives the percentage change in the price of a fixed income security for a one basis point change in interest rates. This measure has become the single most common measure of interest rate risk for fixed income investment portfo-

lios and proprietary trading positions, and originally was used exclusively for these portfolios because they were marked to market and the change in the market value would flow through income. Corporate finance specialists, however, have increasingly focused attention on the economic value of the firm in addition to its current earnings. Given this change in focus, modified duration was introduced to measure the sensitivity of the economic value of capital to a change in interest rates.

Modified duration is based on the time to receipt of future cash flows. When interest rates rise, the net present value of a fixed set of future cash flows will decline. For marketable securities, this will translate into a commensurate decline in price. Conversely, when interest rates decline, the net present value or price of a series of future cash flows will increase. Modified duration indicates by how much the price will change in percentage terms given a one basis point change in rates.

This model requires bank management to focus on the modified duration of the investment portfolio as a whole, including the duration contribution of any derivatives position. Risk is measured on a net basis: the duration of the portfolio minus the duration of the benchmark or the duration of the underlying funding.

From an economic perspective, risk is measured by calculating the present value of *all* assets, liabilities and off-balance-sheet positions and then measuring the sensitivity of the net value to a change in interest rates. This model is sometimes referred to as a “duration gap” model and is not yet widely used to manage the interest rate risk of a bank. It has the advantage of providing a longer-term perspective than other models, such as simulation and interest rate gap models, which focus on current earnings, and is thus typically used as a complementary measure to set acceptable bands within which the duration exposure of capital may vary.

Current market practice. The more sophisticated banking institutions use a mixture of risk management strategies. Banks increasingly use derivative instruments such as swaps, options, and forward rate agreements to hedge interest rate exposure, and the more recent techniques, including simulation and duration gap analysis, better incorporate the impact of these instruments on a bank’s interest rate position.

Banks should measure their vulnerability to loss under stressful market conditions, including the breakdown of the key assumptions on which

their interest rate models are built, and should consider the results of any such assessment when establishing and reviewing their policies and limits on interest rate risk. The stress test should be tailored to the risk characteristics of a bank; it should also be designed to provide information on the circumstances in which the bank would be most vulnerable, and in which the assumptions and parameters on which the interest rate risk measurement or simulation models are based would experience sudden or abrupt changes. Test scenarios should consider such abrupt changes in the general level of interest rates and in the relationships among key market rates (especially those commonly used as index rates), and also should address potential changes in the volatility and/or liquidity conditions in all markets where the bank maintains a presence.

12.4 The Impact of Changes in Forecast Yield Curves

Current and forecast yield curves. In addition to the traditional repricing gap method having the limitations of any static model in a dynamic environment, the interpretation of a repricing schedule can also be rather complex, and require in-depth knowledge of a bank's operating characteristics. One can obtain yield curve forecasts from a bank and develop an understanding of the institution's interest rate view. This is a crude, but for the purposes of a bank assessment, effective way to understand the potential impact of a given change in interest rates on an income statement and capital and reserves.

The market's forward yield curves offer a more objective view on the paths interest rates may follow, indicating the market's expectations and providing a "best guess" estimate. The market additionally can provide objective measures of the expected volatility of yields that can be used, within a given confidence level, to measure risk

It must be accepted that, in certain markets, a balance sheet repricing structure cannot easily be changed. Figure 12.1 illustrates forecast yield curves for a range of instruments and a range of points in time, starting from the current period (displaying the actual yield curve) to a period one year into the future (displaying a forecast yield curve in the future).

Repricing gaps and sensitivity analysis. Figure 12.2 illustrates the effect on income and capital that is caused by a change in a key market

FIGURE 12.1 CURRENT AND FORECAST YIELD CURVES

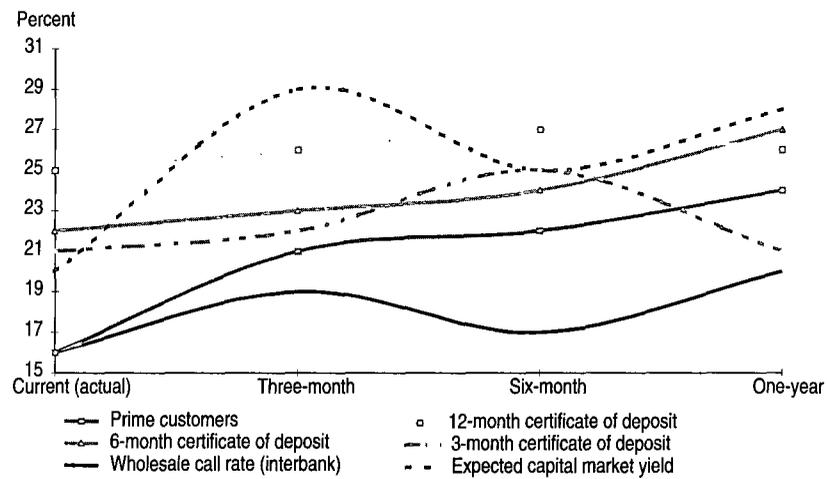
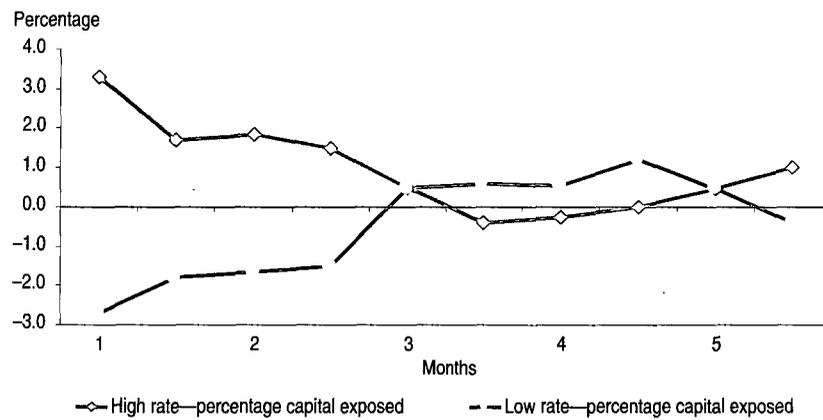


FIGURE 12.2 POTENTIAL EFFECT ON CAPITAL DUE TO A MOVEMENT IN EXPECTED YIELD CURVE



rate (such as the central bank discount rate). The objective of such a sensitivity analysis is to highlight the effect of a specific key rate on the income statement and on capital and reserves. Interest rate risk may not necessarily result in a loss, but it should be monitored to identify those banks that assume particularly significant levels of risk.

A bank normally should set limits to the impact it is prepared to absorb to its earnings and to the economic value of its equity in the event of changes in market interest rates. The form of limits should be related to the size and complexity of the bank's positions. For banks engaged in traditional banking activities and which do not hold derivatives or instruments with embedded options, simple limits are enough. For banks with complex and diversified business, a detailed limits system may be needed to take into account all possible sources of interest rate risk. Such a system should also consider specific scenarios of movements in market interest rates and historic rate volatilities.

CHAPTER 13

CURRENCY RISK MANAGEMENT

KEY MESSAGE

Currency risk results from changes in exchange rates and originate in mismatches between the values of assets and liabilities denominated in different currencies.

Other types of risk that often accompany currency risk are counterparty risk, settlement risk, liquidity risk, and currency-related interest rate risk.

When assessing currency risk, one must distinguish between the risk originating in political decisions, risk resulting from traditional banking operations, and the risk from trading operations.

Currency risk is managed by establishing position limits.

The key currency risk management limit is the net effective open position. The net effective open position of all currencies, added together as absolute values and expressed as a percentage of qualifying capital, should not exceed a predetermined value.

Currency risk management forms part of the asset-liability management process.

13.1 Introduction: Origin and Components of Currency Risk

Currency risk results from changes in exchange rates between a bank's domestic currency and other currencies. It originates from a mismatch, and may cause a bank to experience losses as a result of adverse

exchange rate movements during a period in which it has an open on- or off-balance-sheet position, either spot or forward, in an individual foreign currency. In recent years, a market environment with freely floating exchange rates has practically become the global norm. This has opened the doors for speculative trading opportunities and increased currency risk. The relaxation of exchange controls and the liberalization of cross-border capital movements have fueled a tremendous growth in international financial markets. The volume and growth of global foreign exchange trading has far exceeded the growth of international trade and capital flows, and has contributed to greater exchange rate volatility and therefore currency risk.

Currency risk arises from a mismatch between the value of assets and that of capital and liabilities denominated in foreign currency (or vice versa), or because of a mismatch between foreign receivables and foreign payables that are expressed in domestic currency. Such mismatches may exist between both principal and interest due. Currency risk is of a “speculative” nature and can therefore result in a gain or a loss, depending on the direction of exchange rate shifts and whether a bank is net long or net short in the foreign currency. For example, in the case of a net long position in foreign currency, domestic currency depreciation will result in a net gain for a bank and appreciation will produce a loss. Under a net short position, exchange rate movements will have the opposite effect.

In principle, the fluctuations in the value of domestic currency that create currency risk result from changes in foreign and domestic interest rates that are, in turn, brought about by differences in inflation. Fluctuations such as these are normally motivated by macroeconomic factors and are manifested over relatively long periods of time, although currency market sentiment can often accelerate recognition of the trend. Other macroeconomic aspects that affect the domestic currency value are the volume and direction of a country’s trade and capital flows. Short-term factors, such as expected or unexpected political events, changed expectations on the part of market participants, or speculation-based currency trading may also give rise to currency changes. All these factors can affect the supply and demand for a currency and therefore the day-to-day movements of the exchange rate in currency markets. In practical terms, currency risk comprises the following:

- **Transaction risk**, or the price-based impact of exchange rate changes on foreign receivables and foreign payables — i.e., the difference in price at which they are collected or paid and the price at which they are recognized in local currency in the financial statements of a bank or corporate entity.
- **Economic or business risk** related to the impact of exchange rate changes on a country's long-term or a company's competitive position. For example, a depreciation of the local currency may cause a decline in imports and larger exports.
- **Revaluation risk or translation risk**, which arises when a bank's foreign currency positions are revalued in domestic currency or when a parent institution conducts financial reporting or periodic consolidation of financial statements.

There are also other risks related to international aspects of foreign currency business that are incurred by banks conducting foreign exchange operations. One such risk is a form of credit risk that relates to the default of the counterparty to a foreign exchange contract. In such instances, even a bank with balanced books may find itself inadvertently left with an uncovered exchange position. Another form of credit risk peculiar to exchange operations is the time-zone-related settlement risk. This arises when an exchange contract involves two settlements that take place at different times due to a time-zone difference, and the counterparty or the payment agent defaults in the interim. The maturity mismatching of foreign currency positions can also result in interest rate risk between the currencies concerned, where a bank can suffer losses as a result of changes in interest rate differentials and of concomitant changes in the forward exchange premiums, or discounts, if it has any mismatches with forward contracts or derivatives of a similar nature.

13.2 Policies for Currency Risk Management

Policy-setting responsibilities. There are many activities of banks that involve risk-taking, but there are few in which a bank may so quickly incur large losses as in uncovered foreign exchange transactions. This is why currency risk management deserves the close attention of the bank's

board and senior management. The board of directors should establish the objectives and principles of currency risk management. These should specifically include setting appropriate limits to the risks taken by the bank in its foreign exchange business and establishing measures to ensure that there are proper internal control procedures covering this area of the bank's business. Within this framework, specific policies and limits should be determined by a risk management committee such as ALCO. The policy guidelines should be periodically reviewed and updated to properly match the bank's risk profile with the quality of its risk management systems and staff skills.

The policy guidelines should also reflect changing circumstances in domestic and international currency markets, and should accommodate possible changes in the currency system; for example, in the form of capital controls introduced as the result of political decisions or of the underlying macroeconomic conditions of particular countries that would affect the currency exchange rate. In addition, the policies should specify the frequency of revaluation of foreign currency positions for accounting and risk management purposes. In principle, the frequency of revaluation and reporting should be commensurate with the size and specific nature of the bank's currency risk exposures.

For management and control purposes, most banks make a clear distinction between foreign currency exposure resulting from dealing and trading operations and exposures due to a more traditional banking business, involving assets, liabilities, and off-balance-sheet exposures denominated in a foreign currency. These may include loans, investments, deposits, borrowings, or capital, as well as guarantees or letters of credit. Due to the different nature of operations and the concomitant risk exposures, banks also typically maintain two types of currency risk management processes. Currency risk management involving dealing/trading operations must be an information-intensive day-in/day-out process under close scrutiny by senior management and the risk management committee, while management of traditional banking operations is in most cases carried out on a monthly basis.

Risk exposure limits. A bank has a net position in foreign currency and is exposed to currency risk when its assets (including spot and future contracts to purchase) and its liabilities (including spot and future con-

tracts to sell) are not equal in a given currency. Banks should have written policies to govern their activities in foreign currencies and to limit their exposure to currency risk and therefore to potential incurred losses. In principle, limits are established based on the nature of currency risk and the type of business by which that risk is incurred. These limits, whether they are expressed in absolute or relative terms, should be related to a bank's risk profile and capital structure and to the actual history of a currency's market behavior.

Limits may be applicable in various timeframes depending on the dynamics of the particular activity. Limits on dealing/trading are typically established for overnight positions, but for some extremely dynamic activities, such as spot trading, intraday limits may be necessary. The less liquid is a currency market and/or the more volatile is the currency, the lower should normally be set the currency risk exposure limit.

The **net open position limit** is an aggregate limit of a bank's currency risk exposure. Normally expressed as a percentage of the bank's capital, it may also be shown in relation to total assets or to some other benchmark. Logically, the net open position limit represents a proxy for the maximum loss that a bank might incur due to currency risk. If the exchange rates of currencies in which a bank holds open positions are perfectly correlated, the limit on a net open position would be sufficient for currency risk management purposes. In terms of aggregation of a bank's exposure to various currencies, the perfect correlation would imply that long and short positions in various currencies could simply be netted.

Since currencies are not perfectly correlated, a bank's choice on how to aggregate net open positions in various currencies in order to arrive at a total net open position (also known as the gross aggregate position) for currency risk management purposes is an indication of the bank's risk management stance. A conservative bank aggregates by adding together the absolute values of all open positions in specific currencies, implying that the exchange rates of all currencies are expected to move in such a way that all positions would result in simultaneous losses. A less conservative bank often chooses a middle route, such as aggregating all short positions and all long positions in various currencies and taking the larger of the two as an indicator of the aggregate (total) net open position. This latter method is also known as the "short-

hand method,” and has been accepted by both the Basel Committee and the European Union.

In many countries, prudential regulations specifically limit the net open position; that is, a bank’s total exposure to currency risk. In some countries limits are common for all banks holding a foreign exchange license, while in others the limits are established on a bank-by-bank basis according to the supervisors’ assessments of the quality of risk management and the technical capacity of staff. Efforts also have been made internationally to reach agreement on capital requirements related to currency risk, with a view to promoting these as an international standard.

In principle, the prudential limit established in a particular country should be related to exchange rate volatility. In practice, the prudential limit to the net open position is frequently set at 10–15 percent of a bank’s qualifying capital. In periods when significant domestic currency devaluation is expected, the central bank may further restrict short positions in foreign currencies. In countries with relatively stable exchange rates and external convertibility, net open position limits tend to be higher or nonexistent.

Currency position limits. A well-managed bank should also maintain a set of specific limits on its risk exposure to specific currencies — in other words, it should establish limits on net open positions in each currency. Currency position limits can apply to balance sheet revaluation points, overnight positions, or intraday positions. These limits can be adjusted on a case-by-case basis depending on the bank’s expectations of shifts in the exchange rate between the domestic currency and the foreign currency.

Other position limits. If engaged in currency dealing/trading, a bank should normally maintain limits on spot positions in each currency. Within these limits it also should establish limits for its individual currency dealers/traders. If a bank is engaged in business with derivatives, it should establish limits on the size of mismatches in the foreign exchange book. These limits are typically expressed as the maximum aggregate value of all contracts that may be outstanding for a particular maturity. Procedures may vary among banks, but specific limits are generally set on a daily basis for contracts maturing in the following week or two, on a biweekly basis for contracts maturing in the next six months, and on a monthly basis for all other contracts.

Stop-loss provisions. Most banks that actively participate in currency markets also maintain “stop-loss” provisions, or predetermined loss exposure limits on various positions and/or currencies. Stop-loss exposure limits should be determined based on a bank’s overall risk profile, capital structure, and earning trends. When losses reach their respective stop-loss limits, open positions should automatically be covered. In volatile or illiquid markets, however, the stop-loss limit may not be fully effective, and the market may move past a stop-loss trigger before an open position can be closed.

Concentration limit. The market value of a foreign exchange-denominated contract is normally sensitive to both the contract’s maturity and the exchange rates between the relevant currencies. High concentration always increases risk. A bank should therefore establish limits on the maximum face value of a contract in specific currencies and/or on aggregate face values of all contract combined.

Settlement risk. Settlement can become complex in the context of foreign currency operations, as it may involve parties in different time zones and hours of operation. An open position may last for several hours, and while actual losses rarely materialize the size of a potential loss can be large. While settlement risk can be mitigated by a request for collateral, a bank should also establish specific limits on exposure to settlement risk. These limits should be related to the total amount that is outstanding and subject to settlement risk on any given day. A bank may also establish limits on settlement risk within the total exposure limit placed on a counterpart. In such cases, a limit could be viewed as a component of credit risk.

Counterparty risk. All transactions involving foreign contracts or foreign currency receivables also involve counterparty risk — the exposure to loss because of the failure of a counterparty to a contract to make the expected payments. Such risk may in turn be due to circumstances in the country in which the counterparty conducts business. This risk is particularly pronounced in countries that lack external convertibility and where the government imposes restrictions on access to the foreign exchange market and/or on cross-border foreign exchange transactions. To minimize the risk, a bank should establish counterparty risk limits, especially for counterparties in countries that lack convertibility or where potential exists for the development of a shortage of foreign exchange.

Overnight and forward positions to individual counterparties are typical. Conservative banks may also establish country limits related to the total exposure to all counterparties based in a specific country.

Revaluation (or Translation) refer to the points in time when a bank revalues its on- and off-balance-sheet positions in order to estimate the potential losses that existing positions might produce. Revaluation is essentially the same as “marking to market,” except that it pertains to changes (as a result of exchange rate fluctuations) in the domestic currency value of assets, liabilities, and off-balance-sheet instruments that are denominated in foreign currencies. Revaluation is an important risk management tool, regardless of whether or not gains/losses have to be recognized for tax or supervisory purposes under applicable accounting regimes.

The frequency of revaluation for internal risk management purposes must be attuned to specific market conditions and to the degree of currency risk that is implicit in a bank’s operations. When estimating potential gains and losses, a bank should use conservative estimates of potential future exchange rate movements. The determination of “realistic” exchange rates for revaluation purposes can be complex. Estimates are easiest to make for countries with freely convertible domestic currency and are typically derived from historical exchange rate movements. For countries lacking convertibility and/or where rates are subject to manipulation or government intervention, estimates are difficult to make because rates can change significantly and unexpectedly. Conservative banks also conduct revaluations under worst-case scenarios. Clearly, not all positions can always be closed out, particularly in countries where there is restricted convertibility or market access: the objective is to determine early enough what measures may need to be taken to protect the bank.

Liquidity risk concerns. Currency risk management should incorporate an additional liquidity risk-related aspect. Foreign currency transactions, whether originating on the balance sheet or off the balance sheet, may introduce cash flow imbalances and may require the management of foreign currency liquidity. This process can be carried out using a liquidity or maturity ladder that indicates mismatches and commitments over time in each currency. A bank may also establish limits on mismatches in specific currencies for different time intervals.

In countries where the national currency does not have external convertibility, maturity mismatches result in higher liquidity risk, since a bank may have difficulty acquiring the necessary amount of foreign currency in a timely manner. In such countries, the central bank is often an active participant in foreign exchange markets and may provide the liquidity in foreign exchange that is needed for current account transactions. When assessing the adequacy of a bank's foreign exchange liquidity management in a country that lacks external convertibility, an analyst should, for liquidity support purposes, be thoroughly familiar with the applicable foreign exchange market arrangements.

The accounting treatment of currency risk-related losses is of key importance for a bank's management, as well as for analysts and supervisors. Accounting treatments may vary among countries, depending on the purpose of revaluation. An analyst should be thoroughly familiar with the rules that are locally applicable on the accounting treatment of gains or losses arising from currency risk. The analyst should also be familiar with the process of revaluation and with the accounting rules used by a bank under review for risk and internal management reporting purposes.

Making rules for the recognition of gains or losses, which have immediate tax and other implications, requires careful consideration by authorities and bank regulators. This is particularly important in unstable and volatile economies that lack external convertibility and that are characterized by frequent and drastic domestic exchange rate adjustments. In many transition economies, a depreciation of the national currency against the currencies of major trading partners by 200 percent per annum is not uncommon, and depreciation by 30 to 50 percent is frequent. Analysts and supervisors must be extremely careful when interpreting the financial statements of banks in such environments.

For tax and supervisory purposes, revaluations of balance sheet positions are usually considered to be realized gains or losses, and revaluations of off-balance-sheet positions are considered unrealized. The most conservative approach requires that all gains and losses be promptly reflected in earnings. Some regulators require that only realized gains or losses and unrealized losses are reflected in earnings. Some countries also permit the deferment of recognition of both unrealized gains and unrealized losses, resulting in misstated capital and earnings.

In developing countries, the apparent application of a standard accounting treatment of gains and losses may be counterproductive if the taxation system requires tax payment on all gains, even if the assets are subject to sale restrictions. In a country with a currency that is depreciating rapidly, even a small open position may create accounting adjustments in amounts that are comparable to or even greater than a bank's business in the domestic currency. An example that illustrates this point is a situation that occurred in a transition economy where accounting adjustments of bank balance sheets due to exchange rate movements were considered as realized gains or losses. In the process of banking system rehabilitation, assets of impaired value were replaced by government securities denominated in freely convertible currencies, such as U.S. dollars. This created large net long positions in the banking sector. In the case in question, banks were not allowed to sell or trade bonds if the discount factor was greater than 10 percent, making it impossible for them to close or reduce long positions. Subsequent significant devaluation of the national currency created large "realized" foreign exchange gains that were duly taxed. This in turn resulted in the drain of liquidity from the banking sector and significant damage to the banking sector and the entire economy.

13.3 Currency Risk Exposure and Business Strategy

Most banks, especially those operating in countries with unstable currencies, are keenly aware of the risks associated with foreign currency business. The degree of currency risk exposure is therefore a matter of business orientation and is often related to a bank's size. Smaller and new banks often limit their business to servicing the foreign currency needs of their customers. This involves selling or buying foreign currency on the customer's behalf, a process whereby the open currency positions that such transactions create normally are closed within minutes. Such banks are exposed to currency risk for very short periods of time and to a limited extent, and therefore do not need elaborate currency risk management.

Banks that maintain correspondent banking relationships with foreign banks or that support customer transactions denominated in foreign exchange are exposed to much higher levels of currency risk. The risk is higher still for banks that lend and/or borrow in foreign exchange, as this

may result in open currency positions or maturity mismatches. This business profile is typical of medium-size banks or larger banks in developing countries. Figure 13.1 illustrates the potential volume of foreign currency business as part of a bank's balance sheet structure in a developing country.

Banks that are engaged in such activities should operate the appropriate currency risk management policies. The extent of operations and risk-taking should correspond to the quality of the bank's risk management process and its capital position, and should be in line with the regulatory, macroeconomic, and financial market environment of each respective country. In practical terms, currency risk management can be an especially challenging task in countries that lack external convertibility. Exchange rate stability can be contrived, since conditions in the currency markets of such countries — such as the right of access and the type of transactions that are allowed in the market — are often subject to manipulation by the authorities. Markets that are shallow can be greatly influenced by expectations, and exchange rate adjustments, when they occur, tend to be drastic and are often introduced at unexpected times. Banks operating in such environments are exposed to a much higher degree of currency risk, and it is much more difficult to determine sound limits to such exposure.

FIGURE 13.1 CURRENCY STRUCTURE OF ASSETS AND LIABILITIES

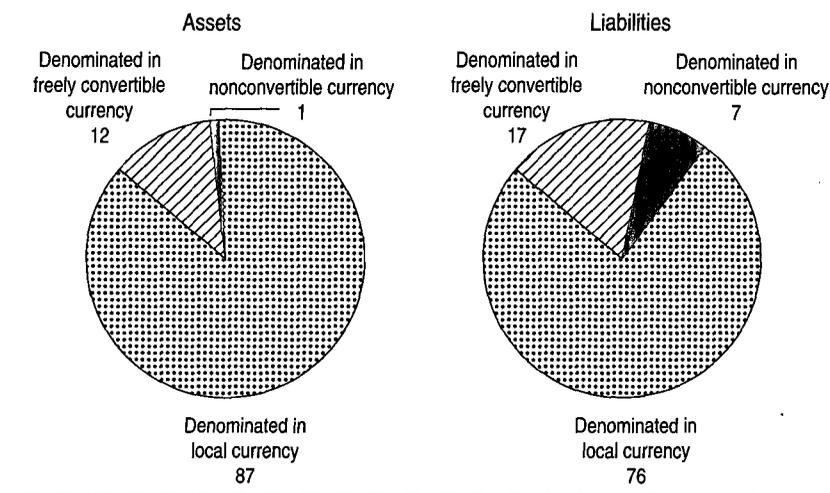
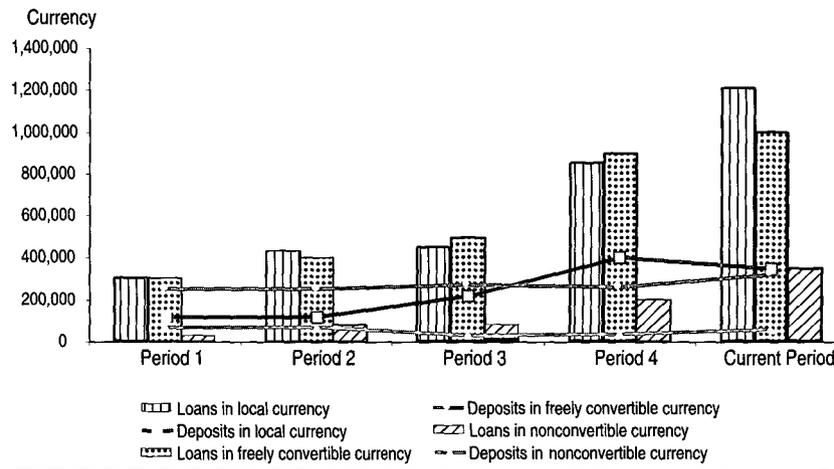


Figure 13.2 illustrates a bank's currency structure of loans and deposits. The bank is clearly on a fast growth path. Its loan portfolio significantly exceeds the funding capacity provided by its deposit base and indicates that the growth has been fueled by non-deposit borrowings, which probably includes foreign borrowings. The bank is therefore exposed to funding and currency risk. For a bank in a developing country, where access to international markets may be limited, subject to restrictions, or even closed due to circumstances over which the bank has no control, a foreign exchange position such as this entails a high risk exposure.

Recognition of the increased risk and of the needed technical skills associated with the foreign exchange business has prompted regulators in almost all countries that do not maintain external convertibility to introduce two types of bank licenses. For a license to operate only in its domestic currency, a bank has to satisfy only minimum capital and technical requirements. A bank wishing to also operate in foreign currencies must meet much higher minimum capital and other requirements to obtain a license. The minimum capital needed for a foreign exchange license is typically two to three times more than is required for a domestic currency license.

FIGURE 13.2 CURRENCY STRUCTURE OF LOAN PORTFOLIO AND CUSTOMER DEPOSITS



Large and well-capitalized banks, including so-called internationally active banks, look to foreign exchange operations as a source of profits. Such banks actively engage in currency trading and/or may play the role of market makers; in other words, they may become dealers in foreign currencies. Banks engaged in currency markets and spot trading may carry sizeable net open positions, although for relatively brief periods of time. In certain circumstances, however, spot rate movements may become so rapid that an open position results in losses in hours or even minutes. In addition to adequate foreign exchange risk management policies, spot trading critically requires effective organization and technically competent staff, sophisticated technology and effective information systems, and access to up-to-the-minute information. Banks that lack adequate information resources are much more vulnerable to sudden spot rate movements prompted by temporarily unbalanced supply/demand conditions, inside information, or rumors.

Banks may also be engaged in forward foreign exchange transactions, in which the maturity of the forward contract can be a few days, months, or years. Forward rates are affected not only by spot rates, which are normally influenced by market conditions, but also by interest rate differentials. A change in differentials may therefore result in a profit or a loss on a forward position, requiring that these be actively managed. This in turn requires a significant capacity for information processing. In this case, a bank should maintain a forward book, which is usually managed on a gap (mismatch) basis. A forward book typically necessitates a close look, on a weekly or a biweekly basis, at forward positions for contracts nearing maturity, and a look on a monthly basis for other contracts. A bank may take a view regarding expected movements in interest rate differentials and then manage its forward positions in a way that is compatible with expected movements.

A bank may deliberately maintain open positions to take advantage of expected exchange rate movements. This usually takes a form of currency market arbitrage, or sometimes speculation, and involves the buying and selling of foreign currencies, securities, or derivatives. It is motivated by discrepancies between spot exchange rates prevailing at the same time in different markets, or differences between forward margins for various maturities or interest rates that exist concurrently in different markets or currencies.

Buying a currency in one market for simultaneous sale in another market is termed arbitrage in space; the creation of an open position in a currency in anticipation of a favorable future exchange rate movement is arbitrage in time. Switching from one currency to another in order to invest funds at a higher yield is currency-related interest arbitrage. From the point of view of the supervisory authorities, however, any deliberate assumption of risk on an open position is usually characterized as speculation, rather than arbitrage.

Banks averse to risk may avoid dealing in forward contracts altogether and instead engage in currency swaps. Two parties to a currency swap agreement undertake to exchange a series of payments in different currencies at a pre-agreed exchange rate. A single period swap is referred to as a forward rate agreement. A currency swap avoids a net open currency position but still has to be marked to market. In any case, in a normally dynamic trading environment it is virtually impossible for a bank active in currency markets to maintain covered positions in all currencies at all times. Short or long positions in various currencies alternate any number of times during the course of a day. At certain times, established by its currency risk management procedures, a bank therefore typically determines its open positions and takes the necessary actions to cover excessive risk exposures, usually by arranging for swaps.

Prudent risk management for a bank normally engaged in a larger number of spot and forward transactions each day requires the establishment of a formal procedure for computing unrealized profits/losses at least on a daily basis — and calculations more frequent than this are desirable. Such calculations should normally include the entire foreign exchange book. This is a precondition for effective portfolio management, and provides a bank's management with a meaningful insight into the performance of its foreign exchange operations and the associated risk.

13.4 Currency Risk Management and Capital Adequacy

The volume of a bank's foreign currency operations, including its standard on- and off-balance-sheet operations in foreign exchange and trading operations, should normally be determined by the access conditions of and liquidity in respective markets. When assessing a bank's exposure to currency risk and the adequacy of its risk management techniques, an

analyst must be aware of the regulatory environment and market conditions in the relevant countries and of the bank's access to those markets. Currency markets in developing countries often have restricted access and may lack liquidity, and the availability of adequate hedging instruments may be limited. These factors should be reflected in the bank's policies and operations.

A key aspect of currency risk management review is the assessment of whether or not a bank has the capacity to adequately handle its level of operations in foreign exchange. The bank's currency risk exposure policies, the extent to which exposures are taken, risk management procedures, and exactly how exposures are managed all must be taken into consideration. A review should also take into consideration the bank's regulatory and market environment, its asset size, capital base, customer volume in foreign exchange, the experience of its staff, and other relevant factors. The nature and availability of instruments that can be used to hedge or offset currency risk are also critical.

The key determinant of currency risk management is the policies that place limits on currency risk exposure, and which should be reassessed on a regular basis to reflect potential changes in exchange rate volatility and an institution's overall risk philosophy and profile. The limits should be established in the context of an institution's overall risk profile to reflect aspects such as capital adequacy, liquidity, credit quality, market risk, and interest rate risk. The relative importance of each policy depends on a particular bank's circumstances and operations. All applicable policies and procedures, including operational guidelines, should be clearly defined and adjusted whenever necessary. Senior management responsible for policymaking must fully understand the risks involved in foreign exchange operations. The basis upon which specific policies and exposure limits are formed must be clearly explained in a consistent and logical manner.

The Basel recommendation for supervisors/management is to ensure that a bank has in place appropriate limits and that it implements adequate internal controls for its foreign exchange business. Risk procedures should cover the level of foreign currency exposure that an institution is prepared to assume, and at the minimum should include intraday, overnight, and forward limits for currencies in which an institution is authorized to have

an exposure — individually and for all currencies combined. Stop-loss limits and settlement limits should also be determined.

Currency risk management can be based on gap or mismatch analysis using the same principles as liquidity risk and interest rate risk management. The process should aim to determine the appropriate mismatch or imbalance between maturing foreign assets and liabilities. This mismatch can be evaluated in light of basic information such as current and expected exchange rates, interest rates (both locally and abroad), and the risk-return profile that is acceptable to bank management. (The market risk related to currency trading is discussed in detail in Chapter 11.)

Table 13.1 illustrates a simplistic method to calculate the net effective open position. The calculation of a net effective open position in a currency should consider the exposures reflected both on and off the balance sheet, and should include the net spot position (i.e., all asset items minus all liability items, including accrued interest denominated in the currency in question); net forward position (i.e., amounts to be received minus amounts to be paid under forward foreign exchange transactions, plus the principal on currency swaps not included in the spot position); mismatched forward commitments; net positions in derivatives, and positions resulting from operations in foreign branches.

The net position in all currencies should be aggregated, and attention paid to the exact method of aggregation of the open positions that is used

TABLE 13.1 OPEN POSITIONS IN FOREIGN CURRENCIES

<i>Month end:</i>	<i>U.S. Dollars</i>	<i>UK Sterling</i>	<i>Swiss Francs</i>	<i>Euro</i>	<i>Japanese Yen</i>	<i>Total</i>
Total FX assets						
Total FX liabilities						
Net spot position						
Mismatched forward commitment						
Foreign branches/operations						
Net position in derivatives						
Net effective open position after hedging						
Maximum net open position during the month						

by the bank. A conservative bank should aggregate by adding the absolute value of open positions, thereby projecting the worst possible scenario for exchange rate movements.

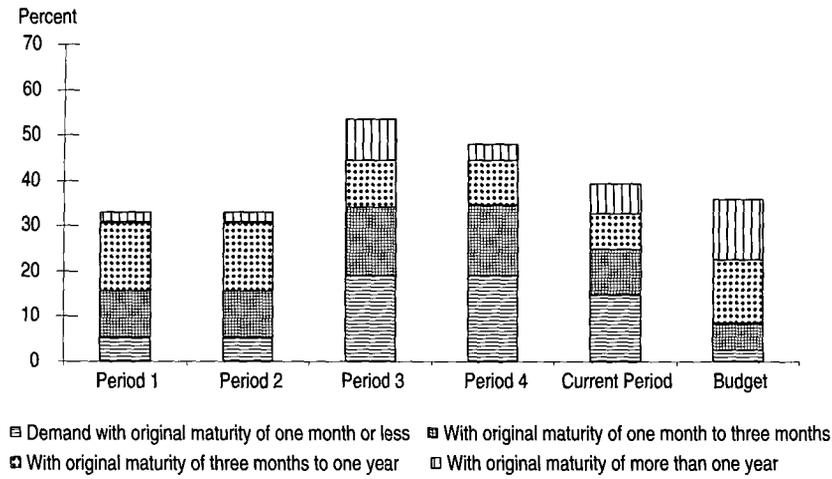
Banks in many developing countries often handle freely convertible currencies as a single currency for risk management purposes. The rationale for this approach is that risk exposure arising from movements in the exchange rates of hard currencies is much less than that arising from fluctuations in domestic currency. In addition, the grouping of freely convertible currencies simplifies currency risk management. While this system is usually adequate in countries where banks are not engaged in forward contracts or derivatives, situations exist in which it may backfire. For example, environmental disasters, political events, and announcements of unexpectedly bad macroeconomic indicators may promptly and significantly increase cross-currency risk.

When mismatches in the maturity structure occur, interest rate and liquidity risk develops. A bank should have well-defined procedures for the management of such mismatches in order to maximize income and limit potential loss. Figure 13.3 illustrates the analysis of a foreign currency deposits maturity structure. The maturity structure of loans funded by these deposits should fully correspond to the deposit maturity structure. If a bank's risk management policies permit the running of mismatches, the analyst should look for evidence that the bank is performing effective "what if" studies. Doing so will help the bank attain an effective limit structure.

Managing maturity mismatches is a challenging task. With regard to maturity gaps in the forward book, the key issue is not the expected behavior of interest rates in relation to the various maturities of a single currency, but the expected differential between the interest rates of two currencies for various maturities and the respective risk implications. This is obviously a more complex situation than the management of interest rate risk for a single currency. The elimination of maturity gaps on a contract-by-contract basis furthermore is practically impossible for a bank that is actively involved in currency markets and that has a foreign exchange book comprising hundreds of outstanding contracts.

Maturity gaps are typically handled by the use of swaps. This is a relatively sound risk management practice so long as any changes in

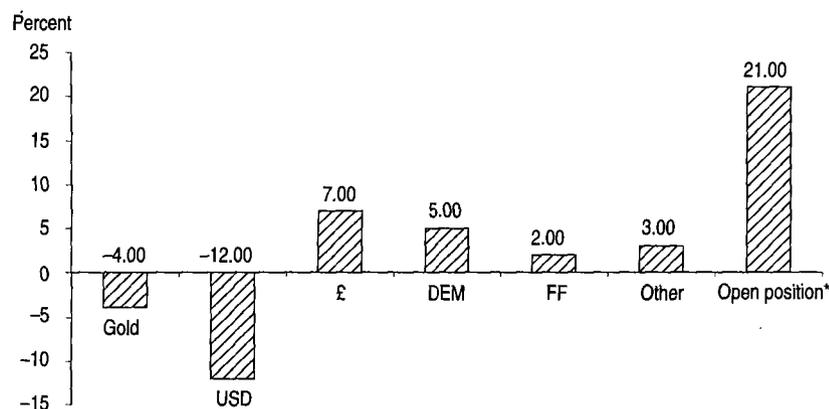
FIGURE 13.3 FREELY CONVERTIBLE CURRENCY DEPOSIT MATURITIES AS A PERCENTAGE OF TOTAL CUSTOMER DEPOSITS



exchange rates are gradual and the size and the length of maturity gaps managed systematically and reasonably well. This procedure, however, can result in high costs for bridging maturity gaps in situations where sudden and unexpected changes in interest rates occur that can momentarily influence the market quotations for swap transactions.

Currency risk exposure implies certain capital charges which are added to the charge calculated for market risk (see Chapter 6). A bank clearly should be able to prudently carry currency risk. According to various country guidelines, the net open foreign currency position established by a bank should not exceed 10–15 percent of qualifying capital and reserves. Using the shorthand method, capital adequacy is calculated as 8 percent (or the regulatory percentage for the country, if different from 8 %) of the overall net open position. The overall net open position is measured as the greater of the sum of the net short positions and the sum of the net long positions, plus the net position (short or long) in gold, regardless of the sign. Figure 13.4 illustrates the open positions of a bank in the various currencies in which it operates, expressed as a percentage of its capital and including aggregate exposure — i.e., the net (absolute) open foreign currency position.

 FIGURE 13.4 CURRENCY RISK EXPOSURE AS A PERCENTAGE OF QUALIFYING CAPITAL



* Greater of: sum of long or sum of short positions - plus absolute of gold position

A bank also should maintain a system of alerts for situations in which limits are exceeded. An analyst should expect the bank to have well-defined procedures, including clear assignments of responsibilities, to handle alerts. Adequate procedures and internal controls should be in place for all other key functions related to foreign exchange operations. The analyst also should assess the procedures and practices for revaluation and for measuring foreign exchange trading gains and losses. A prudent bank should carefully review the names of institutions and individuals with which it does forward exchange business and should request margin cover wherever it is deemed appropriate.

The efficient organization and quality of staff are a crucial part of currency risk management. In sum, the skills and experience of staff should be commensurate with the scope of a bank's operations. Responsibility for trading, standard foreign exchange operations, processing of transactions and payments, front- and back-office (operations) support and account reconciliation, risk management, and revaluation functions should all be clearly separated. Especially critical is the separation of foreign exchange dealing, accounting, and internal control functions. Policies should be for-

mulated by the board and determined by ALCO. Line management should be responsible for overseeing foreign currency transactions and ensuring compliance with risk limits.

The analyst should assess information systems, reporting requirements, and the accounting, auditing, and internal control systems that support foreign exchange operations and the currency risk management function and that allow for proper surveillance. Accurate and timely information support is especially critical — a bank with a high volume of foreign exchange operations must have proper information support if it is to develop strategies for trading operations and executing specific transactions. Information support also is needed to manage open currency positions, account for transactions and keep the foreign exchange book, revalue the financial position, estimate potential gains/losses, and ensure compliance with risk management policies. An analyst should be able to identify the subsystems or modules that support these functions.

In addition, information systems should be capable of generating timely and complete management reports on spot and forward positions, mismatches and liquidity positions, foreign currency-related interest rate risk positions, and counterpart and country exposure positions. They should have the capacity to highlight any exceptions to policy or exposure limits and to bring such exceptions to the attention of management. Information support should include regular reporting to senior management.

CHAPTER 14

TRANSPARENCY IN THE FINANCIAL STATEMENTS OF BANKS

KEY MESSAGES

Accounting information has to be useful.

Relevance, reliability, comparability, and understandability are attributes of useful information.

Financial statements should have as an objective the achievement of transparency through the fair presentation of useful information.

International accounting standards already contain sufficient disclosure requirements to ensure fair presentation.

Perceived deficiencies in accounting standards often relate to inadequate enforcement of and nonadherence to existing standards.

14.1 Introduction: The Importance of Useful Information

The provision of transparent and useful information on market participants and their transactions is an essential part of an orderly and efficient market, as well as a key prerequisite for imposing market discipline. In order for a risk-based approach to bank management and supervision to be effective, useful information must be provided to each key player. These players (as discussed in Chapter 3) include supervisors, current and prospective shareholders and bondholders, depositors and other creditors, correspondent and other banks, counterparties, and the general public. Left alone, markets may not generate sufficient levels of disclosure. While market forces normally balance the marginal benefits and costs of dis-

closing additional information, the end result may not be what players really need.

Banking legislation has traditionally been used to force disclosure of information. Disclosure has historically involved prudential information required by bank supervisors and the compilation of statistics for monetary policy purposes, rather than providing information that enables a comprehensive evaluation of financial risks. Nevertheless, even such imperfect information has been beneficial to improving the functioning of markets.

The financial and capital market liberalization trends of the 1980s have brought increasing volatility to financial markets, and consequently have increased the information needed to ensure financial stability. With the advance of financial and capital market liberalization, pressure has increased to improve the usefulness of available financial sector information through the formulation of minimum disclosure requirements. These requirements address the quality and quantity of information that must be provided to market participants and the general public. Since the provision of information is essential to promote the stability of the banking system, regulatory authorities have made the improvement of information quality a high priority. Banks are also encouraged to improve their internal information systems in order to develop a reputation for providing quality information.

In the 1990s, the changing structure of financial intermediation further strengthened the case for enhanced disclosure. The substitution of tradable debt securities for bank lending and the increased use of financial instruments to transfer risk have reduced the importance of banker-client relationships while expanding the role of markets and market prices in the allocation of capital and risks in the financial system. This shift has also affected disclosure requirements: in order to make informed choices, investors need sound information about the profile and nature of risks involved.

The public disclosure of information is predicated on the existence of quality accounting standards and adequate disclosure methodology. The process normally involves publication of relevant qualitative and quantitative information in annual financial reports, which are often supplemented by biannual or quarterly financial statements and other important

information. Because the provision of information can be expensive, its usefulness for the public should be weighed against cost when disclosure requirements are determined.

It is also important to time the introduction of information well. Disclosure of negative information to a public that is not sufficiently sophisticated to interpret it could damage a bank, and possibly the entire banking system. In situations where low-quality information is put forth and/or users are not deemed capable of properly interpreting what is disclosed, public requirements should be carefully phased in and progressively tightened. In the long run, a full disclosure regime is beneficial, even if some immediate problems are experienced, because the cost to the financial system of not being transparent is ultimately higher than that of revealing information.

14.2 Transparency and Accountability

Transparency refers to the principle of creating an environment where information on existing conditions, decisions, and actions is made accessible, visible, and understandable to all market participants. Disclosure refers more specifically to the process and methodology of providing the information and of making policy decisions known through timely dissemination and openness. Accountability refers to the need for market participants, including the relevant authorities, to justify their actions and policies and accept responsibility for both decisions and results.

Transparency is a prerequisite for accountability, especially to borrowers and lenders, issuers and investors, and national authorities and international financial institutions. The following section discusses the benefits of transparency, emphasizes what transparency is not, and elucidates the constraints on transparent behavior.

Over the past decade, the issues of transparency and accountability have been increasingly and strongly debated as part of economic policy discussions. Policymakers in some countries have long been accustomed to secrecy, which has been viewed as a necessary ingredient for the exercise of power in sensitive situations; it also has the added benefit of hiding incompetence! However, secrecy also hinders the emergence of the desired effects of policies. The changed world economy and financial

flows, which have entailed increasing internationalization and interdependence, have placed the issue of openness at the forefront of economic policymaking. There is growing recognition on the part of national governments, including central banks, that transparency improves the predictability and therefore the efficiency of policy decisions. Transparency forces institutions to face up to the reality of a situation and makes officials more responsible, especially if they know they will be called upon to justify their views, decisions, and actions. For these reasons, timely policy adjustment is encouraged.

In part, the case for greater transparency and accountability rests on the need for private sector agents to understand and accept policy decisions that affect their behavior. Greater transparency improves economic decisions taken by other agents in the economy. Transparency is also a way to foster accountability, internal discipline, and better governance, while both transparency and accountability improve the quality of decision-making in policy-oriented institutions. Such institutions—as well as other institutions that rely on them to make decisions—should be required to maintain transparency. If actions and decisions are visible and understandable, monitoring costs can be lowered. In addition, the general public is more able to monitor public sector institutions, shareholders and employees have a better view of corporate management, creditors monitor borrowers more adequately, and depositors are able to keep an eye on banks. Poor decisions therefore do not go unnoticed or unquestioned.

Transparency and accountability are mutually reinforcing. Transparency enhances accountability by facilitating monitoring, while accountability enhances transparency by providing an incentive to agents to ensure that their actions are properly disseminated and understood. Greater transparency reduces the tendency of markets to place undue emphasis on positive or negative news and thus reduces volatility in financial markets. Taken together, transparency and accountability can also impose discipline that improves the quality of decision-making in the public sector. This can result in more efficient policies by improving the private sector's understanding of how policymakers may react to events in the future.

What transparency cannot ensure. Transparency and accountability are not, however, ends in and of themselves, nor are they panaceas to

solve all problems. They are instead designed to assist in increasing economic performance and may improve the working of international financial markets by enhancing the quality of decision-making and risk management among market participants. In particular, transparency does not change the nature of banking or the risks inherent in financial systems. While it cannot prevent financial crises, it may moderate the responses of market participants to bad news. Transparency also helps market participants anticipate and assess negative information, and thereby mitigates panic and contagion.

Constraints on transparency. The dichotomy that exists between transparency and confidentiality should also be noted. The release of proprietary information may enable competitors to take advantage of particular situations, a fact that often deters market participants from full disclosure. Similarly, monitoring bodies frequently obtain confidential information from financial institutions, an event that can have significant market implications. Under such circumstances, financial institutions may be reluctant to provide sensitive information without the guarantee of client confidentiality. However, both unilateral transparency and full disclosure contribute to a regime of transparency. If such a regime were to become the norm, it would ultimately benefit all market participants, even if in the short-term it would create discomfort for individual entities.

14.3 Transparency in Financial Statements

The objective of financial statements is to provide information about an entity's financial position (balance sheet), performance (income statement) and changes in financial position (cash flow statement). The transparency of financial statements is secured through full disclosure and by providing fair presentation of the information necessary for making economic decisions to a wide range of users. In the context of public disclosure, financial statements should be easy to interpret.

As can be expected, specific disclosure requirements vary among regulators. Nonetheless, there are certain key principles whereby standards should be evaluated, according to a report submitted to the G7 finance ministers and central bank governors. These key principles are summarized in Box 14.1.

BOX 14.1 CRITERIA FOR EVALUATING ACCOUNTING STANDARDS**Effective accounting standards should satisfy three general criteria:**

- (i) Accounting standards should contribute to – or at least be consistent with (and not hamper) sound risk management and control practices in banks. They should also provide a prudent and reliable framework for the generation of high-quality accounting information in banks.
- (ii) Accounting standards should facilitate market discipline by promoting transparent reporting of banks' financial position and performance, risk exposures and risk management activities.
- (iii) Accounting standards should facilitate and not constrain the effective supervision of banks.

In addition to the general criteria:

- Disclosure should be sufficiently comprehensive for an assessment of a bank's financial position and performance, risk exposures, and risk management activities.
- International accounting standards should be suitable for implementation not only in the most advanced financial markets but also in emerging markets.

There are also certain specific criteria that underpin high-quality accounting:

- Accounting principles should generate relevant and meaningful accounting information
- Accounting principles should generate prudent, realistic and reliable measurements of financial position and performance.
- Accounting principles should generate consistent measurements of similar or related items.

Internationally accepted criteria for accounting standards require that:

- Accounting standards should not only have a sound theoretical foundation, but also be workable in practice.
- Accounting standards should not be overly complex in relation to the issue addressed.
- Accounting standards should be sufficiently precise to ensure consistent application.
- Accounting standards should not allow alternative treatments. When alternative treatments are permitted, or judgments are necessary in applying accounting principles, balanced disclosures should be required.

Basel Committee on Banking Supervision
Report to G7 Finance Ministers and Central Bank Governors
on International Accounting Standards, April 2000

The adoption of internationally accepted accounting standards (IAS) has been a necessary measure to facilitate transparency and proper interpretation of financial statements. In 1989, *Framework for the Preparation and Presentation of Financial Statements* was included in the IAS in order to accomplish the following:

- explain concepts underlying the preparation and presentation of financial statements to external users;
- guide those responsible for developing accounting standards;
- assist preparers, auditors, and users in interpreting the IAS and in dealing with issues not yet covered by the standards.

According to international standards, financial statements are normally prepared under the assumption that an entity will continue to operate as a going concern and that events will be recorded on an accrual basis. In other words, the effects of transactions and other events should be recognized when they occur and be reported in the financial statements for the periods to which they relate.

Qualitative characteristics are those attributes that make the information provided in financial statements useful. If comprehensive, useful information does not exist, managers may not be aware of the true financial condition of their bank and key governance players may be misled. This would in turn prevent the proper operation of market discipline. In contrast, the application of key qualitative characteristics and appropriate accounting standards normally results in financial statements that present a true and fair picture.

Key qualitative characteristics are as follows:

- **Relevance.** Information must be relevant because it influences the economic decisions of users by helping them to evaluate past, present, and future events or to confirm or correct past assessments. The relevance of information is determined by its nature and material quality. Information overload, on the other hand, can force players to sift through a plethora of information for relevant details, making interpretation difficult.
- **Reliability.** Information should be free from material errors and bias. The key aspects of reliability are faithful representation,

priority of substance over form, neutrality, prudence, and completeness.

- **Comparability.** Information should be presented consistently over time and be congruous with related information and with other entities in order to enable users to make comparisons.
- **Understandability.** Information should be easily comprehensible by users with reasonable knowledge of business, economics, and accounting, as well as the willingness to diligently study the information.

The process of producing useful information comprises a number of critical points to ensure the comprehensiveness of the information provided. These include:

- **Timeliness.** A delay in reporting may improve reliability, but could simultaneously result in decreased relevance.
- **Benefit vs. cost.** Benefits derived from information should normally exceed the cost of providing it. Banks in developing countries often lack adequate accounting systems and therefore have a lower capacity for providing relevant information. The level of sophistication of the target audience is also important. Both of these aspects affect the costs and benefits of improved disclosure. However, the mere fact that that a bank might not have accounting systems capable of producing useful information should not be accepted as an excuse for not obtaining and providing markets with it.
- **Balancing qualitative characteristics.** Providers of information must achieve an appropriate balance of qualitative characteristics to ensure financial statements are adequate for their particular environment.

In the context of fair presentation, it is better to not disclose any information than to disclose information that is misleading. It is therefore not surprising that when an entity does not comply with specific disclosure requirements, the IAS require full disclosure of the fact and the reasons for noncompliance. Figure 14.1 summarizes how transparency is secured

FIGURE 14.1 TRANSPARENCY IN FINANCIAL STATEMENTS

➤ CENTRAL OBJECTIVE OF FINANCIAL STATEMENTS

To provide a **fair presentation** of:

- Financial position
- Financial performance
- Cash flows

➤ TRANSPARENCY AND FAIR PRESENTATION

- Fair presentation is achieved through the provision of useful information (i.e., full disclosure) in order to secure transparency.
- Fair presentation is equal to transparency

➤ SECONDARY OBJECTIVE OF FINANCIAL STATEMENTS

- To secure **transparency** through a **fair presentation** of useful information (i.e., full disclosure) for decisionmaking purposes

➤ ATTRIBUTES OF USEFUL INFORMATION

- Relevance
 - = Nature
 - = Materiality
- Reliability
 - = Faithful representation
 - = Substance over form
 - = Neutrality
 - = Prudence
 - = Completeness
- Comparability
- Understandability

Constraints

Timeliness

Benefit vs. cost

Balancing qualitative characteristics

UNDERLYING ASSUMPTIONS

- **Accrual basis**
- **Going concern**

through the proper application of the concepts comprised by the IAS framework.

14.4 Disclosure in the Financial Statements of Banks

Disclosure requirements related to financial statements have traditionally been a pillar of sound regulation. Disclosure is an effective mechanism to expose banks to market discipline. Although a bank is normally subject to supervision and provides regulatory authorities with information, this information is often confidential or market-sensitive, and is not always available to all categories of users. Disclosure in financial statements should therefore be sufficiently comprehensive to meet the needs of other users within the constraints of what can reasonably be required. Improved transparency through better disclosure may (but not necessarily) reduce the chances of a systemic banking crisis or the effects of contagion, since creditors and other market participants will be better able to distinguish between the financial circumstances that face different institutions and/or countries.

Users of financial statements need information to assist them in evaluating a bank's financial position and performance and in making economic decisions. Of key importance are a realistic valuation of assets, including sensitivities to future events and adverse developments, and the proper recognition of income and expenses. Equally important is the evaluation of a bank's entire risk profile, including on- and off-balance-sheet items, capital adequacy, the capacity to withstand short-term problems, and the ability to generate additional capital. Users may also need information to better understand the special characteristics of a bank's operations, in particular solvency and liquidity and the relative degree of risk involved in various dimensions of the banking business.

The development of IAS has traced developments in international financial markets. Over time, the coverage of IAS has been broadened both to include new topics (e.g., disclosure and presentation related to the use of new financial instruments) and to enhance the existing international standards. As mentioned later, this remains an ongoing challenge. The list of IAS specifically applicable to banks is shown in Appendix 2.

TABLE 14.1 INTERNATIONAL ACCOUNTING STANDARDS APPLICABLE TO BANKS

<i>IAS number</i>	<i>Interpretations</i>	<i>Title</i>	<i>Effective date</i>
1	8	Preparation and Presentation of Financial Statements	7/1998
8		Profit or Loss for the Period, Fundamental Errors and Changes in Accounting Policies	1/1979
10		Events after the Balance Sheet Date	1/2000
12		Taxes	1/1998
17	15	Leases	1/1984
18		Revenue	1/1984
21	7, 11	Effects of Changes in Foreign Exchange Rates	1/1985
22	9	Business Combinations	1/1985
27	12	Consolidated Financial Statements and Accounting for Investments in Subsidiaries	1/1990
28	3	Accounting for Investments in Associates	1/1990
30		Disclosures in the Financial Statements of Banks and Similar Financial Institutions	1/1991
31	13	Financial Reporting of Interests in Joint Ventures	1/1992
32	5, 16	Financial Instruments – Disclosure and Presentation	1/1996
37		Provisions, Contingent Liabilities and Contingent Assets	1/1999
39		Financial Instruments – Recognition and Measurement	1/2001

Historically, generally accepted accounting practices (GAAP) did not place heavy burdens of disclosure on banks. This situation changed in the 1990s with the introduction of IAS, specifically IAS 30, *Disclosures in the Financial Statements of Banks and Similar Financial Institutions*. This standard has resulted in the requirement on the part of many regulators to adopt a “full disclosure” approach. The central objectives of IAS 30 are to describe the reporting requirements of a bank that reflect its specialized nature, and to encourage management to comment on financial statements describing the way liquidity, solvency, and risks associated with the operations of a bank are managed and controlled. Although some banking risks may be reflected in financial statements, a commentary can help users better understand their management.

IAS 30 is applicable to all banks, meaning all financial institutions that take deposits and borrow from the general public with the objective of lending and investing, and that fall within the scope of banking-related or similar legislation. IAS 30 supplements other international accounting standards that also apply to banks. The disclosure requirements under IAS

30, as well as other accounting standards specific to banks, are derived from the framework provided by IAS 1, *Presentation of Financial Statements*. This standard gives general guidance on the basic principles, structure, and content of financial statements.

The Basel Committee surveys the public disclosures by banks annually and recently concluded that IAS 30 is now relatively old, since its provisions have not been updated since 1991. Thus, it does not go far enough in recognizing current best practice in terms of disclosure, particularly in relation to risk exposures and risk management policies. It is silent on, or deals inadequately with, many of the developments over the last eight or nine years.

In addition to the disclosures of IAS 30, users need information that enhances their understanding of the significance of on- and off-balance-sheet financial instruments to a bank's financial position, performance, and cash flows. This information is necessary to assess the amounts, timing, and certainty of future cash flows associated with such instruments. This is addressed under IAS 32, *Financial Instruments: Disclosure and Presentation*, which supplements the disclosure requirements of IAS 30 and specifically requires that disclosure be made in terms of the risks related to financial instruments. The specific objectives of IAS 32 are to prescribe requirements for the presentation of on-balance-sheet financial instruments and to identify information that should be disclosed about both on-balance-sheet (recognized) and off-balance-sheet (unrecognized) financial instruments.

IAS 32 and 39 were issued as separate standards but are applied in practice as a unit because they deal with exactly the same accounting phenomenon. IAS 39, which deals with the Recognition and Measurement issues of financial instruments, also contains some supplementary disclosures to those required by IAS 32. However, as it is constantly under review, it should be regarded as a work-in-progress.

The standard establishes principles for recognizing, measuring, and disclosing information about financial instruments in the financial statements. IAS 39 significantly increases the use of fair value accounting for financial instruments, particularly on the asset side of the balance sheet. Despite the introduction of IAS 39, leading accounting standard-setters are still deliberating the advantages and disadvantages of introducing fair market value accounting for financial assets and liabilities, as well as for

the corresponding risks. This process should foster a consistent, market-based approach to the measurement of the risk related to various financial instruments. However, without prudent and balanced standards with which to estimate fair values, the use of a fair value model could reduce the reliability of financial statements and increase the volatility of earnings and equity measurements. This is particularly true when active markets do not exist, as is often the case for loans. Loans frequently account for the lion's share of a bank's assets.

The Basel Committee on Banking Supervision believes that the fair value approach is appropriate in situations where it is workable—for example, when financial instruments are being held for trading purposes. It has expressed concern that some banks may be led to make changes in how they manage their risks as a consequence of applying IAS 39 to bank hedging strategies; in doing so, they would be deviating from the Basel-supported principles for best practice global risk management. It could be argued convincingly that accounting standards should contribute to sound risk management practices and take into account the ways in which trading and banking books are actually managed—not the reverse. However, financial statements should also reflect the reality of transactions in a conceptually consistent manner, and this objective will always produce a certain amount of tension between accountants and practitioners.

Appendix 2 summarizes disclosure requirements under IAS 30, IAS 32 and IAS 39, following the structure of this publication (Chapters 4 through 13). These requirements should be evaluated in terms of the basic principles of the accounting framework discussed above, for example regarding prudence or substance over form. The appendix also illustrates how current international accounting standards provide a solid and transparent basis for the development of national disclosure requirements. These standards already require banks to disclose extensive information on all of the categories of risk that have been addressed in this publication, thereby adding transparency to the presentation of financial statements.

14.5 Deficiencies Found in Bank Accounting Practices

For several years, but especially in the wake of the East Asian financial crises of the late 1990s, criticism has been voiced regarding deficiencies

in bank accounting that have resulted in the incomplete and inadequate presentation of financial information in annual financial reports. Market participants perceive the opacity of financial information as not only an official oversight, but also as the Achilles heel of effective corporate governance and market discipline. Market participants need a wide range of economic and financial information for decision-making purposes, and therefore react negatively to poor disclosure.

There also seems to be a perception among market participants and the general public that the lack of adequate information about a bank's financial position, results, and cash flow are the result of insufficient accounting standards. This misperception seems to stem from general ignorance of the sound accounting standards that already exist.

Appendix 3 lists some deficiencies found by the international lending community and clearly illustrates that, contrary to popular belief among non-accountants, the predominant problem is not always a lack of sound and adequate accounting standards, but rather the fact that **the principles underlying existing standards are not properly enforced by regulatory and accounting authorities**. In fact, the establishment of disclosure requirements is not sufficient in and of itself. Disclosure requirements should be accompanied by active regulatory enforcement—and perhaps even fraud laws—to ensure that the information disclosed is complete, timely, and not deliberately misleading. Regulatory institutions should also have adequate enforcement capacities.

Both banks and their external auditors may lack proper incentives to disclose more than the regulatory authorities and market discipline demand of them. Market participants, as well as rating agencies, could therefore make a valuable contribution to improving the level of transparency in financial reporting by demanding comprehensive, full disclosure. They could also demonstrate a direct link between investor confidence and transparent disclosure. In addition, disclosure can be improved by peer pressure. A bank's competitors can demonstrate that disclosure is advantageous to an institution because investors and depositors are more likely to provide capital and deposits at lower prices to transparent entities than to nontransparent ones.

A frequent problem with disclosure, especially that which involves a new system, is the hesitancy of a bank's management and supervisors, as

well as market participants, to disclose highly negative information. Such information, which has the strongest potential to trigger a market reaction, is typically disclosed at the last possible moment and is often incomplete. Even professional members of the public, such as rating agencies, may be slow to react and disclose potential problems. Box 14. 2 illustrates the key findings of the Basel Committee's 2000 annual survey of the public disclosure of banks.

BOX 14.2 SURVEY ON PUBLIC DISCLOSURES OF BANKS

- Most basic information relating to capital structure and ratios, accounting and presentation policies, credit risk, and market risk is well disclosed
- Information about credit risk modeling, credit derivatives, and securitization is disclosed by fewer than half of the banks
- The most notable increases in disclosure involve questions about complex capital instruments, policies and procedures for setting credit risk allowances, securitization, and operational and legal risks, although securitization disclosures still are not very frequent.
- Most banks continue to release fundamental quantitative data pertinent to their capital structure, as would be required under the Pillar 3 working paper. While they have been less forthcoming about their holdings of innovative and complex capital instruments, the rate of disclosure in this area has generally been improving.
- While the risk-based capital ratio was almost always disclosed, fewer than half of the banks provided information on the credit and market risks against which the capital serves as a buffer.
- Most banks appeared to make fairly extensive disclosures about their internal models for market risk. The main opportunity for future improvement involves the results of stress testing.
- Just over half of the banks described fully their process for assessing credit exposures, and only a few more provided summary information on the use of internal ratings. Fewer than half provided basic information about their credit risk models. These disclosure areas take increased importance under the proposed revision of the Basel Capital Accord, as disclosure of key information regarding the use of internal ratings will be necessary for banks to qualify for the internal ratings-based approach in the new Accord. In this regard, the large improvement in the disclosure of the internal risk rating process since the 1999 survey is encouraging. In the area of asset securitization, less than one half of banks provided even

(Box continues on the following page.)

BOX 14.2 (CONTINUED)

the most basic disclosure of the amount and types of assets securitized and the associated accounting treatment.

- Most banks disclosed key quantitative information concerning credit risk, another area with required disclosures under the Pillar 3 working paper. Disclosures of provisioning policies and procedures are improving. About one-half of the banks discussed the techniques they use to manage impaired assets. However, only a small number of banks disclosed the effect of their use of credit risk mitigants.
- Approximately three-fourths of banks discussed their objectives for derivatives and their strategies for hedging risk. The proportion of banks making quantitative disclosures was lower, and trends here are mixed.
- Approximately two-fifths of banks that use credit derivatives disclosed their strategy and objectives for the use of these instruments, as well as the amount outstanding. However, more detailed information was not often provided.
- While approximately four-fifths of banks provided breakdowns of their trading activities by instrument type, somewhat fewer provided information about the diversification of their credit risks. Fewer than one-half supplied a categorical breakdown of problem credits.
- There was a dramatic increase in the rate of disclosures of operational and legal risks since the first survey, although the level is still not as high as that for the more basic market and credit risk information.
- Basic accounting policies and practices were generally well disclosed.

Results of the 2000 Disclosure Survey

Public Disclosures of Banks

Basel Committee on Banking Supervision, May 2002

CHAPTER 15

THE RELATIONSHIP BETWEEN RISK ANALYSIS AND BANK SUPERVISION

KEY MESSAGES

Bank supervisors and financial analysts should view the risk management process in a similar manner.

The analyst or supervisor should determine what happened, why it happened, the impact of events, and a credible future strategy to rectify unacceptable trends.

The supervisory process of off- and on-site supervision is similar to the financial analysis of information, which has to be tested through verification of preliminary conclusions. On-site examination is essential, but could be performed by supervisors, analysts, or external auditors.

Regulators and supervisors should ensure that all financial institutions are supervised using a consistent philosophy, to ensure a level playing field for financial intermediaries.

Properly utilized, banking analysis can enhance the institutional development of the banks concerned.

15.1 Introduction: The Bank Supervisory Process

Banking supervision, based on the ongoing analytical review of banks, serves the public good as one of the key factors in maintaining stability and confidence in the financial system. This chapter discusses the relationship between banking risk analysis and the supervision process. The methodology for an analytical review of banks by supervisors should be similar to that used by private sector analysts, external auditors or a bank's own risk managers, except that the focus of the analysis differs somewhat.

Bank supervision is an integral part of a much broader and continuous process, and normally includes off-site surveillance and on-site examinations, as summarized in Figure 15.1. This process includes the establishment of a legal framework for the banking sector, the designation of regulatory and supervisory authorities, the definition of licensing conditions and criteria, and the enactment of regulations that limit the level of risk that banks are allowed to take. Other necessary steps include the establishment of a framework for prudential reporting and off-site surveillance and the execution of these activities, followed by on-site supervision. The results of on-site examinations provide inputs for the institutional development process of relevant banks, and for the improvement of the regulatory and supervisory environment.

In addition to effective supervision (see Chapter 2), other factors necessary for the stability of banking and financial systems and markets include sound and sustainable macroeconomic policies, a well-developed financial sector infrastructure, effective market discipline, and an adequate banking sector safety net.

15.2 The Analytical Review Process

The analytical review of banks follows a number of stages whereby the results of one stage serve as inputs to the next. The ultimate objective of this process is a set of recommendations that, if properly implemented, result in a safe, sound, and properly functioning financial intermediary. Table 15.1 summarizes the stages of the analytical review process.

An analytical review normally comprises a review of financial conditions and specific issues related to risk exposure and risk management. In addition to verifying the conclusions reached during off-site reviews, on-site reviews cover a much larger number of topics and are more concerned with qualitative aspects, including the availability and quality of management information. The questions asked during all phases of the analytic review process should focus on:

- what happened
- why it happened
- the impact of the event/trend

FIGURE 15.1 THE CONTEXT OF BANK SUPERVISION

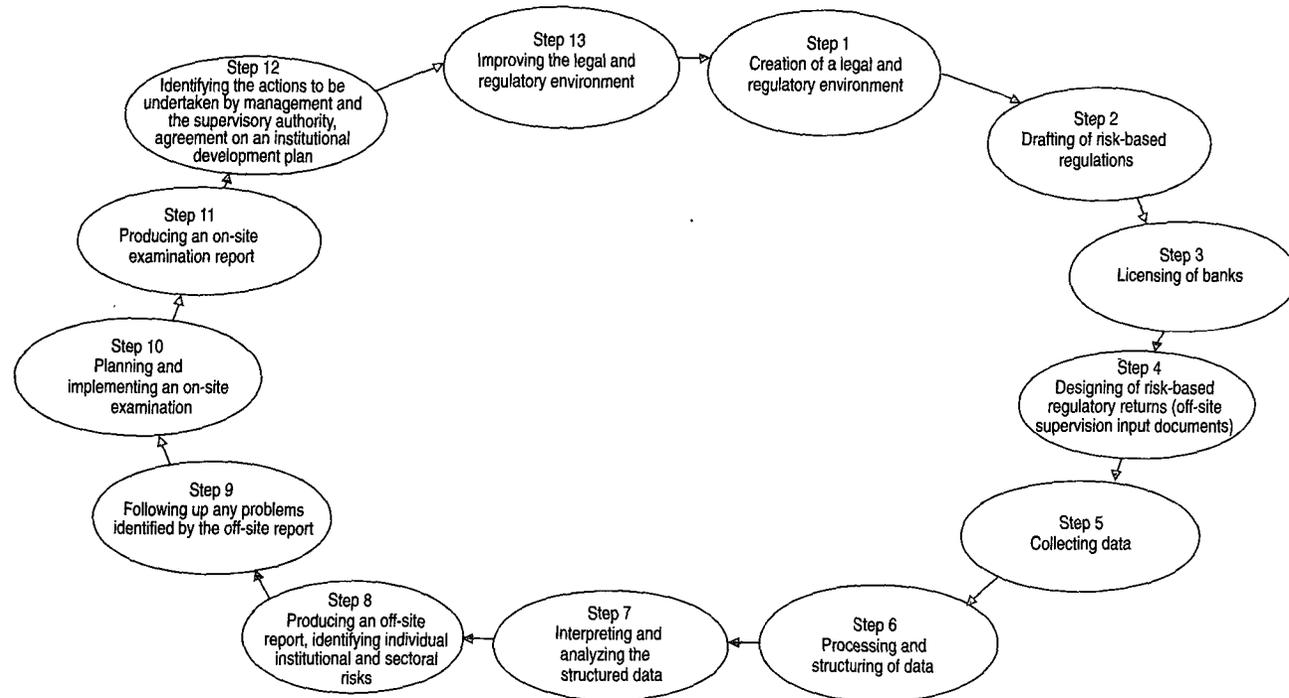


TABLE 15.1 STAGES OF THE ANALYTICAL REVIEW PROCESS

<i>Analytical Phase</i>	<i>Source/Tools Available</i>	<i>Output</i>
Structuring and collection of input data	Questionnaire, financial statements, other financial data	Completed input data, questionnaires, and financial data tables
Processing of data	Completed input data (questionnaires and financial data tables)	Processed output data
Analysis/interpretation of processed/structured output data	Input data and processed output data	Analytical results
Development of an off-site analysis report of the bank's risks	Analytical results and previous on-site examination reports	Off-site examination report and/or terms of reference for on-site examination
Follow-up through on-site examination, audit, or analytical review engagement	Off-site examination report and terms of reference for on-site examination	On-site examination report and institutional development plan or a memorandum of understanding
Institutional strengthening	On-site examination report and memorandum of understanding for institutional development	Well-functioning financial intermediary
Repeat the process building on the previous reports and regulatory deficiencies identified	Repeat the process ...	Repeat the process ...

- the response and strategy of the bank's management
- the recommendations of the analyst
- what vulnerabilities should be highlighted.

Table 15.2 summarizes the typical outline for off-site and on-site analytical reviews or diagnostic reports of a bank. The details that an analyst should look for during an analytical review related to risk management have been discussed in Chapters 4 through 13, and the analytical tools provided in this publication were addressed in Section 1.5.

TABLE 15.2 PROPOSED OUTLINE FOR BANK ANALYTICAL REPORTS
(read in conjunction with questionnaire in appendix 1)

1. **Executive Summary and Recommendations**
 2. **Institutional Development Needs**
 3. **Overview of the Financial Sector and Regulation**
 4. **Overview of the Bank and its risk management culture**
 - 4.1 Historical background and general information
 - 4.2 Group and organization structure
 - 4.3 Accounting systems, management information, and internal control
 - 4.4 Information technology
 - 4.5 Risk management culture and decision-making process
 5. **Corporate Governance**
 - 5.1 Shareholders/ownership
 - 5.2 Board of directors/supervisory board
 - 5.3 Executive management
 - 5.4 Internal audit/audit committee of the board
 - 5.5 External auditors
- Financial Risk Management**
6. **Balance Sheet Structure and the Changes Therein**
 - 6.1 Composition of the balance sheet
 - Asset structure: Growth and changes
 - Liabilities structure: Growth and changes
 - 6.2 Overall on and off-balance-sheet growth
 - 6.3 Low and nonearning assets
 7. **Income Statement Structure and the Changes Therein (Profitability/Earnings)**
 - 7.1 Sources of income: Changes in the structure and trends of income
 - 7.2 Structure of assets compared to structure of income
 - 7.3 Margins earned on various components of intermediation business
 - 7.4 Operating income and operating expenses breakdown
 - 7.5 Return on assets and shareholders' funds
 8. **Capital Adequacy**
 - 8.1 Capital retention policies
 - 8.2 Compliance with capital adequacy requirements
 - 8.3 Potential future capital requirements
 - 8.4 Structure of shareholders' funds
 - 8.5 Risk profile of balance sheet assets
 9. **Credit Risk Management**
 - 9.1 Credit risk management policies, systems, and procedures
 - 9.2 Profile of borrowers
 - 9.3 Maturity of loans
 - 9.4 Loan products
 - 9.5 Sectoral analysis of loans
 - 9.6 Large exposures to individuals and connected parties

(Table continues on the following page.)

TABLE 15.2 (CONTINUED)

-
- 9.7 Loan and other asset classification and provisioning
 - 9.8 Analysis of loans in arrears
 - 9.9 Connected lending (to related parties)
- 10. Organization of the Treasury Function**
- 10.1 Organization of the treasury function—policy and governance framework
 - 10.2 Asset-liability management
 - 10.3 Market operations—funding and investment of expected shortfalls and surpluses
 - 10.3.1 Funding on the local and international markets
 - 10.3.2 Investment portfolio management and proprietary trading (position-taking)
 - 10.4 Risk analytics
 - 10.4.1 Risk measurement and management (liquidity, counterparty/credit, market, and currency risk)
 - 10.4.2 Performance measurement and analysis
 - 10.4.3 Risk reporting
 - 10.4.4 Governance, compliance and operational risk
 - 10.4.5 Quantitative strategies and risk research (model development, etc)
 - 10.5 Treasury operations
 - 10.5.1 Cash Management
 - 10.5.2 Settlements
 - 10.5.3 Accounting
 - 10.5.4 Information Services— IT
- 11. Investment Portfolio Management**
- 11.1 Size and structure of investment portfolio compared to short-term liabilities
 - 11.2 Benchmark for performance measurement
 - 11.3 Eligible investments
 - 11.4 Credit and market risk measurement tools used
 - 11.5 Active management of the investment portfolio
 - 11.6 Risk management and budgeting
 - 11.7 Risk reporting
- 12. Proprietary Trading/Market Risk Management**
- 12.1 Market/price risk management policies, systems, and procedures
 - 12.2 Structure of the proprietary trading portfolio
 - 12.3 Use of derivatives
 - 12.4 Value-at-risk, position limits and stop loss provisions
 - 12.5 Market risk attached to off-balance-sheet activities and derivatives
- 13. Interest Rate Risk Management**
- 13.1 Interest rate risk management policies, systems, and procedures
 - 13.2 Forecasting of interest rates
 - 13.3 Measures to determine the potential impact of exogenous rate movements on the bank's capital
- 14. Liquidity Risk Management**
- 14.1 Liquidity risk management policies, systems, and procedures
 - 14.2 Compliance with regulatory requirements
-

TABLE 15.2 (CONTINUED)

-
- 14.4 Access to and sources of deposits: Profile of depositors
 - 14.3 Maturity structure of deposits
 - 14.5 Large depositors and volatility of funding
 - 14.6 Expected maturity mismatches of assets and liabilities (maturity ladder)
 - 14.7 Liquidity risk fall-back positions

15. Currency Risk Management

- 15.1 Currency risk management policies, systems, and procedures
- 15.2 Currency structure of assets and liabilities
- 15.3 Currency structure of off-balance-sheet activities
- 15.4 Maturity structure of foreign currency liabilities
- 15.5 Currency structure of loans and deposits
- 15.6 Net effective open position and capital exposed

16. Operational Risk Management

- 16.1 Fraud experience – internal and external
- 16.2 Employment practices and workplace safety
- 16.3 Use of information technology to enhance operational risk management
- 16.4 Effectiveness of internal control processes
- 16.5 Use of management information for operational management purposes

17. Conclusions and recommendations

Analytical tools include ratio tables and/or graphs based on processed input data. These ratios relate to balance sheet structure, profitability, capital adequacy, credit and market risk, liquidity, and currency risk. Taken together, they comprise a complete set of a bank's ratios that are normally subject to off-site surveillance. The tables enable analysts to judge the effectiveness of the risk management process and to measure performance. Combined with the qualitative information obtained from the questionnaire, these statistical tables make up the raw material on which the analysis contained in off-site reports is based. Graphs provide a visual representation of results and are in essence a snapshot of the current situation in a bank. The graphs illustrated in the publication may also be used during the process of off-site surveillance as a starting point for on-site examination.

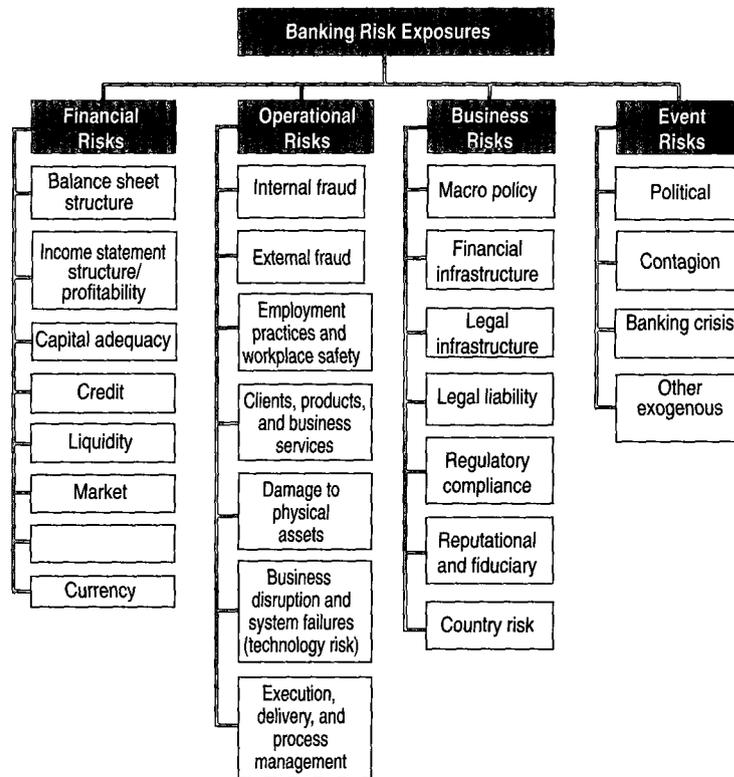
15.3 Banking Risks and the Accountability of Regulatory/Supervisory Authorities

During the course of their operations, banks are subject to a wide array of risks, as summarized in Figure 15.2. In general, banking risks fall into the following four categories:

- **Financial risks**, as discussed in Chapters 7 through 13.
- **Operational risks** related to a bank's overall business strategy and the functioning of its internal systems, including computer systems and technology, compliance with policies and procedures, and the possibility of mismanagement and fraud. (Section 9.6).
- **Business risks** associated with a bank's business environment, including macroeconomic, policy, legal, and regulatory factors, financial sector infrastructure and payment system, and overall systemic risk related to operations. This group of risks is often referred to as country risk.
- **Event risks**, including all types of exogenous risks which, if they were to materialize, could jeopardize a bank's operations or undermine its financial condition and capital adequacy. Such risks include political events (e.g., the fall of a government), contagion due to the failure of a major bank or a market crash, banking crises, natural disasters, and civil wars. Event risks are, in most cases, unexpected until immediately before the event occurs. Banks may therefore not be able to adequately prepare for such risks other than by maintaining a capital cushion. The dividing line between the end of an event risk and the beginning of systemic risk is often blurred.

Risk that is inherent in banking should be recognized, monitored, and controlled. Some financial risks are regulated when regulators establish prudential guidelines for a particular type of banking risk exposure. The effectiveness of a bank's management of financial risk, monitoring of risk exposure, and compliance with prudential guidelines by bank supervision form the backbone of the bank supervision process, both off- and on-site. Regulations, however, can be costly for a bank. The manner in which reg-

FIGURE 15.2 BANKING RISK EXPOSURES



ulators apply their functions determines the specific impact of regulations on the market, as well as their cost. Costs include provision of information to regulators and maintenance of an institution's internal systems that measure risk and ensure compliance with regulations, and may imply certain business decisions that effectively reduce a bank's profitability. In addition to the direct cost of regulation, hidden costs also exist, such as a bank's compromised ability to innovate or quickly adjust to changing market conditions, which might in turn prevent it from capitalizing on its comparative advantages or competitive position.

With regard to operational risks (with the exception of business strategy risk), regulators typically establish guidelines that banks are expected

to follow. Adherence to the guidelines is subject to supervision, typically as part of an on-site examination. A bank's business strategy is also given attention. Initially, as part of the licensing process, the authorities review and implicitly endorse a bank's business strategy. The strategy and its risk implications are always discussed during the process of an on-site examination, and possibly also in the context of off-site surveillance. In many countries, senior management is obliged to conduct quarterly discussions on a bank's business strategy with supervisory authorities, especially in the case of large banks upon which market stability may depend.

The category of risks related to a business environment may or may not fall within the scope of supervisory authorities. Banking system regulatory authorities (including the central bank) are usually closely related to many key aspects of a bank's business environment, however. Entry and licensing regulations effectively determine a banking system's structure and the level and nature of competition. The criteria for issuing licenses must therefore be consistent with those applied in ongoing supervision. If the supervisory authority is different from the licensing authority, the former should have a legal right to have its views considered by the latter.

Monetary authorities also play a critical role in determining a business environment. The choice, design, and use of monetary policy measures and instruments are inextricably related to banking system conditions, the nature of bank competition, and the capacity of the banking system to innovate. In the choice and use of policy instruments, pragmatic considerations (which imply a connection to supervisory authorities) are of prime importance. It is essential to look not only at specific policies or measures, but also at the context in which they are applied. Similar policies may be transmitted, but work in different ways, depending on the structure, financial conditions, and dynamics of the banking system and markets. Supervisory authorities are not involved with other aspects of business environments that have risk implications, such as macroeconomic policies, which often determine supply and demand conditions in markets and are a major component of country risk. In addition, authorities are not usually directly concerned with the tax environment (which directly affects a bank's bottom line), the legal framework, and the financial sector infrastructure (including the payment system and registries), but may be very influential in proposing changes and improvements in these areas.

Supervisory authorities are also critical with respect to event risks. While these risks may not be foreseen and often cannot be prevented, the authorities play an important role in evaluating the impact of such events on the status and condition of the banking system and of the markets. They also serve to ensure that proper arrangements are put in place to minimize the impact and extent of disruption, to mobilize other authorities to effectively deal with the consequences of certain events, and, ultimately, to oversee the orderly exit of failed institutions.

15.4 The Supervisory Process

All banking systems have at least one regulatory and supervisory authority. However, the locus, structure, regulatory and enforcement powers, and specific responsibilities of each authority are different. This variation is usually a consequence of traditions and of the legal and economic environment of a particular country. Decisions on regulatory and supervisory authorities are sometimes politically motivated. In most countries, the regulatory and supervisory authority for the banking sector is assigned to the central bank, but the current trend is for the consolidation of all financial supervision in a separate entity, outside the central bank. The responsibilities of bank supervision usually include the following:

- ❑ issuance and withdrawal of banking licenses on an exclusive basis;
- ❑ issuance and enforcement of prudential regulations and standards;
- ❑ the authority to prescribe and obtain periodic reports (i.e., establish prudential reporting as a precondition for off-site surveillance) and to perform on-site inspections;
- ❑ assessment of fines and penalties and the initiation of emergency actions, including cease and desist orders, management removal and suspension orders, and the imposition of conservatorship;
- ❑ closure and/or liquidation of banks.

In order to be effective, a supervisory authority must have appropriate enforcement power and an adequate degree of autonomy. These abili-

ties are necessary if the authority is to be able to resist undue pressures from the government, banks and their shareholders, depositors and creditors, borrowers, and other people who use financial services. Supervisory authorities should command the respect of the banks they oversee.

The Basel Committee on Bank Supervision has identified certain preconditions and set certain standards for effective banking supervision. These BIS standards require that a supervisory authority has a clear, achievable, and consistent framework of responsibilities and objectives, as well as the ability to achieve them. If more than one supervisory authority exists, all must operate within a consistent and coordinated framework in order to avoid regulatory and/or supervisory arbitrage. Where distinctions between banking business and other deposit-taking entities are not clear, the latter could be allowed to operate as quasi-banks, with less regulation. Supervisory authorities should have adequate resources, including the staffing, funding, and technology needed to meet established objectives, provided on terms that do not undermine the autonomy, integrity, and independence of the supervisory agencies. Supervisors must be protected from personal and institutional liability for actions taken in good faith while performing their duties. Supervisory agencies should be obliged to cooperate and share relevant information, both domestically and abroad. This cooperation should be supported by arrangements for protecting the confidentiality of information.

Supervisory authorities, however, cannot guarantee that banks will not fail. The potential for bank failure is an integral part of risk-taking. Supervisors have a role to play, but there is a difference between their role in the day-to-day supervision of solvent institutions and their handling of problem institutions in order to prevent contagion and/or systemic crisis. When approaching systemic issues, the key concern of supervisory authorities is to address threats to confidence in the financial system and of contagion to otherwise sound banks. The supervisor's responsibility is to make adequate arrangements that could facilitate the exit of problem banks with minimum disruption to the system; at the same time, the methods applied should minimize distortions to market signals and discipline. Individual bank failure, on the other hand, is an issue for shareholders and management. In some cases, a bank failure may become a political issue, especially in the case of large banks, and involve decisions whether, to

what extent, and in what form public funds should be committed to turning the situation around.

An effective banking supervision system comprises some form of both off-site surveillance and on-site examination. Table 15.3 summarizes the different foci of these two processes. Off-site surveillance is, in essence, an early warning device that is based on the analysis of financial data supplied by banks. On-site examination builds upon and supplements off-site surveillance and enables supervisory authorities to examine details and to judge a bank's future viability. The extent of on-site work and the method by which it is carried out depend on a variety of factors. In addition to differences in supervisory approaches and/or techniques, the key determinant of the objectives and scope of supervision is whether they aim only to safeguard banking system stability or if they are also expected to protect the interest of depositors. In some countries, a mixed system of on-site examination exists that is based on collaboration between supervisors and external auditors.

Off-site surveillance. The central objective of off-site surveillance is to monitor the condition of individual banks, peer groups, and the banking system. The principles described in this publication provide the tools for a comprehensive off-site analysis of banks. Based on this assessment, the performance of a bank is then compared with its peer group and the banking sector overall, in order to detect significant deviations from the peer group or sectoral norms/benchmarks. This process provides an early indication of an individual bank's problems as well as systemic problems, and assists in the prioritization of the use of scarce supervisory resources in areas or activities under the greatest risk. Off-site monitoring systems rely on financial reporting in a prescribed format that is supplied by banks according to previously determined reporting schedules. Reporting formats and details vary among countries, although most supervisory authorities systematically collect and analyze data concerning liquidity, capital adequacy, credit risk, asset quality, concentration of and large exposures, interest rate, currency and market risks, earnings and profitability, and balance sheet structure. Supporting schedules may also be requested in order to provide greater detail of a bank's exposure to different types of risk and its capacity to bear that risk. Schedules are determined depending on the type and subject of related reports. For example, supervisory authorities

TABLE 15.3 OFF-SITE SURVEILLANCE VERSUS ON-SITE EXAMINATION

<i>Off-Site Surveillance</i>	<i>On-Site Examination</i>
<i>Objectives</i>	
<ul style="list-style-type: none"> • Monitor the financial condition of both individual banks and the banking system • Provide peer statistics and the means for comparison with a peer group • Provide early identification of problems and noncompliance • Give priorities for the use of supervisory resources • Guide scheduling of on-site examinations 	<ul style="list-style-type: none"> • Monitor the financial condition, performance, and future viability of individual banks • Assess reasons for deviations from peer group • Provide a detailed diagnosis of problems and noncompliance • Provide recommendations to management • Initiate punitive actions as needed
<i>Methodology</i>	
<ul style="list-style-type: none"> • Analytical, risk-based • Descriptive • Uses questionnaires and prescribed reporting formats • Based on financial data reporting 	<ul style="list-style-type: none"> • Analytical, risk-based • Evaluative, tests descriptions • Uses interrogation of and discussions with bank management and responsible staff • Based on on-site visits and examination of actual records
<i>Uses</i>	
<ul style="list-style-type: none"> • Most effective in assessing trends in earnings and capital and comparing performance against peers • Input to sensitivity analysis, modeling, and forecasting • Depends on the timeliness, accuracy, and completeness of financial information reported by banks • Provides comparative data in a standard format for supervisory authorities, financial analysts, and bank management • Could be used to monitor selected types of financial institutions and the banking sector • Input to economic and monetary policy formulation 	<ul style="list-style-type: none"> • Most effective in determining the quality of management, the appropriateness of asset-liability and financial risk management, and the effectiveness of policies, procedures, systems, and controls • Input to institutional strengthening or development programs • Allows verification to determine accuracy of financial information and adherence to sound accounting standards and principles • Uses comparative data and off-site prudential reports

may require liquidity to be reported on a weekly or even a daily basis, large exposures on a monthly basis, financial statements quarterly, and asset classification and provisions semiannually.

The sophistication and exact purpose of analytical reviews also vary from country to country. Most supervisory authorities use some form of ratio analysis. The current financial ratios of each bank are analyzed and compared to historical trends and to the performance of their peers in order to assess financial condition and/or compliance with prudential regulations. This process may also identify existing or forthcoming problems. Individual bank reports are aggregated to attain group (or peer) statistics for banks of a particular size, business profile, or geographical area, and can then be used as a diagnostic tool or in research and monetary policy analysis.

Off-site surveillance is less costly in terms of supervisory resources. Banks provide the information needed for supervisors to form a view of a bank's exposure to the various categories of financial risk. Supervisory authorities then manipulate and interpret the data. While off-site surveillance allows supervisors to systematically monitor developments concerning a bank's financial condition and risk exposures, it also has limitations, as follows:

- ❑ The usefulness of reports depends on the quality of a bank's internal information systems and on the accuracy of reporting.
- ❑ Reports have a standard format that may not adequately capture new types of risks or the particular activities of individual banks.
- ❑ Reports are not able to sufficiently convey all factors affecting risk management, such as the quality of a bank's management personnel, policies, procedures, and internal systems.

On-site examinations enable supervisors to validate the information provided by a bank during the prudential reporting process, to establish the diagnosis and the exact cause of a bank's problems with an adequate level of detail, and to assess a bank's future viability or possible problem areas. More specifically, on-site examinations should help supervisors assess the accuracy of a bank's reports, overall operations and condition, the quality and competence of management, and the adequacy of risk

management systems and internal control procedures. Other aspects that should be evaluated include the quality of the loan portfolio, adequacy of loan provisions and reserves, accounting and management information systems, the issues identified in off-site or previous on-site supervisory processes, adherence to laws and regulations, and the terms stipulated in the banking license. On-site examination is very demanding in terms of supervisory resources and usually can only address some of a bank's activities.

On-site examinations can take different forms depending on a bank's size and structure, available resources, and the sophistication, knowledge, and experience of supervisors. Supervisory authorities should establish clear internal guidelines on the objectives, frequency, and scope of on-site examinations. Policies and procedures should ensure that examinations are systematic and conducted in a thorough and consistent manner. In less-developed supervisory systems, the examination process often provides only a snapshot of a bank's condition, without assessing potential risks and the availability and quality of systems used by management to identify and manage them. On-site supervision begins with business transactions and proceeds from the bottom up. Examination results from the successive stages of supervision are compiled and eventually consolidated to arrive at final conclusions regarding a bank's overall financial condition and performance. This approach is characteristic of countries in which management information is unreliable and bank policies and procedures are not well articulated.

In well-developed banking systems, supervisors typically use a top-down approach that focuses on assessing how banks identify, measure, manage, and control risk. Supervisors are expected to diagnose the causes of a bank's problems and to ensure that they are addressed by preventive actions that can reduce the likelihood of recurrence. The starting point of an on-site examination is an assessment of objectives and policies related to risk management, the directions provided by the board and senior managers, and the coverage, quality, and effectiveness of systems used to monitor, quantify, and control risks. The completeness and effectiveness of a bank's written policies and procedures are then considered, as well as planning and budgeting, internal controls and audit procedures, and management information systems. Examination at the business transaction

level is required only if weaknesses exist in systems for identifying, measuring, and controlling risks. In many countries, external auditors examine systems and processes at this level.

Early warning systems. In the 1990s, supervisory authorities started to refine their early warning systems—aimed at supervisory risk assessments and identification of potential future problems in the financial system and individual banks. The systems generally combine qualitative and quantitative elements. Just as approaches to banking regulation and supervision differ from country to country, the design of such early warning systems also varies, but four generic types can be distinguished:

- *supervisory bank rating systems* (of which the most well known is C-A-M-E-L), whereby a composite rate is assigned to a bank typically as a result of an on-site examination
- *financial ratio and peer group analysis systems (normatives)*, based on a set of financial variables (typically including capital adequacy, asset quality, profitability and liquidity) that generate a warning if certain ratios exceed a predetermined critical level, lies within such a predetermined interval, or is an outlier with regard to the past performance of a bank.
- *comprehensive bank risk assessment systems* which include a comprehensive assessment of the risk profile of a bank, by disaggregating a bank (or a banking group) into significant business units and assessing each separate business unit for all business risks. Scores are assigned for previously specified criteria and assessment results are aggregated to arrive at the final score for the whole bank or banking group.
- *statistical models* which attempt to detect those risks most likely to lead to adverse future conditions in a bank. In contrast with the other three systems, the ultimate focus of statistical models is the prediction of the probability of future developments rather than a summary rating of the current condition of a bank. Statistical models are based on various indicators of future performance. For example, there are models that estimate a *probability of a rating downgrade for an individual bank* (e.g., probability that the most recent CAMEL rating will be downgraded based on financial data

supplied in prudential reporting). *Failure of survival prediction models* are constructed on a sample of failed or distressed banks and aim to identify banks whose ratios or indicators or changes of ratios/indicators are correlated to that of already failed or distressed banks. *Expected loss models* are used in countries where the statistical basis of failed or distressed banks is not large enough to be able to link changes in specific financial variables to probabilities of failure. These models are based on failure probabilities derived from banks' exposure to credit risk and other data, such as the capacity of existing shareholders to supply additional capital. Some regulators have constructed statistical models based on other variables. For example, high assets growth, that has not been adequately matched with strengthening of a bank's management and institutional capacity, has in many cases been the culprit for bank failure. Therefore, a model tracing a high rate of asset growth combined with measures of institutional capacity could be used as an early warning system.

Table 15.4 summarizes generic features of the most frequently used types of early warning systems.

In many cases, supervisory authorities use more than one early warning system. The major issues with early warning systems is the proper choice of variables upon which the prediction is based, the availability of reliable input data, and the limitations related to quantification of qualitative factors that are critically related to banks' performance (e.g., management quality, institutional culture, integrity of internal controls).

15.5 Consolidated Supervision

Consistent philosophies of regulatory and supervisory authorities.

The institutional classification under which a financial intermediary operates has traditionally been assigned based on predominant financial instruments or services offered by the intermediary. The institutional classification designates regulatory and supervisory authorities for particular institutions and the corresponding regulatory treatment, for example regarding minimum capital levels, capital adequacy, and other pru-

TABLE 15.4 GENERIC FEATURES OF EARLY WARNING SYSTEMS

	<i>Assessment of current financial condition</i>	<i>Forecasting future financial condition</i>	<i>Use of quantitative analysis and statistics</i>	<i>Use of qualitative assessments</i>	<i>Focus on formal risk categories</i>	<i>Link with formal supervisory actions</i>
Supervisory Ratings						
◦ on-site	***	*	*	***	*	***
◦ off-site	***	*	**	*	**	*
Financial Ratio and Peer Group Analysis	***	*	***	*	**	*
Comprehensive Risk Assessment Systems	***	**	**	**	***	***
Statistical Models	**	***	***	*	**	*
* - not significant; ** - significant; *** - very significant						
<i>Source: BIS Paper on Supervisory Risk Assessment and Early Warning Systems, December 2000.</i>						

dential requirements (e.g., for liquidity and cash reserves). Increasing financial market integration blurs the difference between various types of financial institutions and increases opportunities for regulatory or supervisory arbitrage. The existence of arbitrage ultimately increases systemic risk. While perfect neutrality may not be possible or even necessary, authorities should strive to level the playing field with respect to specific markets and to reduce the scope for regulatory arbitrage. In other words, when different financial institutions compete in the same market for identical purposes, their respective regulations must ensure competitive equality. The regulatory environments that potentially allow for regulatory (or supervisory) arbitrage display at least one of the following features:

- inconsistent or conflicting regulatory philosophies for different types of financial institutions;
- deficiencies or inconsistencies in defining risks and prudential requirements for different types of financial institutions;
- differences in the cost of regulation for respective financial institutions;

- lack of coordination between regulatory and/or supervisory authorities in the financial sector.

Cross-border operations. The international expansion of banks increases the efficiency of both global and national markets, but may create difficulties during the supervision process. For example, cross-border transactions may conceal a bank's problems from its home-country supervisors. Certain practices by subsidiaries in less-regulated environments are also hidden from home-country supervisors, but may ultimately create losses that can impair the bank's capital. Internationalization could potentially be used as a vehicle to escape regulation and supervision in situations when problem assets are transferred to less stringent regulatory environments and/or to areas with less effective supervision. Internationally active banks therefore present a challenge to supervisory authorities.

Cooperative efforts are needed to ensure that all aspects of international banking are subject to effective supervision and that remedial actions are well coordinated. The failure of a number of large, internationally active banks spurred the issuance of minimum standards for the supervision of such groups by the Basel Committee on Banking Supervision. The Basel concordat is based on the following principles:

- A capable home-country authority should supervise internationally active banks and banking groups on a consolidated basis.
- The creation of a cross-border banking establishment should receive the prior consent of both home- and host-country supervisory authorities. Such bilateral supervisory arrangements should be specified in a memorandum of understanding signed by both authorities.
- Home-country supervisory authorities should possess the right to collect information concerning the cross-border establishment of the banks and banking groups that they supervise. The collection by and exchange of information between authorities should be guided by principles of reciprocity and confidentiality. Confidential information should be safeguarded against disclosure to unauthorized parties.

- ❑ If a host-country supervisory authority determines that the home-country supervisory arrangements do not meet minimum standards, it can prohibit cross-border operations or impose restrictive measures that satisfy its standards.
- ❑ Home-country supervisory authorities should inform host-country authorities of changes in supervisory measures that have a significant bearing on the relevant bank's foreign operations.

One of the primary reasons why consolidated supervision is critical is the risk of a damaging loss of confidence and of contagion that extends beyond legal liability. Since supervisory arrangements and techniques differ due to legal, institutional, historical, and other factors, no single set of criteria exists to conclusively establish whether consolidated supervision is effective or not. In principle, consolidated supervision should assess and take into account all risks run by a banking group wherever they occur, including branches and subsidiaries, nonbank companies, and financial affiliates. More specifically, consolidated supervision is expected to support the principle that no banking operation, wherever located, should escape supervision. It also serves to prevent the double leveraging of capital and to ensure that all risks incurred by a banking group (no matter where it is booked) are evaluated and controlled on a global basis.

Consolidated supervision should extend beyond the mere consolidation of accounts. Supervisory authorities should consider the exact nature of the risks involved and design an appropriate approach to them. Consolidated accounting may even be inappropriate when the nature of risk varies, for example when market risk differs from market to market. The offsetting of market risks during the process of accounting consolidation may result in an inaccurate risk exposure position. Liquidity risk should be considered primarily on a market-by-market, or currency-by-currency, basis.

Supervision of conglomerates. Supervisory arrangements involving conglomerates are even more complex. An international financial group active in banking, securities, fund management, and insurance may be subject to a number of regulatory regimes and supervised by authorities in a number of countries. Problems related to a conglomerate's information,

coordination, and compliance with prudential regulations—which are complex enough in a single-country environment—are compounded at the international level, particularly when operations involve emerging-market economies.

Financial conglomerates may have different shapes and structural features, reflecting varying laws and traditions. Key aspects to be considered in the supervision of conglomerates are the overall approach to supervision, the transparency of group structures, the assessment of capital adequacy, and the prevention of double gearing. In addition, contagion and the effect of intragroup exposures and the consolidated treatment of large exposures play a role because of strong differences in exposure rules in banking, securities, and insurance.

The problem of consolidated supervision has been addressed internationally by a tripartite group consisting of representatives of the Basel Committee on Bank Supervision and interest groups involved in both the securities and insurance sectors. Their joint statement on the supervision of conglomerates specifies the following:

- All banks, securities firms, and other financial institutions should be subject to effective supervision, including that related to capital.
- Geographically and/or functionally diversified financial groups require consolidated supervision and special supervisory arrangements. Cooperation and information flow among supervisory authorities should be adequate and free from both national and international impediments.
- The transparency and integrity of markets and supervision rely on adequate reporting and disclosure of information.

The tripartite group issued a joint statement recommending accounting-based consolidation as an appropriate technique to assess capital adequacy in homogeneous conglomerates. This process allows for the straightforward comparison, using a single set of valuation principles, of total consolidated assets and liabilities, as well as the application, at the parent level, of capital adequacy rules to consolidated figures. With regard to heterogeneous conglomerates, the group recommended a combination of three techniques: the building-block prudential approach (whereby consolidation is

performed following solo supervision by respective supervisory authorities); risk-based aggregation; and risk-based deduction.

The best approach to supervision and the assessment of capital adequacy is still broadly debated in international circles, while the supervisory community continuously learns from its experiences.

15.6 Supervisory Cooperation with Internal and External Auditors

The Role of Internal Auditors. Internal auditing has been defined by the Institute of Internal Auditors as “an independent, objective activity that...helps an organization to accomplish its objectives by bringing a systematic, disciplined approach to evaluate and improve the effectiveness of risk management, control and governance processes”.

Although the importance of the internal audit function of a bank has been discussed in Chapter 3, it is worth repeating that the function should cover all of a bank’s activities in all its associated entities. It should be permanent, impartial, and technically competent, operating independently and reporting to a bank’s board or to the chief executive officer.

Supervisory authorities normally issue regulatory requirements for banks’ internal control systems, aiming to establish some basic principles for the system and quality of controls applied by banks. Although the extent of regulations varies, internal audit/control regulations normally cover policies and procedures for management of credit risk and other core banking risks, such as liquidity management, foreign exchange and interest rate risks, and risk management of derivatives and computer and telecommunication systems. On-site supervision normally includes an evaluation of internal controls in a bank and of the quality of the internal audit function. If satisfied with the quality of internal audit, supervisors can use the reports of internal auditors as a primary mechanism to identify control or management problems in the bank.

Use of external auditors. External auditors and bank supervisors cover similar ground but focus on different aspects in their work. Auditors are primarily concerned with fair presentation in the annual financial statements and other reports supplied to shareholders and the general public. They are expected to express an opinion on whether financial state-

ments and other prudential returns (when applicable) fairly present the condition and results of a bank's operations. In order to express such an opinion, auditors must also be satisfied with a bank's accounting policies and principles and the consistency of their application, and must be sure that the bank's key functional systems are coherent, timely, and complete.

Because supervisory resources are scarce and in order to avoid duplication of examination efforts, supervisory authorities have come to increasingly rely on external auditors to assist in the on-site supervision process. Potential reliance on assessments and judgment of external auditors implies that supervisors have an interest in ensuring high bank auditing standards and that auditors meet certain quality criteria. In many countries, banking regulations require that the banks' external audits be carried out by auditors who have adequate professional expertise available in their firms and meet certain quality standards.

Auditors are often expected to report to the supervisory authorities any failures by banks to fulfill the requirements related to their banking license and other material breaches of laws and regulations – especially where the interests of depositors are jeopardized. In some countries the external auditors are asked to perform additional tasks of interest to the supervisors, such as to assess the adequacy of organizational and internal control systems, as well as the consistency of methods and databases used for the preparation of prudential reports, financial statements, and management's own internal reports.

A supervisor's request to an external auditor to assist in specific supervision-related tasks should be made in the context of a well defined framework. This process demands adherence to, at a minimum, international accounting and auditing standards. Table 15.5 illustrates the options available in this area.

An important prerequisite for cooperation between the supervisory authorities and external auditors, is a continuing dialogue of the supervisory authorities with the national professional accounting and auditing bodies. Such discussions should routinely cover all areas of mutual concern, including generally accepted accounting practices and auditing standards applicable to banks, as well as specific accounting problems, such as appropriate accounting techniques to be introduced in the context of specific financial innovations.

TABLE 15.5 ADAPTING THE EXTERNAL AUDIT FOR SPECIFIC CIRCUMSTANCES/NEEDS

<i>Type of Analysis or Audit</i>	<i>Output</i>	<i>Reference to International Standards of Auditing (ISA)</i>	<i>Comments</i>
Limited assurance review engagement	On-site examination review report	ISA 910	Suggested when the objective is a "validated" understanding of the corporate governance and risk management process
A report of factual findings in connection with an extended (loan) portfolio review	Audit opinion on the loan portfolio or other major asset category	ISA 920	Recommended procedure for any major balance sheet category such as the loan or trading portfolio
An audit of the remainder of the financial data	An opinion on the details of financial statements that are required in an audit; can be expanded by using ISA 920	ISA 700	Optional, to be determined on a case by case basis. Recommended for change of ownership or restructuring that involves public funds

2. INSTITUTIONAL DEVELOPMENT NEEDS

What are your bank's greatest development needs as identified in the conclusions and recommendations section (Section 17) at the end of this report?

Which areas will you focus on in the coming year?

What role can lenders/investors play in assisting you with the development of your institution?

What active plans do you have to ensure that reforms are sustained?

Who would be the primary contact person in your organization, to take responsibility for the

institutional development plan and coordinate with lenders/investors if a loan is granted?

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3. OVERVIEW OF THE FINANCIAL SECTOR AND REGULATION – TABLES 1 & 2

3.1 Status of financial infrastructure (disclosure, payment systems, securities clearing systems, etc)

3.2 Banking and the financial system: the status of financial market regulation

3.3 Banking regulation

3.4 Accounting regulation - Must financial statements be prepared in compliance with International Accounting Standards ?

Which are the key laws affecting the banking system in your country?

When were the banking laws and regulations last changed?

Description of any areas where current national legal practices cause difficulty for banks (e.g. bankruptcy and foreclosure procedures)

Describe the supervisory approach and philosophy (of the regulators) - the scope of the oversight activity, the frequency of visits by central

bank (CB) officials, and list the reports or information that must be submitted on a regular basis. Please provide a copy of the most recent submission of each such report.

What is the minimum capital requirement and how do your capital adequacy guidelines differ from the BIS guidelines?

Describe any cash reserve and liquid asset requirements of the central bank.

Are prudential regulations strictly enforced?

Please describe any anticipated changes to the regulatory requirements (including provisioning requirements) that are planned (or rumored) in future.

Please describe relationship with regulators and significant disputes, if any.

Please describe the results of the most recent review of your Bank by the CB. Please attach copy of the CB review letter.

What was the method of grading, and what was the score your Bank achieved?

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4. OVERVIEW OF THE BANK AND ITS RISK MANAGEMENT CULTURE

4.1 Historical background and general information – Table 2

Provide a brief history of the bank, detailing incorporation dates, earlier names, mergers, major events, etc.
 What is your ranking in the banking system:
 By capital; and
 By assets ?
 What is the bank’s main business focus and what are its main product areas? Also please identify key changes and “milestones.”
 Describe special initiatives being undertaken for development of commercial/small business lending activities (including segment specific delivery channels, product development, etc.)
 Please describe ways in which such focus is supported (relevant strengths, market data, competitive positioning, etc.)

What is your bank’s mission statement?
 What is the bank’s strategy relative to:

- present and expected economic environment;
- sources of competitive strength;
- main elements of business strategy (lending, fee based services, equity participation and other areas of diversification or expansion e.g. geographic or product lines);
- strengths of principal competitors in main business areas (foreign/local/joint-venture banks);
- major business risks perceived and strategies to minimize such risks.

4.2 Group and bank organization structure – Tables 3 - 6

Provide a group organization chart as **Table 3**, showing holding companies, ultimate controlling entities, associates, and subsidiaries (identifying major assets, shareholding and management relationships).
 Identify other financial institutions in the group.
 Provide an organization chart of the bank under review (include as **Table 4**).
 How many staff members does the bank have (**Table 5**)?
 How many departments and divisions does the bank have? Name them and provide an organization chart describing the key departments and divisions as well as the number of staff in each.
 How many branches does the bank have (**Table 6**)? Describe their geographic spread and size.

How many staff members have a post-high school education? Provide details about technical institute and university graduates.
 Identify how the development of human resources complements the risk focus of the bank. –(This is done to ensure that the right caliber staff is recruited and trained, in order to enable compliance and maintenance of the risk management procedures established.)
 To what extent are staff paid competitive market-based salaries in order to retain them?
 To what extent are bonuses paid to staff?
 What training is offered to staff?
 How does the organizational structure encourage good risk management? (Also see risk management culture, Section 4.5.)

4.3 Accounting systems, management information, and internal control

Provide audited annual financial statements for the past 3 years, together with copies of the auditors' Management Letters.

Provide unaudited financial statement for current year-to-date.

Provide copies of any international prospectuses issued in the past 5 years.

Describe the status of the bank's accounting systems and records.

How much reliance can be placed on the financial reporting and information systems?

Describe accounting policies used in your Bank, and a description of the key differences from International Accounting Standards.

Describe the impact of differences with IAS on your Income Statements and Balance Sheet.

Highlight the accounting standards concerning:

- Income recognition / accrual
- Securities marking to market (IAS 39)
- Fixed asset revaluations

Have there been any changes in your Bank's accounting policies over the past four years? If so, please describe.

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4.4 Information technology – Table 7

Describe the computer systems in operation (both hardware and software), including micro-computers (whether used as terminals or stand-alone units).

What backup and recovery systems are available?

How is security in the EDP area controlled?

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4.5 Risk management culture and decisionmaking process – Table 11

What major risks (stemming either from its products or from the environment) does the bank face?

Planning and defining risk tolerance levels:

Have the board and executive management delineated the level of risk they are willing to assume for each area and overall?

Risk identification: How is the risk in current operations identified?

Risk supervision and management: Describe.

Risk monitoring: Evaluate the effectiveness of control implementation.

Communication: How effectively are board-approved risk tolerance levels communicated in the organization?

Evaluate the manner in which risk is being assumed, measured, limited, controlled, and reported.

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5. CORPORATE GOVERNANCE

5.1 Shareholders / Ownership – Table 8

Describe major changes in shareholding and/or operations, and dates, since foundation. (mergers, acquisitions, divestments, etc.)
 When was the last shareholders' meeting of the bank and how many shareholders were present? What percentage of the total shares did they represent?
 What is the main business of the key shareholders, and who controls those shareholders?

Are there any provisions allowing shareholders voting rights that are not in proportion to their shareholding?
 Describe any options or other rights given to persons to acquire more share capital.
 Do any resolutions require more than a simple majority to be accepted? If so, name such provisions.
 What direct involvement, if any, do the shareholders have with the bank, the supervisory board, and the management board?

5.2 Board of directors/supervisory board – Table 9

For how long is the supervisory board elected? What are the board's main objectives and responsibilities?
 Describe the supervisory board's involvement with bank policy setting, especially as regards risk management.
 To what extent does the supervisory board review financial information during the year and at year end?
 Describe the interaction between bank management and the bank's policy-setting board, the responsibility for the determination of the bank's policies and objectives, delegation of authority

and responsibility, internal systems and procedures for performance reviews, and checks on accountability.
 s the board of directors (supervisory and management boards) committed to the active use of risk-based management information? These "ideal" management accounts should be the driving force in identifying where the bank wishes to see itself in terms of critical management information. This goal should determine what other systems development and training should take place, and how.

5.3 Executive management – Tables 10 & 11

Who appoints the chief executive officer (chairman of the management board)?

For how long is the management board elected? What are their main objectives and responsibilities?

Elaborate on the interaction between bank management and the bank's policy-setting board, the responsibility for the determination of bank policy and objectives, delegation of authority and responsibility, internal systems and procedures for performance reviews, and checks on accountability.

Discuss the interaction between bank management and employees in carrying out the bank's objectives.

Do senior management and the board receive and require risk-based management information on a regular basis?

Is risk-based management information used to ensure that procedures are in place to safeguard assets and depositors as well as ensure the integrity of data?

Which management accounts should be developed to identify critical risk management issues for top management (distinguish between information needed on a daily basis, and information to be presented on a monthly or less frequent basis for management and supervisory board meetings)?

Identify the risk management systems and procedures that must be designed to support the information needs of management, to ensure that the desire for proper risk management drives all systems development.

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5.4 Internal audit/audit committee of the board – Table 11

Describe the key objectives, role and strategy of the internal audit department.

How many persons work in the internal audit department? Describe their experience, qualifications and location by head office and branches.

Do those who carry out the internal audit function report directly to the audit committee of the board of directors?

Do the nonexecutive board members on the audit committee create opportunities to interview the head of internal audit, privately, and without any other executives of the bank present?

Do the board members receive and review all internal audit reports?

Do internal audit reports discuss deviations from policies? What else is discussed in those reports? What is the average length of service (years) in internal audit of :

- Head of Internal Audit
- Other auditors

How many of the internal auditors have a formal audit and/or accounting qualification?

How many of the internal auditors are specialized in :

- Treasury audits
- IT audits
- Other (describe)

What is the frequency of branch and departmental internal audits :

- Regular
- Irregular (surprise)

Describe key areas receiving attention during an internal audit visit.

Summarize key audit comments, by category, in the latest internal audit report.

Has evidence of FRAUD ever been found in examinations of your Bank? If so, please describe.

Describe the bank's anti money-laundering procedures / control / internal audit processes.

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5.5 External auditors

Are International Accounting Standards (IAS) and International Standards of Auditing (ISA) followed?

Who are the external auditors of the bank and how long have they been auditing the financial statements? If they were appointed recently, name their predecessors and the reason for the change.

Identify the major items reported on by the auditors during the past three years.

Supply copies of the latest two management reports from the auditors.

What audit and consulting fees have been paid to the auditors during the past two years?

To what extent do the auditors evaluate the bank's risk management procedures?

Discuss the involvement of and relationship between the external auditors and management.

How often do the regulators require that Banks change their audit firm?

FINANCIAL RISK MANAGEMENT (6-15)

6. BALANCE SHEET STRUCTURE AND THE CHANGES THEREIN - TABLES 12 & 13

6.1 Composition of the balance sheet

Asset structure: growth and changes

Liabilities structure: growth and changes

6.2 Overall on- and off-balance sheet growth

6.3 Low and nonearning assets

Analyze the bank's balance sheet structure over time and describe:

- what has happened
- why it happened
- the impact of the trend or observation

- the planned response to the situation
- alternative recommendations regarding the situation observed.

Discuss recent financial performance.

Describe the structure of your balance sheet and any planned changes.

Describe (and quantify) the nature, volume, and anticipated usage of credit commitments, contingent liabilities, guarantees and other off-balance sheet items.

7. INCOME STATEMENT STRUCTURE AND THE CHANGES THEREIN (PROFITABILITY/EARNINGS) – TABLES 14 & 15

7.1 Sources of income: changes in the structure and trends of income

7.2 Structure of assets compared to structure of income

7.3 Margins earned on intermediation business

7.4 Operating income and operating expenses breakdown

7.5 Return on assets and shareholders' funds

Analyze the bank's profitability over time and describe:

- **what has happened**
- **why it happened**
- **the impact of the trend or observation**
- **the planned response to the situation**
- **alternative recommendations are regarding the situation observed**

Describe your major sources of income and most profitable business areas.

Please describe the bank's dividend pay-out policy.

Describe the extent to which accrued but uncollected interest is taken into income—especially if such interest income relates to loans that you or the bank place in risk categories of substandard or worse.

Describe the extent to which collateral values (rather than operating cash flows) are the basis for decisions to capitalize interest and /or to roll over extensions of credit.

List any income or expenditure recognition policies that might affect (or distort) earnings. Describe the effect of material intergroup transactions, especially those relating to the transfer of earnings and asset /liability valuations.

Are there any revenue and expense items that may be significantly overstated or understated? Describe areas and the manner in which greater efficiencies can be achieved.

8. CAPITAL ADEQUACY

- 8.1 Capital retention policies**
- 8.2 Compliance with capital adequacy requirements**
- 8.3 Potential future capital requirements**
- 8.4 Structure of shareholders' funds**
- 8.5 Risk profile of balance sheet assets**

Analyze the bank's capital adequacy over time and describe:

- **what has happened**
- **why it happened**
- **the impact of the trend or observation**
- **the planned response to the situation**
- **alternative recommendations regarding the situation observed**

What plans do you have for the maintenance of minimum regulatory capital, given your past growth and future plans for expansion?

What access does the bank have to capital and other financial assistance?

What are the bank's growth experiences, plans, and prospects for the future?

Is capital growth funded by internal cash generation or capital contributions?

To what extent have reserves been generated by revaluations of fixed assets, and investments?

In the case of capital contributions, were they in cash or in kind (fixed assets)?

In the case of contributions in kind (fixed assets), state the proportion that such contributions constitute as a percentage of total capital and describe the process used to obtain a reliable third party valuation.

9. CREDIT RISK MANAGEMENT

9.1 Credit risk management policies, systems, and procedures

Use the structure of Section 4.5 (risk management culture) to discuss the following questions:

How is credit risk managed in the bank? Include a description of the lending organization, management levels, and staffing.

Provide the profile and lending skills of your chief lending officers, credit managers and officers, and all relevant staff.

Describe the key risks that you face and control in this area.

What are your strengths as far as this risk area is concerned?

What are the most pressing development needs for your bank as far as this risk area is concerned?

Describe the top-level information prepared for the most senior management in the bank.

What information is asked for during the loan application request?

Describe the contents of loan files. How do you use this information to monitor the quality of loans?

Describe the standard loan process from the client's initial enquiry, or the bank's marketing efforts, to the final lending decision, and a description of the credit decision process.

What are the criteria used for granting loans?

Describe any specific limits, ratios, used by you in the evaluation process.

Describe any specific lending procedures and techniques for project appraisal, approvals and legal finalization of projects, procurement and

disbursement, as well as follow-up and supervision of such projects.

Describe any formalized credit policies, procedures, and underwriting criteria for the identification of target markets.

Discuss the procedures for management of problem loans, describing specialized work-out departments or intensive care units and detailing their scope, skill, resources, and efficiency.

What instruments or remedies are available to ensure that borrowers repay their loans to the bank; describe also the mechanisms that exist for legal recovery, foreclosure and repossession of collateral, and transmission of legal rights.

Describe the taxation deductions allowed for loan loss provisioning as well as the influence that taxation has on your bank's provisioning policy.

At what point do you suspend interest and how do you control the overall amounts owed by a client in such a case?

Has your bank made any loans on other than normal credit terms (pricing or directed)?

To what extent have you accepted equity in clients as payment for loans?

What percentage of loans have been rescheduled once?

What percentage of loans have been rescheduled more than once?

For what percentage of loans do you act as a fiscal agent ?

9. CREDIT RISK MANAGEMENT (CONTINUED)

<p>9.2 Profile of borrowers 9.3 Maturity of loans 9.4 Loan products 9.5 Sectoral analysis of loans 9.6 Large exposures to individuals and connected parties 9.7 Loan and other asset classification and provisioning 9.8 Analysis of loans in arrears 9.9 Connected lending (to related parties)</p>	<p>Describe the major loan products offered by the bank. Describe your bank's current policies, practices, and procedures to identify common ownership, control, and reliance on common cash flows. Are all assets (in addition to the loan portfolio) with a credit risk in fact classified as to quality and provided against, when needed? Describe your methodology for the determination of the level of reserves required.</p>
<p>Analyze the bank's loan portfolios over time and describe:</p> <ul style="list-style-type: none"> ◦ what has happened ◦ why it happened ◦ the impact of the trend or observation ◦ the planned response to the situation ◦ alternative recommendations regarding the situation observed 	<p>To what extent do you rely on collateral for establishing the recommended reserves? Specify the methodology used to establish the value of the collateral? What types of collateral do you regard as acceptable? Under what circumstances do you use specific reserves and when are general reserves used?</p>

10. ORGANIZATION OF THE TREASURY FUNCTION – TABLE 16

<p>10.1 Organization of the Treasury Function 10.2 Policy setting environment – ALM / asset allocation / benchmarks / use of external managers 10.3 Market operations – funding, investing and trading 10.4 Risk analytics & compliance 10.5 Treasury operations (administration)</p> <p>Describe the arrangements for disaster recovery / back-up / hot sites. How many persons work in the treasury? How are treasury counterparty limits approved and monitored? How often are limits reviewed? Does your Bank Treasury use a telephone recording machine?</p>	<p>Describe your process for Treasury deal confirmations and reconciliation. What hedging techniques / products are used to protect against mismatches:</p> <ul style="list-style-type: none"> • Interest rate sensitivity • Exchange rate sensitivity • Maturity profile sensitivity <p>How does the Bank consolidate and track exposures arising from lending, money market, FX settlement, trade-related transactions, and securities transactions, to the same customer? How are over-limit trades and exception trades reported? How does the Bank undertake treasury risk management / revaluation of positions? Describe the compliance officer's duties, experience and qualifications (Table 19).</p>
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11. INVESTMENT PORTFOLIO MANAGEMENT (STABLE LIQUIDITY PORTFOLIO) – TABLE 17 - 20

<p>Describe:</p> <ul style="list-style-type: none"> • what happened • why it happened • the impact of the trend or observation • the planned response to the situation • alternative recommendations regarding the situation observed <p>Describe the asset allocation and benchmarks used for this portfolio.</p>	<p>Description of decision making process for taking positions. Explain treatment of losses when liquidating securities positions (when market value is less than cost).</p> <p>Describe the bank's policy of classifying securities into trading or investment category, and if this policy has changed recently.</p>
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12. PROPRIETARY TRADING / MARKET RISK MANAGEMENT – TABLES 17 - 20

<p>12.2 Structure of the investment portfolio 12.3 Structure of the trading portfolio 12.4 Net effective open positions and potential capital exposures 12.5 Market risk attached to off-balance-sheet activities and derivatives</p> <p>Describe:</p> <ul style="list-style-type: none"> ◦ what happened ◦ why happened ◦ the impact of the trend or observation ◦ the planned response to the situation ◦ alternative recommendations regarding the situation observed <p>How is market risk managed in the bank? Describe the key risks that you face and control in this area. Describe the top-level information prepared for the most senior management in the bank (Table 18).</p>	<p>What are your strengths as far as this risk area is concerned? What are the most pressing development needs for your bank as far as this risk area is concerned? Describe the Board's policies with regard to risk tolerance of derivatives exposures - onshore vs. offshore; exchange traded vs. OTC. Describe the reports used to track derivatives exposure and risk management : Describe settlement procedures in respect of securities and their derivatives Are derivatives booked in all trading desks or traded separately Does Bank write options. If yes, which? Are there unhedged options? Control of derivative credit risk? Describe what computer systems are employed to monitor derivatives positions</p>
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13. INTEREST RATE RISK MANAGEMENT

Use the structure of Section 4.5 (risk management culture) to discuss the following questions:

Describe:

- what happened
- why it happened
- the impact of the trend or observation
- the planned response to the situation
- alternative recommendations regarding the situation observed

13.1 Interest rate risk management policies, systems, and procedures

13.2 Forecasting of interest rates

13.3 Measures to determine the potential impact of exogenous rate movements on the bank's capital

How is interest rate risk managed in the bank?

Describe the key risks that you face and control in this area?

How often does ALCO meet?

What reports are presented to ALCO?

Are ALCO minutes written and circulated?

How does the Bank determine an acceptable mismatch structure given the most likely interest rate scenarios?

What analyses are performed in order to set strategies to achieve optimal mismatches?

Name the person or group who is assigned to ensure strategies are correctly implemented.

What are your strengths as far as this risk area is concerned?

What are the most pressing development needs for your bank as far as this risk area is concerned?

Does the Bank have an ALCO support unit?

To whom does it report?

What are its responsibilities?

14. LIQUIDITY RISK MANAGEMENT

- 14.1 Liquidity risk management policies, systems, and procedures**
- 14.2 Compliance with regulatory requirements**
- 14.4 Sources of deposits—profile of depositors**
- 14.3 Maturity structure of deposits**
- 14.5 Large depositors and volatility of funding**
- 14.6 Maturity mismatches of assets and liabilities**
- 14.7 Liquidity risk measures**

Describe:

- **what happened**
- **why it happened**
- **the impact of the trend or observation**
- **the planned response to the situation**
- **alternative recommendations regarding the situation observed**

Use the structure of Section 4.5 (risk management culture) to discuss the following questions:

How is liquidity risk managed in the bank?
Describe the key risks that you face and control in this area.

Describe the top-level information prepared for the most senior management in the bank. What are your strengths as far as this risk area is concerned?

What are the most pressing development needs for your bank as far as this risk area is concerned?

How strong is the interbank market? What is your participation in those markets?

Do you have adequate access to money markets or other ready sources of cash? If so, please describe these sources.

What reliance does your bank place on interest-sensitive funds?

To what extent do you make use of central bank credit? Report how many times you used central bank credit in the last 12 months, describing the different types of access used and the maximum amount involved.

What ability do you have to readily convert assets into cash?

Describe your capacity to meet unexpected deposit withdrawals and other demands for payment.

What other sources of funding do you have available in case of a shortage of liquidity.

How many depositors does the bank have in total?

15. CURRENCY RISK MANAGEMENT

15.1 risk management policies, systems, and procedures

15.2 Currency structure of assets and liabilities

15.3 Currency structure of off-balance-sheet activities

15.4 Maturity structure of foreign currency liabilities

15.5 Currency structure of loans and deposits

15.6 Net effective open position and capital exposed

Describe:

- what happened
- why it happened
- the impact of the trend or observation
- the planned response to the situation

- alternative recommendations regarding the situation observed

Use the structure of Section 4.5 (risk management culture) to discuss the following questions:

How does the bank manage its currency risks?

Describe the key risks that you face and control in this area?

Describe the top-level information prepared for the most senior management in the bank?

What are your strengths as far as this risk area is concerned?

What are the most pressing development needs for your bank as far as this risk area is concerned?

16. OPERATIONAL RISK – TABLE 21

16.1 Fraud experience – internal and external

16.2 Employment practices and workplace safety

16.3 Use of information technology to enhance operational risk management

16.4 Effectiveness of internal control processes

16.5 Use of management information for operational management purposes

17. CONCLUSIONS AND RECOMMENDATIONS

Discuss the following:

17.1 The **changes that appear necessary** within the bank’s culture and managerial practices, given the nature and relative complexity of its operations, including (as applicable):

- The need for full sponsorship by the board and executive management.
- The necessary enabling culture in which every manager is expected to consider risk (i.e., to identify, measure, and report on risk exposure.
- The changes that appear necessary after the assessment of evaluation, monitoring, and reporting systems that cover critical risk functions.
- The convenience of adopting appropriate risk objectives for each function and for the bank as a whole.
- The need to institute a formal process for the general manager or CEO of the bank and the board to review and evaluate all

expected and unexpected risks and all risk-taking activities.

- The convenience of designating a member of senior executive management for overseeing all risk management, with authority to act on risk problems and ensure risk control;

17.2 The **implications** of the problems identified and for instituting a bank-wide risk management function, the process and phases required for such action, and the role and function within the organization of the risk management senior official.

17.3 The **manner** in which risk management functions could be instituted in the bank.

17.4 The **feasibility** of installing effective comprehensive bank-wide risk management, and the implications for the bank.

TABLE 1 FINANCIAL REGULATION AND COMPLIANCE

<i>Category</i>	<i>Description of regulation</i>	<i>Bank's actual position (date)</i>	<i>Expected position after coming transaction</i>
Shareholding			
Capital			
	Minimum Equity		
	Capital/Risk Weighted Assets		
	Other Capital Ratios (Specify)		
Assets			
	Single Borrower Limit (and connected lending)		
	Group Borrower Limit and connected lending / loan concentrations)		
	Aggregate Large Exposures Limit		
	Investments (Quoted)		
	Investments (Unquoted)		
	Related Party Lending		
	Industry Sector Limit		
	Other Asset Ratios (Specify)		
	Loan classification guidelines *		
	Normal loans - general provision (upper limit ?)		
	Precautionary / Watch		
	Substandard		
	Doubtful		
	Loss		
Liquidity			
	Liquid Assets/Liabilities		
	Loans/Deposits		
	Other Liquidity Ratios (Specify)		
Funding			
	Reserves/Deposits		
	Deposit/Capital Limit		
	Funding Maturity Mismatch Limit		
	Open Fx Position		
	Other Funding Ratios		
Other			
	Market risk capital requirements (value @ risk)		
	Derivatives		
	Currency risk		
	Investment limits		
	= for equity investments		
	= for property and other fixed assets		
	Suspension and reversal of interest		
	Deposit insurance		

* Loan classification guidelines – how are restructures / renegotiated loans treated for asset classification purposes (differentiate clearly between rules based on period that loan is past due and guidelines based on expected cash flow and recoverability of loan. Is the provision required based on the total exposure to the client. Are these provisions calculated, before or after allowance for the collateral? How much of the loan loss provision is tax deductible?

TABLE 2 MARKET SHARE AND PROFILE OF BANKING SYSTEM

<i>Market Share as a % of total market (estimate):</i>	<i>Foreign banks %</i>	<i>Diversified financial institutions %</i>	<i>Specialized financial institutions %</i>	<i>Others (describe) %</i>	<i>Your key competitor %</i>	<i>Other domestic banks %</i>	<i>Your bank current year %</i>	<i>Your bank prior year %</i>	<i>Your bank prior year -1 %</i>	<i>Your bank prior year-2 %</i>	<i>Your bank prior year-3 %</i>	<i>Your bank prior year-4 %</i>
Total Corporate Loans – FX												
Total Corporate Loans – TL												
Total Deposits – FX												
Total Deposits – TL												
Leasing												
Trade Finance Letters Of Credit												
Letters of Guarantee												
Residential Housing Mortgages												
FX Trading.												
Retail / Consumer Lending												
Credit Cards												
No. Bank Branches (Excl. Non-Banks)												
ATMs												
Asset Management												
Investment Banking (Advisory)												
Broking												
Investments												
Others (Please Specify)												

TABLE 3 GROUP STRUCTURE

Attach a diagram

TABLE 4 : ORGANIZATION STRUCTURE

Attach a diagram

TABLE 5 TOTAL NUMBER OF EMPLOYEES

	<i>Current year</i>	<i>Prior year</i>
Senior Management		
Corporate Lending		
Commercial Lending		
Small Business Lending		
Retail/Consumer Lending		
Leasing		
Trade finance		
Off-shore banking		
Asset management		
Investment banking (Advisory)		
Broking		
Investments		
Treasury trading		
Treasury operations and analytics		
Internal audit		
Other categories (identify)		
Total		

TABLE 6 BRANCH STATISTICS

	<i>Current year</i>	<i>Prior year</i>
Total number of branches:		
• Metropolitan/Large Cities		
• Country areas		
• International		
Per Branch:		
• Number of ATMs		
• Average staff number		
• Average Deposits		
• Average Loan assets		
• Average operating expenses		
• Average operating income		

TABLE 7 INFORMATION SYSTEMS

Describe the computer technology used in the bank:

<i>Function</i>	<i>Software name/ vendor</i>	<i>Platform (e.g. mainframe, PC)</i>
<p>Accounting Loans Foreign exchange processing Risk management Retail banking / branches MIS Credit cards Electronic mail Others (describe) : Communications network Describe any ongoing communications problems experienced. Attach a diagram of the main IT configuration.</p> <p>Functionality: Does the IT system allow :</p> <ul style="list-style-type: none"> • Allocation of revenues and expenses by profit center and/or branch/line of business? • Accurate calculation of product profitability? <p>IT Staff Analysis</p> <ul style="list-style-type: none"> • System maintenance • Development • other (describe) <p>Budget: Describe the EDP budget for the current year :</p> <ul style="list-style-type: none"> • Software • Hardware • Communications <p>Budget: Describe the planned budget :</p> <ul style="list-style-type: none"> • Software • Hardware • Communications <p>Disaster Recovery: Describe the business continuity (backup system) :</p> <ul style="list-style-type: none"> • Who operates it? • Where is it? • Hardware? 		

TABLE 8: SHAREHOLDING*

Shareholders (as of _____)	Number of shareholders	Shares held		Percentage of shares
		Number	Unit size	
Private companies				
Private individuals				
Subtotal: private sector shareholders				
Public sector and government companies (less than 51 percent private) **				
Total shareholding				

List of shareholders who own more than 5 percent of the bank's shares	Name	Shares held		Percentage of shares
		Number	Unit size	

List of shareholders and companies that effectively or indirectly own more than 5 percent of the bank's shares through their control over shareholders of the bank

* The ultimate (and real) owner of the shares must determine whether the shareholder is from the private or the public sector.

** If shares are held as nominees, indicate who the ultimate owner is.

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** If shares are held as nominees, indicate who the ultimate owner is.

TABLE 11: KEY RISK COMMITTEE MEMBERSHIPS

Name	Qualifications	Experience	Responsibility *
Audit Committee of the Board			
ALCO			
Credit Committee			
Investment Committee			
Other key risk committees			

* Responsibility examples: administration, corporate banking, international division, domestic treasury, retail banking, internal control, finance and accounting, information systems, branch management.

TABLE 12 BALANCE SHEET ASSETS - STATE IN LOCAL CURRENCY
EQUIVALENT AS WELL AS \$ EQUIVALENT

ASSETS	<i>Four Prior Periods</i>	<i>Current Period</i>	<i>Current Budget</i>
1. Cash and balances with the Central Bank			
a) Currency			
aa) Fully convertible currencies			
ab) Non-convertible currencies			
b) Other balances with CB			
ba) Mandatory reserves and reserve-related accounts			
bc) Clearing accounts			
c) Other currency amounts			
2. Investment securities (stable liquidity portfolio)			
a) Securities at MTM value			
b) Available for sale securities at MTM value			
c) Held to maturity securities			
3. Trading Securities			
4. Placements with and loans to banks and credit institutions (net of specific provisions)			
a) Local banks and credit institutions			
b) Foreign banks and credit institutions			
5. Loans and advances to other customers (including accrued interest and net of specific provisions)			
6. Investments - long term interests in other entities			
a) Equity investments in financial intermediaries			
b) Other equity investments in non-financial institutions			
c) Other Investments			
7. Fixed assets net of depreciation			
8. Other assets (net of provisions)			
a) Receivables			
b) Other			
TOTAL ASSETS			
Memorandum Items			
Total off-Balance-Sheet contingencies			
Total off-Balance-Sheet commitments			
Difference between book and market value of securities not fully MTM			
Average interest earning assets			
Recapitalization bonds and other major restructuring-related instruments			

TABLE 13 BALANCE SHEET LIABILITIES - STATE IN LOCAL CURRENCY EQUIVALENT AS WELL AS \$ EQUIVALENT

<i>Liabilities and Capital</i>	<i>Four Prior Periods</i>	<i>Current Period</i>	<i>Current Budget</i>
1. Due to other banks and credit institutions			
a) Due to domestic commercial banks			
b) Due to foreign commercial banks and credit institutions			
c) Due to other credit institutions			
2. Funding for the trading portfolio - repos ?			
3. Due to other customers/depositors			
a) Local residents			
b) Foreign residents			
4. Certificates of deposit			
5. Other liabilities			
a) Taxes payable			
b) Dividends payable			
c) Accrued expenses			
d) Other			
6. Amounts owed to government institutions			
a) Central Bank accounts			
b) Direct government credits (Other than normal deposits)			
c) Other			
7. Other borrowings (including international lending agencies)			
8. Subordinated debt			
9. TOTAL LIABILITIES			
10. Shareholders' equity			
Common stock			
Preferred stock			
Share premium			
Undistributed profits (retained earnings)			
- Prior period			
- Current period			
General reserves			
Revaluation reserve			
Own shares repurchased			
TOTAL LIABILITIES & CAPITAL			
Average interest bearing liabilities			
Interest rate on risk-free government securities			

TABLE 14 INCOME STATEMENT - STATE IN LOCAL CURRENCY EQUIVALENT AS WELL AS \$ EQUIVALENT

	<i>Four Prior Periods</i>	<i>Current Period</i>	<i>Current Budget</i>	<i>% of Gross Income - example-</i>
A. Interest and similar income on loan portfolio				205
B. Interest expenses on deposits and loan portfolio funding instruments				170
1. Net interest income on loan portfolio (A – B)				35
2. Other banking-related operating income				20
Service charges, transaction charges and commissions				
Other operating income (e.g. investment banking fees)				
Gains/losses on disposal of fixed assets				
Other Gains/losses				
3. Trading-related income (stable liquidity and trading portfolios)				41
4. Investment-related income (subsidiaries and associates)				4
5. GROSS INCOME				100
6. Specific loan loss provisions and write-offs				6
Net provisions debited to the income statement during current period				
Bad loans written off directly to income statement (not previously provided for)				
7. Operating expenses				55
Salaries and employee benefits				
Administrative expenses				
Auditing and consulting expenses				
Rents paid				
Depreciation and amortization				
Other				
8. Expenses related to trading and investment activities				20
9. Other expenses and interest related to non-deposit borrowings (e.g. capitalization bonds issued or government / multi-lateral borrowings)				4
10. Extraordinary Gains/(Losses)				1
Gains/Losses on revaluation of assets (NET)				
Other Gains/Losses				
11. Net income/(loss) before tax				14
12. Income tax				7
Effective tax rate				50
				As % of Net income/(loss) after tax
13. Net income/(loss) after tax				100
14. Transfers to general provisions				46
15. Dividends declared				14

TABLE 14 (CONTINUED)

	<i>Four Prior Periods</i>	<i>Current Period</i>	<i>Current Budget</i>	<i>% of Gross Income - example -</i>
16. Other (+/-)				0
17. Retained earnings for the period				40
18. Retained earnings at the beginning of the period				
19. Retained earnings at the end of the period				

TABLE 15 PROPRIETARY TRADING AND INVESTMENT PORTFOLIO INCOME

	<i>Income Earned from Securities</i>								<i>Volumes Securities Traded</i>						
	<i>Trading Portfolio Income</i>	<i>Investment Portfolio (stable liquidity) income</i>	<i>Total Income from securities Portfolios</i>	<i>Current -4</i>	<i>Current -3</i>	<i>Current -2</i>	<i>Prior Period</i>	<i>Current Period</i>	<i>Current Budget</i>	<i>Current -4</i>	<i>Current -3</i>	<i>Current -2</i>	<i>Prior Period</i>	<i>Current Period</i>	<i>Current Budget</i>
Public sector (central government and agencies) bonds															
Corporate bonds															
Structured products															
Asset-backed securities															
Mortgage-backed securities															
Asset swaps															
Money market instruments (LIBOR spread products)															
Certificates of deposit															
Time deposits															
Repurchase agreements															
Resale agreements															
Derivatives *															
Currency swaps															
Interest-rate swaps															
Futures and Options															
Currency forward contracts															
Quoted equities															
Unquoted equities															

* Purpose: Hedging? % on behalf of clients (with underlying transaction) / Position-taking?

TABLE 16 ORGANIZATION OF THE TREASURY ENVIRONMENT [COMPLETE ACCORDING TO EXAMPLE]

EXAMPLE: Activities per Functional Area

<i>Policy Framework</i>	<i>Market Operations</i>	<i>Risk Analytics & Compliance</i>	<i>Treasury Operations</i>
Investment guidelines	Retail funding — local and foreign	Risk measurement (liquidity, credit, market and currency risk)	Cash Management
ALM: Managing the market exposures in the bank's balance sheet	Wholesale funding — local and foreign	Pricing, Portfolio performance analytics and reporting	Settlements
Strategic asset allocation and benchmarks	Structured loans or funding	Governance, compliance and operational risk	Accounting and Reporting
Managing and use of external managers	Investment portfolio management (fixed income, money markets, asset & mortgage-backed securities, swaps, futures & options, equities)	Quantitative strategies and risk research (strategic asset allocation, benchmark construction, benchmark management and modeling)	Information Services — IT (could also be outside the treasury)
Model validation — independent from model development	Proprietary trading (instruments as above)		

TABLE 18 POTENTIAL RISK ANALYTICS REPORTS

<i>Risk Area</i>	<i>Title</i>	<i>Reference</i>	<i>Potential Reports - Details</i>	<i>Frequency</i>			
				<i>Daily</i>	<i>Weekly</i>	<i>Monthly</i>	<i>Periodic</i>
Counterparty Risk							
Market Risk							
Liquidity risk							
Performance measurement and analysis							

TABLE 19 DAILY/MONTHLY CHECKLIST OF PORTFOLIO COMPLIANCE ISSUES

<i>Date and Reviewer:</i>			<i>Investment Management Agreement Language</i>	<i>Calculation of Guideline</i>		<i>Additional History/ Interpretation of Measure</i>	
<i>Rule</i>	<i>Reference</i>	<i>Short Description</i>			<i>Reporting Tool</i>		<i>Portfolio Reviewed</i>
1. Laws							
2. Regulations							
3. Institutional policies							
4. Institutional guidelines							
5. Operational policies							

TABLE 20 TREASURY OPERATIONS: REPORTING (FUNDING AND INVESTING BUSINESS)

Reporting Area	Title	Reference	Sub-Report Types	Frequency			
				Daily	Weekly	Monthly	Periodic
A. Reports							
Financial reports			Trial Balance / Balance Sheet / Income Statement / Trade details / Settlement entries				
Holdings reports			Inventory / Asset allocations / Performance (return on investments) reports				
B. Control Reports							
Internal reconciliations			Systems-to-systems / Control accounts (suspense accounts)				
External reconciliations			Custodian reconciliations / cash account maintained by internal treasury function				
Cash			Control accounts with external banks / cash accounts with internal clients				
C. Pricing Reports							
Source reports			Reuters / Bloomberg / Brokers / Other pricing services				
Exception (Diagnostic reports)			Unusual fluctuations / New instruments				
Valuation reports			Fair value accounting (IAS 39)				
Analysis reports			Trends				
D. Operational Reports							
Transactional reports			Cash flows / Resets / Deal volumes / Call volumes / Settlement reports				
Operational risk			Analysis of trend impacts				
E. Regulatory Reports							
Security commissioners							
Central Bank							

Appendix 2

IAS-Required Disclosure in Financial Statements, by Risk Category

DISCLOSURE REQUIREMENTS	REFERENCE to IAS
A. MANAGEMENT COMMENTARY	
Although some banking risks may be reflected in financial statements, users can obtain a better understanding if management provides a <i>commentary</i> describing the way it <i>manages</i> and <i>controls</i> these risks, as follows:	
<ul style="list-style-type: none"> ◦ Commentary about average interest rates, average interest-earning assets, and average interest-bearing liabilities for a given period. 	IAS 30.17
<ul style="list-style-type: none"> ◦ Information about effective periods and about the way the bank manages and controls risks and exposures associated with the different maturity and interest rate profiles of assets and liabilities. 	IAS 30.35
<ul style="list-style-type: none"> ◦ A discussion of management policies for controlling the risks associated with financial instruments, including policies on matters such as hedging of risk exposures, avoidance of undue concentrations of risk, and requirements for collateral to mitigate credit risks. 	IAS 32.42
<ul style="list-style-type: none"> ◦ Describe the financial risk management objectives and policies, including the policy for hedging each major type of forecasted transaction. 	IAS 32.43A
B. FINANCIAL RISKS	
1. Balance sheet structure (including off-balance-sheet activities and items)	
<ul style="list-style-type: none"> ◦ The basis on which a distinction is made between those transactions and other events that result in the recognition of assets and liabilities and those that only give rise to contingencies and commitments. 	IAS 30.8 IAS 1.97
<ul style="list-style-type: none"> ◦ Terms, conditions, and accounting policies for each class of <i>financial asset</i>, <i>financial liability</i>, and <i>equity instrument</i>, including information about the extent and nature, including significant terms and conditions, of elements that may effect the amount, timing, and certainty of future cash flows, such as: <ul style="list-style-type: none"> – principal/notional amounts – dates of maturities or execution – early settlement options and periods – conversion options – amounts and timing of future receipts or payments – rates or amounts of interest and dividends – collateral held – foreign currency information – covenants. 	IAS 32.47 IAS 1.97
<ul style="list-style-type: none"> ◦ Accounting policies, including criteria for recognition and measurement bases used, such as: <ul style="list-style-type: none"> – Methods and assumptions applied in estimating fair values, separately for classes of financial assets and financial liabilities. – Whether gains/losses on remeasurement of available-for-sale financial assets are included in profit or loss for the period or recognized directly in equity. 	IAS 30.23 IAS 39.167

DISCLOSURE REQUIREMENTS	REFERENCE to IAS
<ul style="list-style-type: none"> – Whether ‘regular way’ financial assets purchases and sales are accounted for at trade date or settlement date (for each of the categories of financial assets). 	
<ul style="list-style-type: none"> • Assets and liabilities may be offset only if: <ul style="list-style-type: none"> – A legal right to do so exists. – There is an expectation of realizing an asset or settling a liability on a net basis. 	IAS 30.26
<ul style="list-style-type: none"> • The following contingencies and commitments are required by IAS 37: <ul style="list-style-type: none"> – The nature and amount of irrevocable commitments to extend credit. – The nature and amount of contingencies and commitments arising from off-balance-sheet items, including: <ul style="list-style-type: none"> ■ Direct credit substitutes, such as general guarantees of indebtedness, bank acceptance guarantees, and standby letters of credit that serve as financial guarantees for loans and securities. ■ Certain transaction-related contingencies, including performance bonds, bid bonds, warranties, and standby letters of credit related to particular transactions. ■ Short-term, self-liquidating, trade-related contingencies that arise from the movement of goods, such as documentary credits in cases where the underlying shipment is used as security. ■ Sale and repurchase agreements not recognized in the balance sheet. ■ Interest and foreign exchange rate-related items, including swaps, options, and futures. ■ Other commitments, note insurance facilities, and revolving underwriting facilities. 	IAS 37
<ul style="list-style-type: none"> • The aggregate amount of secured liabilities and the nature and carrying amount of the assets pledged as security. 	IAS 30.53
<ul style="list-style-type: none"> • If the bank is engaged in significant trust activities: <ul style="list-style-type: none"> – The fact to be mentioned. – An indication of the extent of those activities. 	IAS 30.55
<ul style="list-style-type: none"> • Disclose separately for designated fair value hedges, cash flow hedges and hedges of a net investment in a foreign entity: <ul style="list-style-type: none"> – Description of the hedge. – Description of financial instrument(s) designated as hedge, and its fair value(s). – Nature of the risk being hedged. – For hedges of forecasted transactions: <ul style="list-style-type: none"> ■ The period in which it is expected to occur. ■ When it is expected to enter into determination of net profit or loss. ■ Description of any forecasted transaction for which hedge accounting had previously been used but that is no longer expected to occur. – For gains/losses related to cash flow hedges which have been recognized directly in equity (through the statement of changes in equity): <ul style="list-style-type: none"> ■ Amount recognized in equity. ■ Amount removed from equity to net profit or loss for the period. ■ Amount removed from equity and allocated to the carrying amount of the asset or liability in a hedged forecasted transaction. 	IAS 32.91 IAS 39.169 (b) and (c)

DISCLOSURE REQUIREMENTS	REFERENCE to IAS
<p>2. Profitability and income statement structure</p> <ul style="list-style-type: none"> ◦ State the following accounting policies: <ul style="list-style-type: none"> – Recognition of the principal types of income. – Determination of charges for general banking risks and the accounting treatment of such charges. ◦ The income statement should group income and expenses by nature and disclose the amounts of the principal types of income and expenses. In addition to the requirements of other IASs, the <i>income statement</i> or <i>the notes</i> should include the following: <ul style="list-style-type: none"> – interest and similar income – interest expense and similar charges – dividend income – fee and commission income – fee and commission expense – other operating income – general administrative expenses – other operating expenses. ◦ Income and expense items should not be offset except for those related to hedges and to assets and liabilities that have been offset in the balance sheet. ◦ Amounts set aside in respect of general banking risks (including future losses and other unforeseeable risks or contingencies), in addition to those for which accrual must be made in accordance with IAS 37, should be separately disclosed as <i>appropriations</i> of retained earnings. Any reductions of such amounts are credited directly to retained earnings. ◦ For gains/losses from remeasuring available-for-sale financial assets, that have been recognized in equity: <ul style="list-style-type: none"> – Amount recognized. – Amount removed from equity to net profit or loss for the period. ◦ Significant items of income, expense, gain and losses resulting from financial assets and financial liabilities – <ul style="list-style-type: none"> – Interest income and expense shown separately. – Realized and unrealized amounts shown separately – Gains and losses from derecognition shown separately from those resulting from fair value adjustments. – Amount of interest income accrued on impaired loans shown separately. ◦ The nature and amount of any impairment loss or reversal of such loss. <p>3. Solvency risk</p> <ul style="list-style-type: none"> ◦ For <i>financial assets</i> carried in excess of fair value: <ul style="list-style-type: none"> – Carrying amount and fair value, individually or for appropriate grouping of those assets. – Reasons for not reducing the carrying amount, including evidence supporting recoverability of the amount. <p><i>(NOTE: All other items not disclosed at fair value could have a negative impact on solvency risk.)</i></p> <ul style="list-style-type: none"> ◦ For financial assets measured at amortized cost: <ul style="list-style-type: none"> – Disclosure of that fact. – A description of the financial assets. – The carrying amount. 	<p>IAS 30.8 IAS 1.97</p> <p>IAS 30.9 and 30.10</p> <p>IAS 30.13</p> <p>IAS 30.50</p> <p>IAS 39.170(a)</p> <p>IAS 39.170(c)</p> <p>IAS 39.170(f)</p> <p>IAS 32.88</p> <p>IAS 39.170(b)</p>

DISCLOSURE REQUIREMENTS	REFERENCE to IAS
<ul style="list-style-type: none"> – An explanation of why fair value cannot be measured reliably. – A range of estimates within which fair value is highly likely to lie. – Disclosure of the following when these assets are sold: <ul style="list-style-type: none"> ■ The fact. ■ Carrying amount at time of sale. ■ Gain or loss recognized. 	
<ul style="list-style-type: none"> • For securitization or repurchase agreements: <ul style="list-style-type: none"> – Nature and extent of transactions. – Description of collateral and quantitative information about key assumptions used in calculating fair values. – Whether the financial assets have been derecognized. 	IAS 39.170(d)
<ul style="list-style-type: none"> • Reason for reclassification of any financial asset to be reported at amortized cost rather than fair value. 	IAS 39.170(e)
<ul style="list-style-type: none"> • The carrying amount of financial assets pledged as collateral for liabilities and any terms and conditions relating to the pledged assets. 	IAS 39.170(g)
<p>4. Credit risk</p>	
<ul style="list-style-type: none"> • The basis for determining losses on loans and advances and the writing-off of uncollectible loans and advances. 	IAS 30.8
<ul style="list-style-type: none"> • In addition to the requirements of other IASs, the <i>income statement or the notes</i> include losses on loans and advances. 	IAS 30.10
<ul style="list-style-type: none"> • In addition to the requirements of other IASs, the <i>balance sheet or the notes</i> include the following assets: <ul style="list-style-type: none"> – Placements with and loans and advances to other banks – Loans and advances to customers. 	IAS 30.19
<ul style="list-style-type: none"> • Any significant concentrations of a bank's assets, liabilities, and off-balance-sheet items in terms of geographical areas, customer or industry groups, or other areas of risk concentration. 	IAS 30.40
<ul style="list-style-type: none"> • With regard to losses on loans and advances: <ul style="list-style-type: none"> – Details of movements in the provision of losses on loans and advances during the period, disclosed separately: <ul style="list-style-type: none"> ■ Amount recognized as provision for current period. ■ Amount written-off for uncollectibles. ■ Any credits for recovered amounts. – Aggregate amount of the provision for losses on loans and advances on the balance sheet date. – Aggregate amount for loans and advances on which interest is not being accrued and the basis used to determine the carrying amount. 	IAS 30.43
<ul style="list-style-type: none"> • Amounts set aside in respect of losses on loans and advances over and above the normal calculated provision are accounted for as <i>appropriations</i> of retained earnings. Any reduction in such amounts should be credited directly to retained earnings and not shown in the income statement. 	IAS 30.44
<ul style="list-style-type: none"> • For related party transactions, the following elements (i.t.o. IAS 24): <ul style="list-style-type: none"> – Lending policy of the bank. – Amount included in or the proportion of: <ul style="list-style-type: none"> ■ Loans and advances, deposits and acceptances, and promissory notes. ■ Principal types of income, interest expense, and commissions paid. ■ The expense recognized in the period for losses on loans and advances and the amount of the provision on the balance sheet date. 	IAS 30.58

DISCLOSURE REQUIREMENTS	REFERENCE to IAS
<ul style="list-style-type: none"> ▣ Irrevocable commitments and contingencies arising from off-balance-sheet items. ◦ For each class of financial asset: <ul style="list-style-type: none"> – The amount that best represents its maximum credit risk exposure without taking account of the fair value of collateral. – Significant concentrations of credit risk. – Other information about exposure to credit risk. ◦ A lender discloses: <ul style="list-style-type: none"> – The fair value of collateral accepted and that it is permitted to sell or repledge in absence of default. – The fair value of collateral that it has sold or repledged. – Significant terms and conditions associated with the use of collateral. <p><i>(NOTE: Strict compliance with statutory requirements is not a guarantee of fair presentation. The proper application of the qualitative characteristics of substance over form and prudence should ensure that information about credit risk is reliable. Both substance and economic reality are important in determining the recoverability of loans and advances. Furthermore, prudence – the inclusion of a degree of caution when making estimates under conditions of uncertainty – should be exercised to ensure that assets and income are not overstated, and liabilities and expenses are not understated.)</i></p>	<p>IAS 32.66</p> <p>IAS 39.170(h)</p> <p>Framework, par .35 and .37</p>
<p>5. Investment and Proprietary Trading Portfolios - Market risk</p> <ul style="list-style-type: none"> ◦ The basis for the valuation of investment and dealing securities. ◦ In addition to the requirements of other IASs, the income statement or the notes include: <ul style="list-style-type: none"> – Gains minus losses arising from dealing securities. – Gains minus losses arising from investment securities. ◦ The following gains and losses are normally reported on a net basis: <ul style="list-style-type: none"> – Disposals and changes in the carrying amount of dealing securities. – Disposals of investment securities. ◦ In addition to the requirements of other IASs, the balance sheet or the notes include investment securities as a separate class of assets. ◦ The market values of dealing securities and marketable investment securities if they differ from the carrying amounts. ◦ For each class of financial asset and financial liability, the following information about fair value: <ul style="list-style-type: none"> – Fair value for traded instruments: <ul style="list-style-type: none"> ▣ Asset held or liability to be issued: bid price. ▣ Asset to be acquired or liability held: offer price. – For an instrument not traded, it may be appropriate to disclose a range of amounts. – When it is impractical to determine fair value reliably, the fact is disclosed together with information about the principal characteristics of the underlying financial instrument that is pertinent to its fair value. ◦ For financial assets carried in excess of fair value: <ul style="list-style-type: none"> – Carrying amount and fair value, individually or for an appropriate grouping of those assets. – Reasons for not reducing the carrying amount, including evidence supporting recoverability of the amount. <p><i>(See also section on solvency risk.)</i></p>	<p>IAS 30.8</p> <p>IAS 30.10</p> <p>IAS 30.15</p> <p>IAS 30.19</p> <p>IAS 30.24</p> <p>IAS 32.77</p> <p>IAS 32.88</p>

DISCLOSURE REQUIREMENTS	REFERENCE to IAS
<p>6. Interest rate (repricing) risk</p> <ul style="list-style-type: none"> • For each class of <i>financial asset</i> and <i>financial liability</i>: <ul style="list-style-type: none"> – Contractual repricing or maturity dates, whichever dates are earlier. – Effective interest rates. – Other information about exposure to interest rate risk. • An analysis and placement of assets and liabilities into relevant <i>maturity</i> and <i>groupings</i> based on the remaining period to the next date at which interest rates may be changed. Examples of periods used include: <ul style="list-style-type: none"> – up to one month – from one month to three months – from three months to one year – from one year to five years – five years or more. 	<p>IAS 32.56</p> <p>IAS 30.33 30.35</p>
<p>7. Liquidity risk</p> <ul style="list-style-type: none"> • Group assets and liabilities in the balance sheet according to their nature and list them in an order that reflects their relative liquidity. • In addition to the requirements of other IASs, the <i>balance sheet</i> or <i>the notes</i> include: <ul style="list-style-type: none"> – Assets: <ul style="list-style-type: none"> ■ cash and balances with the central bank ■ treasury bills and other bills eligible for rediscounting with the central bank ■ government and other securities held for dealing purposes ■ other money market placements. – Liabilities: <ul style="list-style-type: none"> ■ deposits from other banks ■ other money market deposits ■ amounts owed to other depositors ■ certificates of deposits ■ promissory notes and other liabilities evidenced by paper ■ other borrowed funds. • An analysis and placement of assets and liabilities into relevant <i>maturity</i> and <i>groupings</i> based on the remaining period between the balance sheet date and the contractual maturity date. Examples of periods used include: <ul style="list-style-type: none"> – up to one month – from one month to three months – from three months to one year – from one year to five years – five years or more. <p><i>(Maturities can be expressed in terms of the period remaining until the repayment date or from the original period to the repayment date.)</i></p>	<p>IAS 30.18</p> <p>IAS 30.19</p> <p>IAS 30.30 30.33</p> <p>IAS 30.35</p>
<p>8. Currency risk</p> <ul style="list-style-type: none"> • In addition to the requirements of other IASs, the <i>income statement</i> or <i>the notes</i> include: <ul style="list-style-type: none"> – Gains minus losses that arise from dealing in foreign currencies. • The following gains and losses are normally reported on a net basis: <ul style="list-style-type: none"> – Dealing in foreign currencies. • The amount of significant net foreign currency exposures. 	<p>IAS 30.10</p> <p>IAS 30.15</p> <p>IAS 30.40</p>

Appendix 3

Deficiencies Found in Accounting Practices

DEFICIENCIES FOUND IN BANK ACCOUNTING PRACTICES	ACCOUNTING STANDARD THAT ADDRESSES THE BULK OF THE PROBLEM
<p>Balance sheet data Misreporting of basic balance sheet data distorts prudential, monetary, and macroeconomic analyses.</p>	<p>IAS 30 IAS 32 IAS 39</p>
<p>Off-balance-sheet items and trust activities Risk positions of internationally active banks are rapidly moved into off-balance-sheet or trust vehicles located both on and offshore.</p>	<p>IAS 30.8, 30.26, and 30.55 (Refer to B1 in Appendix 2.)</p>
<p>Revenue recognition In many instances, inappropriate revenue recognition policies exist regarding the treatment of interest on problem assets (or interest suspension).</p>	<p>The sound application of the accrual basis and qualitative characteristics of financial statements would solve this problem. (Refer to the framework.) IAS 18 also provides detailed guidance on revenue measurement and recognition.</p>
<p>Profitability Users do not have sufficient information to evaluate the financial performance (profitability) of banks.</p>	<p>IAS 30.8, 30.9, 30.10, and 30.13 (Refer to B2 in Appendix 2.)</p>
<p>Strength of profits Information about noninterest income cannot be identified in addition to normal interest income and operating expenses.</p>	<p>IAS 30.8, .9 .10 & .13 (Refer to B2 in Appendix 2.)</p>
<p>Capital and capital adequacy Insufficient information is furnished to assess capital and the capital adequacy of banks.</p>	<p>IAS 1.74</p>
<p>Valuation of bank assets Inadequate guidance is provided for the valuation of bank assets. The estimated current value of a bank's loan portfolio is not reflected in the size of loan loss provisions. This results in failure to detect inflated loans and inadequate provisioning.</p>	<p>IAS 30.8, 30.10, 30.19, 30.40, 30.43, 30.44, and 30.50 IAS 32.66 (Refer to B2 and B4 in Appendix 2.) Sound application of qualitative characteristics, in particular "substance over form" and "prudence," would ensure fair presentation. (Refer to the framework.)</p>

DEFICIENCIES FOUND IN BANK ACCOUNTING PRACTICES	ACCOUNTING STANDARD THAT ADDRESSES THE BULK OF THE PROBLEM
<p>Related party information Excessively close relationships within a group or conglomerate structure are inadequately addressed.</p>	<p>IAS 30.58 and IAS 24 (Refer to B4 in Appendix 2.)</p>
<p>Investment and Trading Portfolios — Market risks Insufficient information is furnished on the market risks of banks.</p>	<p>IAS 30.8, 30.10, 30.15, 30.19, and 30.24 IAS 32.77 and 32.88 (Refer to B5 in Appendix 2.)</p>
<p>Derivative risk exposures Banks circumvent domestic prudential restraints on their risk exposures through the use of derivatives. These activities cannot be monitored.</p>	<p>IAS 32.47 & .91 (Refer to B1 in Appendix 2.)</p>
<p>Unreliable market mechanisms The valuation of loans or investments in equity or debt instruments can be complicated by a market that is insufficiently deep, active, and liquid.</p>	<p>This is a financial market problem, not an accounting one.</p>
<p>Liquidity Insufficient information is furnished to enable users to monitor the liquidity of banks.</p>	<p>IAS 30.18, 30.19, 30.30, 30.33, and 30.35 (Refer to B7 in Appendix 2.)</p>
<p>Foreign exchange risks Inadequate information is presented on the foreign exchange position of a bank for users to be able to evaluate its vulnerability to shifts in market sentiment and to the ebb and flow of capital.</p>	<p>IAS 30.8, 30.10, 30.15, and 30.40 IAS 32.47 and 32.91 (Refer to B1 and B8 in Appendix 2.)</p>
<p>Accounting principles Well-designed accounting principles, such as accrual accounting, are not applied by banks.</p>	<p>The sound application of the underlying assumptions and qualitative characteristics of financial statements would solve this problem. (Refer to the IAS framework.)</p>
<p>Timely and reliable information Many banking systems do not produce timely and reliable information for internal and external use.</p>	<p>Management needs to balance the relative merits of timely reporting and the provision of reliable information. (Refer to the IAS framework.)</p>

DEFICIENCIES FOUND IN BANK ACCOUNTING PRACTICES	ACCOUNTING STANDARD THAT ADDRESSES THE BULK OF THE PROBLEM
<p>Consolidation principles Insufficient guidance exists on principles for consolidating the operations of financial groups or conglomerates.</p>	<p>This aspect is dealt with extensively in IAS 27.</p>
<p>Additional quantitative and qualitative information Disclosure practices do not extend beyond traditional financial statements to include the provision of other quantitative and qualitative information, such as the structure of a bank's ownership, risk concentrations, and details of policies and practices of risk management.</p>	<p>IAS 1.8 Management commentary (refer to A in Appendix 2), including: IAS 30.17 and 30.35 IAS 32.42</p>
<p>Agency funds Funds managed by a bank (or other financial intermediary) acting as the agent or as principal (i.e., the appropriate role of banks in the intermediation process) are not separately identified. Agency fund liabilities should be linked to the asset portfolios that represent usage of the funds in order to assist consumers in making investment decisions.</p>	<p>IAS 30.55 (Refer to B1 in Appendix 2.)</p>

A *nalyzing and Managing Banking Risk* provides a comprehensive overview of topics focusing on the assessment, analysis, and management of financial risks in banking. The publication emphasizes risk-management principles and stresses that key players in the corporate governance process are accountable for managing the different dimensions of financial risk.

This second edition remains faithful to the objectives of the original publication (*Analyzing Banking Risk*). A significant new addition is the inclusion of chapters on the management of the treasury function. Advances made by the Basel Committee on Banking Supervision are reflected in the chapters on capital adequacy, transparency, and banking supervision.

This publication should be of interest to a wide body of users of bank financial data. The target audience includes persons responsible for the analysis of banks and for the senior management or organizations directing their efforts. Since the publication provides an overview of the spectrum of corporate governance and risk management, it is not intended to be a technical treatise on any particular risk management area.

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