

Inter-American Development Bank



Financial Crises in Japan and Latin America

**Edgardo Demaestri
Pietro Masci**
Editors

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Edgardo Demaestri

Pietro Masci

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Inter-American Development Bank

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Foreword

Over the last two decades, the countries of Latin America and the Caribbean have suffered damaging financial crises that have obstructed the building of sound financial systems and created major obstacles to growth.

On June 11–12, 2001, the Inter-American Development Bank (IDB) and the Japan Center for International Finance (JCIF) organized a workshop entitled “Financial Crises: Japan’s Experience and Implications for Latin America and the Caribbean.” The event allowed for a review of experiences with financial crisis in a highly developed country, Japan, and in some Latin American countries, and also sought to draw out lessons for the region. Participants included distinguished representatives from academia, government, supervisory agencies and multilateral organizations, each sharing the results of their studies on and professional experience with financial crises, both in Japan and Latin America.

We believe that the workshop met its objective and that its findings will help improve the understanding of financial crises, contribute to developing policies to resolve and prevent them and, ultimately, develop healthy financial sectors.

Prompted by such crises, important reforms were introduced in Latin American financial markets, including changes to the legal and regulatory framework, patterns of ownership, and market infrastructure. Domestic and foreign private ownership is now encouraged, and regulation, supervision, and competition play complementary roles. However, despite these pivotal reforms, the region’s financial markets are still falling behind and failing to provide the finance required by firms and individuals to help enhance Latin America’s competitiveness and spur growth.

Without legislation that is effective and enforced, without solid institutions, and without a political vision coupled with strong leadership, the situation may deteriorate, undercutting market discipline and reducing the region’s ability to operate effectively in an increasingly global economy.

The experiences of Japan and Latin America alike remind us of the fundamental lesson that financial market development is to a large extent a public good that needs to be further enhanced. In other words, it constitutes a value, an asset that belongs to the overall community; policymakers must therefore provide the vision, leadership, commitment and collective action to make financial markets function effectively and efficiently.

The Inter-American Development Bank Group, which includes the Bank as well as the Multilateral Investment Fund (MIF) and the Inter-American Investment Corporation (IIC), has promoted financial sector reform as well as banking supervi-

sion and domestic capital market development. In its dialogue with member countries, the Bank Group will continue to support reforms that encourage vibrant local financial markets as a stimulus to economic growth. It will also push ahead with the economic and financial integration of the region so as to increase the benefits that come from efficiency and to enable all to participate more fully in the global economy.

Carlos Jarque, Manager
IDB Sustainable Development Department

Acknowledgments

Financial Crises in Japan and Latin America benefited from material presented at the workshop: Financial Crises, Japan's Experience and Implications for Latin America and the Caribbean, a joint undertaking between the Inter-American Development Bank (IDB) and the Japan Center for International Finance (JCIF), held on June 11–12, 2001.

Edgardo Demaestri and Pietro Masci coordinated the preparation and review of the different chapters and edited the book. The authors of the various chapters come from a wide range of disciplines and institutional and professional backgrounds. They have global experience in financial crises, regulation, supervision and policy making. Their perspectives help bring to the table recent relevant insights and provide guidance in formulating strategies for crisis resolution.

The chapters benefited from valuable contributions and comments from numerous individuals. Special thanks go to those who provided feedback and comments and contributed to the editorial process. These include Torben Andersen of George Mason University; Graciela Kaminski of George Washington University; Carlos Rivas of Evaluadora Latinoamericana S.A; Carlos Zarazaga of the Federal Reserve Bank of Dallas; Takashi Kimura and Hisamitsu Iida of the JCIF; and William Armstrong, Guillermo Collich, Roberta Fusaro, Arturo Galindo, Shigeki Kimura, José Luis Machinea, Alejandro Micco and Kim Staking from the IDB.

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INTRODUCTION

Financial Crises in Emerging and Developed Economies

The increased frequency of financial crises and the lack of a generally accepted set of policies and actions to prevent and resolve them have generated a great deal of discussion over the best ways to respond to and reduce such crises and the economic costs that they impose. Crises in Latin America in the early 1980s, Scandinavia in the early 1990s, Mexico in 1994–95, Asia in 1997, and Argentina in 2001, to name but a few, have caused substantial welfare losses and damaged the interests of large segments of the population.

There are a number of reasons why it is critical to find adequate ways to prevent and resolve financial crises, not least to reduce the high costs that accrue to the state and taxpayers. Financial crises generate economic distortions and add to the costs borne by economic agents. Furthermore, the frequency with which they occur is detrimental to stability and sustainable development.

Latin America's vulnerability to external shocks makes it especially prone to frequent financial crises. As in other parts of the developing world, the prevention and resolution of financial crises in Latin America has to be carried out under severe limitations on the availability of resources. This has an impact on countries' ability to provide public services, since governments have to spend significant amounts of human and financial resources to resolve financial problems. In addition, as competition for scarce resources builds up, public policy has to contend with difficulties over resource allocation, which can make it harder to adopt adequate and opportune policies. In these circumstances, market pressures as well as those from lenders force emerging market countries to act quickly to resolve the problems.

This situation is different from that of a developed economy, which, when hit by a financial crisis, generally has more resources available and can be more flexible in

how it deals with the problem over a longer period of time. The duration of crises, combined with the reactions of policymakers, financial experts, foreign and domestic creditors, the markets and public opinion in general, tend to differentiate the experiences of Japan from those of Latin America. While in Latin America the crises have had to be addressed almost immediately, in Japan it has been possible to muddle through in the quest for a longer-term political and financial solution. Emerging economies have fewer available policy options, and do not have the time to wait; they are often confronted by market and international pressure to react immediately, albeit under several constraints.

The aim of this book is to promote a discussion of the complex issues involved in financial crises and to explore different ways by which Latin American countries can deal with such crises in order to minimize the often unnecessarily high costs incurred. At the same time, the book revisits some of the fundamental issues related to financial sector development and reform.

The book provides a comparative review of the Japanese experience in dealing with its financial crisis as a means of facilitating a better understanding of the similarities and differences with the Latin American cases analyzed, and to identify some of the lessons learned and how they can be applied. For both Japan and Latin America, the chapters focus on financial crises during the 1990s. The various lessons that can be drawn from these experiences can help policymakers in making future decisions concerning financial market strategies and reforms.

Most previous publications on financial crises have analyzed why they took place and how to reduce their costs. This volume adds to that a comparative focus between different regions and countries with different cultures and levels of development. The book concentrates on policy analysis and assessment, and in that vein some of the more theoretical contributions are examined from a comparative viewpoint.

Indeed, the analytical framework for the prevention and resolution of financial crises is still incomplete. There have been many positive advances in theoretical analysis, but we are still far from identifying a framework applicable to most situations. This book does not pretend to propose such an ideal analytical framework; rather its aim is to focus on the key issues and lessons that policymakers have to consider in developing an adequate framework for dealing with financial crises.

The book is directed at all those interested in deepening their knowledge of financial crises. By relating theory to empirical episodes, it should shed more light on how such crises come about and how best to resolve them. It will be particularly useful to policymakers, regulators and supervisors in Latin America who are on the front line at moments of crisis and under pressure to make tough choices. They will benefit

from some of the specific lessons derived from the analytical frameworks used, and they will be more likely to use those lessons to preempt future problems through regulatory and supervisory reform. In this sense, the book will contribute to developing new approaches to deal with old problems, and to identifying policies for the prevention and management of financial crises, particularly when developing or reforming legal and regulatory frameworks.

Bankers may also find this book useful as they seek to improve their practices. They may benefit from being able to compare their experiences, adopt new strategies, and deepen their understanding of the role banks play in financial systems and how they can lower the risk of becoming embroiled in situations that lead to financial crisis. The book should also provide added value for academics and researchers, particularly as they explore new areas of research. It may prove especially useful for those researchers who are looking for specific issues that are instructive in explaining the dynamics of financial crises in different economic circumstances. Interested parties from the public and private sectors may find the book helpful as they analyze the impact of introducing the new Basel capital accord.

The book does not pretend to generate a consensus on the issues raised, but rather to enrich the debate about financial crises and financial sector development.

The book is divided into five main sections. In Part One, Makoto Utsumi provides an initial comparative overview of crises in Japan and Latin America and explains the reasons why the Japanese banking system became so fragile. Part One goes on to deal with structural problems and the causes of financial crises. Jacques Trigo Loubière compares two recent financial crises in Bolivia. His chapter is of direct relevance for other Latin American countries, and also serves to illustrate how important it is to learn the lessons that each crisis yields.

Part Two focuses on policy actions that governments, policymakers and regulators have adopted in Japan and Latin America. The initial chapter by Yoshio Okubo assesses the Japanese crisis, stressing three elements of reform: re-establishing stability, increasing efficiency, and introducing structural reforms. Takafumi Sato reviews the shift in direction of Japanese prudential policy. In particular, he considers the significance of the new deposit insurance system and its potential impact on market discipline. Also in Part Two, Ruth de Krivoy reviews the policy responses in Latin American countries, highlighting the impressive progress made in moving toward risk-based regulation, improved supervision and reinforced market discipline.

Part Three deals explicitly with market discipline issues. Mitsuhiro Fukao provides another perspective on the Japanese banking system and its problems, using option price theory to evaluate risk in the net asset position of individual banks. María

Soledad Martínez Peria and Sergio Schmukler assess the relationship between market discipline, depositors and deposit insurance. Edgardo Demaestri, Pietro Masci, Maria Pia Ianariello and José Chicoma review the role of market discipline in connection with investors' behavior and stock prices during financial crises in selected Latin American countries and Japan.

Part Four deals with preemptive strategies. The initial chapter by Theodore Barnhill, Panagiotis Papapanagiotou and Marcos Rietti Souto estimates the number of bad loans in the Japanese financial system, and advances a method for crisis alert. In the next chapter, Adam S. Posen provides a provocative argument for reducing the risk of bank crises by reducing the number of banks.

Finally, in Part Five, Roberto Zahler presents some final thoughts on the lessons to be learned from the Latin American and Japanese experiences with financial crises. Zahler notes that one of the greatest challenges facing most Latin American countries is how to reduce macroeconomic instability, which correlates strongly with external vulnerability, inappropriate risk evaluation by the financial sector and, consequently, banking system fragility. The preservation of the macroeconomic stability of a country is a *sine qua non* for the proper functioning of its financial system. Generally, Latin American countries are highly exposed to macroeconomic fluctuations because they are more vulnerable to foreign and domestic shocks than developed nations like Japan. Zahler concludes that to reduce such shocks, it is important to reduce the intensity and amplitude of the economic cycle (for example, by discouraging credit booms, assets bubbles and the like).

To reduce the probability of financial crises, Latin American countries need to design consistent macroeconomic policies in such a way as to achieve internal equilibrium in a stable, sustainable and credible way. This involves exercising pre-emptive actions and adequate coordination of fiscal, monetary, exchange rate and wage policies to minimize the appearance of exaggerated cycles of boom and bust. This is also true of a developed economy like Japan, even though the diversification of a mature economy and the credibility attained on the macroeconomic front make it easier to find domestic adjustment methods. Zahler correctly maintains that fiscal policy in Latin America is closely related to the soundness of domestic financial systems. Financial systems cannot work properly in an environment where the government crowds out the private sector. Fiscal institutions have to work efficiently and be capable of ensuring the sustainable fiscal position that is so central to financial stability in Latin America. A disciplined fiscal policy, which goes beyond just achieving structural budget equilibrium, reduces vulnerability to external shocks. The contingent cost of problems in the financial services industry needs to be explicitly recognized to ensure that banks and other fi-

financial institutions do not think that their domestic (and even some of their foreign) liabilities enjoy an implicit government guarantee. Fiscal discipline is also a requisite in a developed economy, but a stable macroeconomic environment coupled with a high level of savings in a mature economy like Japan grants governments additional alternatives to deal with financial crises.

This book covers other macroeconomic issues such as capital account liberalization and the controversies surrounding exchange rate policy. It also touches on the roles of international financial institutions such as the Inter-American Development Bank, the International Monetary Fund and the World Bank. Although important, those topics are not at the core of this book, since they are considered extensively in the economic literature. The focus here is more on the aspects of supervision and regulation; financial sector reform; market discipline; and crisis symptom recognition, prevention and preemption. In particular, the book deals both with the technical and the political aspects of supervision and market discipline.

In what follows, we discuss a few approaches that may contribute to a better understanding of critical issues related to financial crisis. A distinctive feature of the Japanese financial crisis relates to the availability of time. Japanese policymakers have dealt with financial crisis over an extended period of time, while in Latin America the interventions and policy changes have been sharp, speedy and at times dramatic. This consideration runs parallel to that of Gavin and Hausmann (1998), who note that global financial markets are less tolerant of the crises of emerging countries and, as a result, Latin American countries operate in a “less forgiving context.” Also, the Japanese financial crisis came after a long period of growth, while in Latin America crises occurred on the heels of earlier ones and volatile economic growth. Another distinctive feature of the crises in Latin America was the linking of crisis management with previous similar experiences and the lessons that these brought to policy and decision-making.

The buying of time in the case of the Japanese experience is in line with Japan’s higher level of development and economic wealth compared to the countries of Latin America. The difference between these cases is also evident in the use of fiscal stimulus (to revive the economies and address the situation of bad bank loans) that is almost absent as a tool for the Latin American countries. However, the Japanese experience shows that the use of the fiscal leverage (i.e., Japan’s budget deficit jumped significantly during the 1990s) did not prove to be effective.

In a context of financial and economic crises that affect so many parties and stakeholders, the political dimension plays a crucial role. In this respect, the so-called “prospect theory” (see Weiland, 1996) may prove to be an interesting device to understand the political behavior of the various intervening parties in countries with differ-

ent levels of development. The theory tells us that people make decisions not on the basis of absolute levels of utility, but in terms of relative gains and losses. When faced with the possibility of gains, people tend to select less risky solutions, while in the domain of losses, and particularly when big losses have already been incurred, people may opt for more daring solutions that would bring success and may erase past losses. At the political level, the audacious resolution is favored when decisions are taken by outsiders or newcomers uncompromised with the previous choices that resulted in disasters. Weiland (2002) has applied this theory to various emerging countries, and he confirms his theory in the cases of Argentina, Brazil, Peru and Venezuela during the 1980s and 1990s. It would be interesting to apply the methodology to Japan to see if it contributes to the explanation and different evolution of its financial crisis in relation to the Latin American crises. On a very preliminary basis, we would like to introduce the topic to see if it could lead to a better understanding of the crises. In Japan, two conditions for a daring course of action were not present. Losses from financial crises were not so relevant due to the country's level of development, and there was no significant change in government. In fact, there was no new bold political leadership in Japan to challenge the decisions of an incumbent. Rather, there was a continuation of the existing system, although with some changes. On the other hand, as Weiland (2002) argues, in some Latin American countries, the losses from the financial crises were huge (for instance, through hyperinflation) and new leadership was emerging in several countries, including Argentina, Bolivia and Brazil. This may help to explain why several Latin American governments enacted measures that some economists and politicians considered correct, but which traditional politicians regarded as almost suicidal.

The previous line of reasoning also goes well with the public policy approach of Kingdon (1997), which states that a public policy decision is undertaken when there is a convergence of three elements: the existence of a problem (e.g., the impact of the financial and economic crises); a certain degree of agreement among experts that the policies proposed are the most effective and viable (e.g., closing and restructuring a bank and strengthening supervision in the context of international support); and, most importantly, the political will (e.g., politicians see an opportunity to enact legislation or measures that solve the problem, satisfy many constituencies and shareholders, and yield political benefits). It seems that these three elements converged in the Latin American countries, but not in Japan, where there was no political will to deal with issues such as the savings in the postal system and the implications of the links between banks and industry groups.

Japan was able to take a long-term approach because its resources and the country's political reality permitted it, avoiding uncontrollable impacts on the social

fabric. As a result, it was able to deal with the crisis over a longer period of time; thus, policymakers were able to launch some far-reaching reforms. One of these was the establishment of a new consolidated supervisory agency, the Financial Supervisory Authority, which helped reduce the concentration of power in ministerial hands. The various crises in Latin America also led to reforms, including strengthened supervision and the adoption of prudential rules, but those reforms were not as radical as the institutional reform in Japan. The integration and/or the consolidation of financial supervision would have probably been more meaningful for improving the efficacy and the efficiency of financial regulation in achieving its main objectives.¹

The prospect theory and the Kingdon approach seem adequate to explain why and how policy reforms like those in the financial sector were introduced. However, the two models do not offer a clarification of the conditions necessary for the reforms to take hold and to function well so that future crises can be prevented or rendered less severe. This consideration leads to the critical issue of policy design to secure institutional consolidation so that institutions take root and become the essential ingredient for sustainable growth.

The building of an adequate regulatory and supervisory framework, alongside the promotion of market discipline and the introduction of transparency and greater competition, should remain at the top of most countries' agendas. This needs to be holistic, introduced step-by-step, and correlated with the longer-term objective of developing a balanced and mature financial market in which both financial intermediation and securities markets play important roles. In this sense, a developed and articulated financial system should contribute to anticipating financial crises, evaluating them, and taking the appropriate corrective measures on a timely basis. Furthermore, financial system reforms should engage bank regulators and supervisors, but also bank management so that it is aware of the risks of financial crises and the implications of reform.

Lack of transparency and information was a feature of both the Latin American and Japanese experiences, restricting access to finance for many sectors. This made it harder to assess the viability of loans and the repayment capacity of debtors, which otherwise relies much more heavily on guarantees than on financial analysis of potential projects and borrowers. Additionally, the securities market was not providing signals that would yield market discipline; as a result, markets were unable to play a significant role in the crises, despite the fact that some of the chapters in this book suggest

¹ After analyzing the efficacy and efficiency of specialized and integrated approaches to financial regulation in achieving consumer protection, system stability, and financial system efficiency, Demaestri and Guerrero (2003) find good reasons for the integration of financial supervision under circumstances similar to those prevailing in most Latin American countries.

that some form of initial market discipline was taking shape in Japan and some Latin American countries. This leads to the consideration that substantial attention has to be devoted to market discipline and efficiency because they can act as antidotes to the crises, lower the cost, and help to diversify the financing opportunities for business and individuals during the period of crisis resolution. The goal should be to enhance transparency and disclosure and undertake actions for domestic capital market development so that market discipline can flourish and complement supervision. To that end, a financial sector strategy should involve developing appropriate institutions, updating and enforcing financial regulations, improving standards of corporate governance, and developing local capital markets.

The experience of Japan, like that of Latin America, confirms that there are several requirements to improve the functioning of institutions including: (i) a strong and independent supervisory authority with legal protection for its officials; (ii) a professional and independent judicial system; (iii) market players that detect mispricing in the market place; (iv) existence of a culture of trust that backs legislation, rules and regulations; and (v) enforcement of the rules by regulatory agencies as part of self-regulation and, more importantly, as a public function. In a word, this can be characterized as “stateness,” i.e., “the extent to which states can design policies and elicit the necessary consensus to ensure implementation” (Corrales, 2003, p. 76). Adherence by the prudential regulation authorities to the Basel Core Principles should be considerably stricter and more actively enforced. For instance, in the case of Japan and Latin America, strong supervision would have detected and reacted more promptly to currency and maturity mismatches. Entry and exit rules have to be strengthened, and limits set for the maximum mismatch in terms of maturities and currencies. Prompt corrective action rules with triggers should be adopted, as well as off-site alarm signals to prevent banking crises.

Improved corporate governance and risk management practices need to be encouraged through laws and regulations that clearly define accountability, for instance through the introduction of better accounting and auditing, the enforcement of directors’ responsibilities, protection for minority shareholders, definition of property rights, and enforcement.

Ideally, depositors, creditors, research analysts and shareholders who enforce market discipline (who were not fully present in the Latin American and Japanese crises) would provide incentives for banks to improve their risk assessment. In parallel, regulators would improve the disclosure and transparency of the information they provide and, as a result, promote the correct incentives for bank monitoring. Market discipline can solve some of the problems of conflicting objectives in the resolution of fi-

nancial crises, helping to respond in an orderly manner and in such a way as to avoid future crises, reduce the cost to the taxpayer, protect foreign investors, prevent contagion, and encourage structural reform. These are some of the trade-offs that policymakers have to make. Perhaps one of the relevant lessons from the Japanese experience is that these objectives cannot be pursued in a political vacuum and that politics will always play an important role. However, crises should provide opportunities for policymakers to develop long-term strategies for detecting the risks of financial crises and promoting financial sector development.

A particularly challenging aspect of financial strategies has to do with the creation of models that help detect crises at an early stage and provide timely signals for corrective action. This raises a number of important questions. One is whether it is feasible to model the behavior of the economy and of financial risk, particularly if information is not openly available. Current work seems to show that this is the case, both in a developed as well as in a relatively underdeveloped country. A second point is how reliable such models are, what responses they would prompt, and by whom. Do such models contradict the functions of the supervision and market discipline? If so, should they be left to market participants rather than the public authorities? A clear pattern of responses to these questions has yet to emerge. However, some countries may have in their public sector institutions the resources and technical capabilities to develop predictive models. The political dimension of such models, especially the relationship with supervision and market discipline and the willingness of policymakers to use them, is not yet fully apparent.

The various issues raised in this book constitute essential elements to create an appropriate and efficient environment for financial sector development.

References

- Corrales, Javier, 2003. Market Reforms in Constructing Democratic Governance in Latin America. In Jorge I. Domínguez and Michael Shifter (eds.), *Constructing Democratic Governance in Latin America*. Second edition. Baltimore: The John Hopkins University Press.
- Demaestri, Edgardo, and Federico Guerrero, 2003. *The Rationale for Integrating Financial Supervision in Latin America and the Caribbean*. Inter-American Development Bank Sustainable Development Department Technical Papers Series (IFM-135).
- Gavin, Michael, and Ricardo Hausmann. 1998. Fiscal Performance in Latin America: What Needs to be Explained. In K. Fukasaku and R. Hausmann (eds.), *Democracy, Decentralization and Deficits in Latin America*. Washington, DC: Inter-American Development Bank.
- John W. Kingdon, 1997. *Agendas, Alternatives, and Public Policies*. 2nd edition. Addison-Wesley Pub.
- Weiland, Kurt. 1996. Risk Taking in Latin American Economic Restructuring, *International Studies Quarterly* 40: 185–207.
- . 2002. *The Politics of Market Reform in Fragile Democracies*. Princeton, NJ: Princeton University Press.



PART I

STRUCTURAL PROBLEMS AND CAUSES

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CHAPTER I

Comparing Japanese and Latin American Banking Crises

Makoto Utsumi

Among the first questions we were asked when planning this study was what Latin American countries could learn from the Japanese banking and financial regulatory system when Japan itself had still to recover from its own banking crisis.

It was quite true that while the Japanese banking crisis had passed, the banking system still held huge non-performing loans on its books and that it was still far from stable. As a result, the banking system is still unable to adequately fulfill its role of financial intermediation. Japanese business has traditionally depended on banks for much of their finance and most individual savings are held as bank deposits. Because of this, the country's economic vigor is critically dependent on financial intermediation by the banking system; if that role is not adequately performed, then economic activity will falter. Indeed, the prolonged banking crisis has been a major cause of the decade-long economic stagnation in Japan.

Japan and Latin America: Some Comparisons

In Latin America and the Caribbean, the crisis in the banking system emerged simultaneously with the 1982 debt crisis. In many cases, its effects lasted for several years; in some as long as a decade. At that time, the Japanese banking system was the most solid in the world. Since World War II, there had not been a single bank default in Japan. Japanese banks retained their AAA ratings at a time when most U.S. banks had lost theirs. In fact, Japanese banks were so active in the world market, including in the United States, that some people had argued that they should be subject to legal restrictions in the United States.

By contrast with Japan, financial intermediation is low in Latin America. The ratio of deposits to GDP is 25 percent in Mexico, 30 percent in Brazil, 27 percent in

Argentina and Peru, and 45 percent in Chile. This compares to 55 percent in the United States, 67 percent in France and 99 percent in Germany. In 1999, the ratio exceeded 230 percent in Japan.

Latin American financial institutions tend to avoid long-term loans, while individuals seem averse to long-term deposits. Banking crises seem to occur at the same time as economic crises that result in capital flight. In Japan, firms rely on banks for medium and long-term financing as well as for their short-term needs. Individual savings are often medium and long term. Moreover, Japan has yet to experience a serious episode of capital flight.

The effects of regulation also highlight differences between Latin America and Japan. In Argentina, Mexico, and Peru in the mid-1980s, financial regulation tended to bring instability rather than strength. In Japan, there were no bank defaults before the deregulation of the financial sector. The sector was protected from default by detailed regulation by the Ministry of Finance (MoF) and the Bank of Japan (BoJ).

Why then did the banking system in Japan, which was so solid compared with that of the Latin American countries—or even of the United States—become so fragile? How and where did the banks, regulators, and politicians go wrong? These problems are the subject of a good deal of study as the country seeks to reconstruct its banking sector, and by so doing boost economic activity.

Deregulation and Internationalization

The immediate cause of the deregulation and the internationalization of the Japanese banking system was the financial talks between the United States and Japan in 1983, held within the framework of the Yen-Dollar Committee. For the first time, the Japanese financial sector was exposed to scrutiny using global standards, forcing it to change. A number of important influences that forced the pace of such change date from that time, notably the liberalization of interest rates on deposits, the development of the euro-yen market, and the deregulation of the bond market.

No sooner had Japan taken steps toward deregulation and internationalization than its bankers began to feel uneasy about the future. Such feelings stood in striking contrast to the opinions of U.S. bankers, who believed that deregulation would open the door for Japan to dominate the financial sector, as it had done in manufacturing. Events in the latter half of 1982 proved the American bankers right. Japanese banks spread their activities all over the world, and in Tokyo foreign banks and securities firms expanded their businesses. Nobody, however, foresaw that this would give rise to an asset bubble.

The Banks and their Role in the Asset Bubble

The increase in business activity resulted in a significant shortage of office space in Tokyo, leading to a sharp rise in land prices throughout the greater Tokyo area. This coincided with a period of monetary loosening that gave banks the liquidity to lend for property development.

Although the G-5 Plaza Agreement in September 1985 had helped reduce the overvaluation of the U.S. dollar, the Japanese currency continued to strengthen, reaching 120 yen to the dollar two years after the agreement. The high yen brought serious damage to the Japanese economy, resulting in a decline in employment. Thus, preventing the yen from strengthening further became a top priority for the government and the BoJ. In order to reactivate the economy, the latter eased monetary policy, and the low interest rates that followed encouraged an outflow of money from Japan that helped stem the further appreciation of the yen.

The generation of an asset bubble was thus the unintended consequence of unusually high lending by the banks that encouraged their customers to buy real estate and stocks. They did this for several reasons.

First, the deregulation and liberalization of financial systems and markets led bankers to believe that banking was no different from other forms of business and that, therefore, profit-seeking was their only purpose. Consequently, prudential norms were ignored; there were even cases in which *yakuza*, or gangsters, were used to facilitate the acquisition of real estate. Later, when the bubble burst and the banking crisis was in full force, public funds were injected to help shore up the banking sector. Ironically, banks were recognized as having a special status as public goods.

Secondly, the purchase of dollars to stem the rise of the yen, combined with the BoJ's low interest rate policy, resulted in a significant increase in the money supply. Because of liberalization, banking regulators (such as MoF and the BoJ) failed to take the special measures required to prevent irregular activities on the part of the banks. A measure to impose quantitative limits on banks financing real estate acquisition was introduced only in March 1990. By that time, the banks already faced financial difficulties arising from the rapid increase in short-term interest rates.

Thirdly, in the decades following World War II, the myth that real estate prices could never fall took root in Japan. As land prices rose with the internationalization of Tokyo's market, this myth became even more firmly held. This, combined with banks' expanded lending, led to the creation of the asset bubble. The real estate myth was so firmly held that bankers, policymakers, and regulators thought, even after the crisis broke, that property values would increase once again in time. This misperception was the reason for the government's delay in responding to the crisis.

The Regulatory Response

At the time of the asset bubble, prices were stable and only asset inflation existed. The BoJ tackled asset inflation in the same way that it would have dealt with inflation in general, by means of monetary policy. In only 15 months (from the end of May 1989 to August 1990), it raised the official discount rate from 2.5 percent to 6 percent. Asset prices fell sharply over a short period of time. The BoJ played a leading role in bursting the bubble, but the consequence was that Japan entered a period of economic stagnation that lasted a decade and an exceptionally deep and long banking crisis was brought about.

There is a clear similarity between Japan in the late 1980s and the United States in the late 1990s; both faced a situation of asset inflation amid general price stability. However, in sharp contrast with the response of the BoJ, the U.S. Federal Reserve chose not to use monetary policy to control asset inflation, emphasizing that the objective of monetary policy was to prevent inflation, but not necessarily asset inflation. In its role as a regulator, the Fed has kept a watchful eye on commercial bank lending for the acquisition of stocks and real estate. The U.S. central bank thus prevented the banking sector from stoking asset inflation. All in all, the Federal Reserve seems to have learned from the mistakes made by the BoJ.

Crisis Responses

A number of factors helped shape events between the bubble bursting and the onset of the banking crisis that are of interest to Latin American policymakers and bankers.

The first was the delay in recognizing the seriousness of the problem and implementing a policy response by the MoF, the BoJ and the banks themselves. The reason for this delay was not only the prevailing myth about real estate prices, but a negative attitude towards disclosure and a lack of confidence in the MoF.

The second factor was the reluctance of the regulators and banks to disclose the financial statements of the institutions involved. The fact that there had been no defaults since World War II and that Japan had an exceptionally high savings rate among industrialized countries had engendered popular confidence in the banking system. The MoF thus feared that disclosure of the true financial situation facing certain banks would lead to a massive withdrawal of deposits and a collapse of the banking system.

The third factor was that the MoF was the only institution able to take appropriate action. Its delay in doing so thus resulted in a collapse of confidence, with no

other political or regulatory institutions able to step in to resolve the crisis. Rumors about the stability of the banking system became particularly damaging because of the lack of disclosure in the system, which further fueled concern about balance sheets, and the bankruptcy of the Long-term Credit Bank, which further increased public antipathy towards the MoF. This made it harder for the MoF to exert its authority over those it sought to regulate. In addition to the banking crisis, stock market scandals and the unethical behavior of high-ranking officials compounded the problems facing the MoF.

Future Challenges

The Japanese banking crisis has passed its worst and it is unthinkable that still more major banks will go bankrupt. Smaller banks may face critical problems, but the regulator can take care of these case-by-case according to the established rules. The Japanese banking system now needs to deal with the bad debts left over from the crisis. Japanese banks have about 32 trillion yen (about \$265 billion) in bad loans (loans to bankrupt borrowers, loans that are more than six months in arrears, and loans that have been restructured). Although the number of such loans has been reduced over the past eight years, there will only be a real and permanent solution to the banking crisis when the banks can remove them altogether from their balance sheets. Further delay in doing so will threaten the banks' ability to function as financial intermediaries and hamper the resumption of economic growth.

Notwithstanding this, Japanese banks also have to face up to some other urgent challenges. In the first place, they need to acquire basic skills in estimating customer risk and setting interest rates accordingly. Up until a few years ago, they could confidently lend by holding real estate as collateral without having to assess borrowers' ability to repay their loans independently of their real estate holdings. Because of this, there was no need to vary interest rates according to the risk profile of each borrower. Now that the real estate myth has capitulated, risk assessment has become much more important. Secondly, they need to identify borrowers who are the successful businessmen of tomorrow. In the period after World War II, they lent money to firms with potential, like Honda or Sony. At that time, Honda was selling motorized bicycles and Tsushinkougyou (which became Sony) had obtained only a U.S. patent to make tape recorders. Japanese banks need to recover that vitality and imagination, if they are to lend to the Hondas and Sonys of tomorrow.

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CHAPTER 2

Crises in the Bolivian Financial System: Causes and Solutions

Jacques Trigo Loubière

Study of the financial system over the past twenty years reveals a significant number of banking crises, both in emerging as well as industrialized countries. These have been costly for governments and, ultimately, taxpayers. They have generated macroeconomic distortions with harmful effects both with respect to economic growth as well as to external and domestic equilibria. To address such problems, the governments concerned have sought to maintain sound and efficient financial systems to preserve depositor confidence, safeguard the payment system, and ensure a sufficient flow of resources to cover their country's financial needs.

In most countries in Latin America and the Caribbean, there are widespread concerns about instability in the flows of resources available to the financial system, the capacity of the system to manage external shocks, and the quality of loan portfolios. Fears abound that these factors can trigger a financial crisis; such concerns have become more acute since the Mexican and other banking crises in 1994–95.

Bolivia has experienced two major financial crises in the past two decades: the first in the mid-1980s and the second almost a decade later. Although both had common causes in the loans extended to related parties and low bank capitalization levels, their origins were substantially different. The differences lie in the sociopolitical contexts, macroeconomic conditions, and the institutional and regulatory frameworks.

The First Financial Crisis (1986–87)

The primary causes of the 1986–87 financial crisis were economic mismanagement, negligence and corruption in the administration of the state banking system, and weakness of banking regulation and supervision.

In the early 1980s, Bolivia underwent one of the worst upheavals in its economic history. In the 1982–86 period, gross domestic product (GDP) decreased at an average annual rate of 3.4 percent, the public sector deficit soared to more than 30 percent of GDP, international reserves dropped to very low levels, the gap between the official and the parallel exchange rates hit 800 percent, and the annual rate of inflation peaked at over 23,500 percent. Such macroeconomic imbalances were a consequence of salary increases conceded under pressure from labor unions, a sharp erosion of the tax base and an excessive increase in public expenditure. Together, these led to recurrent fiscal deficits, a cut-off in international financing, and a distortion in relative prices that generated exorbitant interest and exchange rates. Such were the political and social difficulties that President Hernán Siles Suazo was forced to resign a year before completing his four-year term.

The difficult economic circumstances that prevailed in the early 1980s, most notably the problem of hyperinflation, led to such financial distress that the volume of total intermediated assets fell over this period from \$1 billion to \$60 million. Such disintermediation was also the result of a decree to de-dollarize the Bolivian economy. This converted to local currency at the official rate of exchange all mercantile contracts written in foreign currency, particularly deposits and bank loans. This, together with large differentials between the official and parallel exchange rates, had a significant impact on wealth distribution. Depositors in the banking system suffered large losses as a consequence of the fall in the value of their savings, while borrowers reaped extraordinary benefits when their obligations were honored at the official exchange rate.

In addition, bank supervision was extremely lax. This was the responsibility of a division of the Central Bank of Bolivia (BCB) that lacked autonomy or standing, let alone the qualified personnel to carry out proper inspections of financial entities. Also, the legal framework governing the financial sector was both contradictory and confusing. It was based on the 1928 banking law, which had undergone numerous changes as a result of executive decree-laws and resolutions issued by the BCB and other regulatory entities. Without clear and forceful legal norms, supervisors were unable to exercise their full authority in enforcing the law. In short, there was neither the regulatory framework nor the inspection procedures necessary to enable the authorities to have a true picture of the financial conditions in the banking system.

The banking crisis during this period took place in a repressed and poorly developed financial system. It was largely the result of the fact that the monetary authority fixed interest rates (often at rates well below inflation), exercised both quantitative and qualitative controls over portfolio expansion, assigned loans by sector, and imposed high reserve requirements to offset high public deficits and taxes that worked against domestic saving. The negative effects of such an environment were clear not only in

Table 2.1. Bolivia: Cost of Bank Liquidation During the First Financial Crisis
(In thousands of US\$)

Financial Entities	Cost as of 30 Apr 01	Percentage of GDP
Public Banking Sector	78,089.4	1.9
Banco del Estado	34,098.2	0.8
Banco Minero de Bolivia	25,709.8	0.6
Banco Agrícola	14,458.9	0.4
Banco de la Vivienda	3,822.5	0.1
Private Banking Sector	48,005.8	1.2
Banco de Crédito Oruro S.A.	24,433.2	0.6
Banco de Potosí	9,383.2	0.2
BAFINSA	9,357.8	0.2
Banco del Progreso Nacional	2,812.5	0.1
BLADESA, S.A.	2,019.1	0.1
Grand Total	126,095.2	3.1

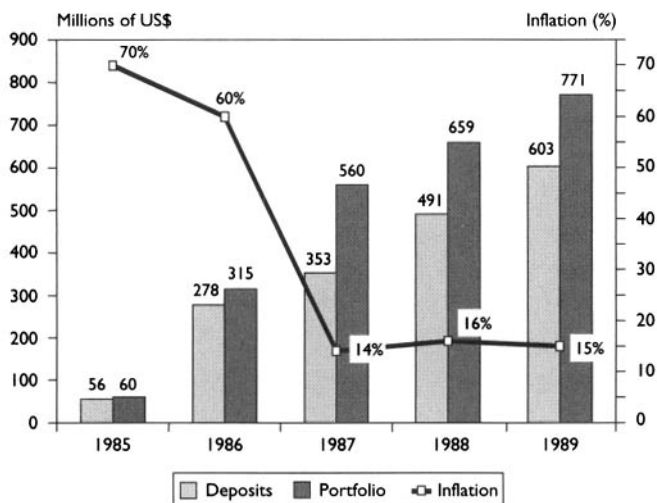
Source: Fondo de Fortalecimiento del Sector Productivo y Financiero (FONDESIF).

such areas as domestic savings and investment quality, but in others such as credit risk and competition, which lost their importance in the decision-making process for loans.

Bolivia failed to comply with the debt servicing requirements imposed by international private banks and, as a result, lost access to external sources of finance. Together with the low level of financial deepening, this was a further constraint on the expansion of assets in the banking system. It also reduced the cost of liquidating private banks relative to public banks (see Table 2.1). State banks (i.e., the Banco Agrícola, Banco del Estado, the Banco Minero and the Banco de Vivienda) found themselves totally insolvent owing to the extremely poor quality of their portfolios. This was a result of poor credit management and the granting of subsidized loans in response to pressures from organized labor, trade associations and other sectoral interests. Individuals with good access to government also were able to receive large loan payments.

In this economic and social context, a stabilization program was launched in August 1985, which put into effect what became known as “the new economic policy.” Structural adjustments were introduced that modified exchange rate, monetary, tax, financial, foreign trade, and prices and incomes policies. The objective of the reformers was to achieve macroeconomic stability, a sustained level of economic growth, and a more equitable distribution of wealth, all in a market economy model that would generate an efficient allocation of resources.

Figure 2.1. Banking System: Evolution of Deposits, Portfolio and Rate of Inflation



Source: Prepared by the author on the basis of information from the Superintendency of Banks and the Central Bank of Bolivia.

The stabilization program quickly reduced the rate of inflation to 60 percent in 1986 and 14 percent in 1987. The exchange gap fell to less than 2 percent, while the public sector deficit fell to 3.3 percent of GDP in 1986. Macroeconomic stability, based on an equilibrium in public finances and monetary discipline, helped generate confidence among savers, which in turn led to a progressive recovery in bank deposits and loans (see Figure 2.1).

So as to eliminate the distortions caused by state intervention in Bolivia's financial market, policies were designed and implemented to liberalize markets. Interest rates were floating freely, allowing loan allocation to respond to market forces and helping to balance project risk against profitability. New financial institutions also were established, and foreign credit flows expanded.

The new economic policy thus involved measures to reform the financial system and promote savings. They included the following provisions:

- Banks and financial institutions were allowed to enter into contracts, in both foreign and indexed national currency.
- Interest rates were to be determined by the free mutual agreement among the parties.

- The banking system was authorized to conduct both foreign currency and foreign trade operations, in accordance with the new exchange rate system based on daily auctions.
- Rates of legal reserves were reduced.

The structural measures launched in 1985 were complemented in 1987 by a decree that sought to increase levels of financial intermediation and strengthen the banking system. It included the following provisions:

- Reinstatement of the functions and attributes of the Banking Superintendency, the authority responsible for monitoring the financial system. The Superintendency was granted an appropriate degree of autonomy.
- Reduction of the debt that banks could leverage with the public, including debt to the BCB, from 30:1 to 15:1.
- Introduction of prudential norms with respect to interest accrual on delinquent loans, and selection of criteria for designating loans as non-collectable.
- Transfer to the private banking sector of BCB responsibilities in the area of loan allocation.
- Closure and liquidation of state banks.

As a result of the 1987 decree, the Banking Superintendency resumed the responsibilities granted under 1928 Banking Law as an independent regulator and monitor of financial institutions. The Superintendency underwent an organizational phase during which it introduced modern information systems and up-to-date techniques for inspection and control. These helped it establish an institutional authority as watchdog over the financial system.

At the same time, a study was undertaken to design a new banking law that would provide a modern regulatory framework based on the Basel principles. The law was approved in April 1993, establishing the concept of universal banking (or “multi-banking”). This enabled banks to branch out into other financial services such as insurance, mutual funds, stock brokerages, financial leasing and factoring. The law also specified that banks could only participate in corporations or firms of a financial nature.

A further key aspect of the new regulatory framework was that the operating capital of financial intermediaries would be determined legally as a function of the weight of their assumed risk assets. The capital adequacy ratio was set at 8 percent. At the beginning of this chapter, we said that one of the principal consequences of the cri-

sis was the low levels to which bank capitalization had sunk. Until 1985, banks were allowed to leverage up to 30 times their capital. As we have seen, the 1987 decree reduced this to a factor of 15, and the new law reduced it further to 12.5.

The Second Financial Crisis (1994–95)

As of the early 1990s, three banks (i.e., Banco de Inversión Boliviano, Banco Ganadero del Beni, and Banco Cochabamba) began to show signs of illiquidity and insolvency. The first two banks merged, adopting the name of Banco Sur. In November 1994, these banks were intervened by the Superintendency, which used its legal powers to liquidate them.

The liquidation of Banco Sur and Banco Cochabamba generated a wave of panic that led to a significant loss of deposits from the Bolivian financial system. In the week following liquidation, \$75 million were withdrawn, creating serious liquidity problems within the banking system. The situation was compounded by developments in other Latin American countries (Venezuela, 1994; Mexico, 1994–5; Argentina, 1995; Costa Rica, 1995; Brazil, 1995–6; and Paraguay, 1995). These had a negative impact on depositor confidence in five Bolivian banks, each of which were already facing liquidity problems. These included the country's second and fourth largest banks, Banco Boliviano Americano (BBA) and Banco Hipotecario (BHN), respectively. Together with Banco Internacional de Desarrollo S.A (BIDESSA), Banco de La Paz (BLP) and Banco Unión (BUN), they accounted for more than 50 percent of deposits in the Bolivian banking system.

Additionally, the BBA's principal shareholder was also the owner of an offshore financial entity based in the Cayman Islands, the International Banking Corporation (IBC). Although this offshore bank was authorized to operate in Bolivia, it was prohibited from taking deposits from the general public. This restriction was flouted, however, and it accepted deposits illegally, only then to find itself unable to honor them. This added further to the distrust in the country's second largest bank.

In response, the weakest banks resorted to credit lines from the BCB (the lender of last resort) since the liquidity support and the financing facilities usually granted through the interbank market were insufficient to trigger the immediate return of deposits. This showed clearly that the problem was not just one of illiquidity, but one that raised questions of systemic insolvency. The failure of the other five banks could have led to a massive flight of deposits, producing a systemic crisis of dire consequences for the country's hard-won economic stability. So, the problem went from being one

that was strictly private in nature to one of public concern, given not only the magnitude of the crisis, but the need of the state to involve itself in searching for appropriate solutions.

Principal Causes of the Financial Crisis

The main causes of the intervention and compulsory liquidation of these banks included:

- High concentration of ownership and lending to related parties without sufficient guarantees;
- Inadequate reserves and low levels of capitalization in the financial system;
- Excessive expansion of loan portfolios;
- Unsatisfactory transparency with regard to information;
- Excessive reliance on guarantees for credit decision-making;
- Lax policies for granting of operating licenses; and
- Poor corporate governance and managerial competence.

One of the primary causes of Bolivian bank crises during the last 15 years has been the abusive way that loans were granted to bank owners, directors, managers, and to enterprises in which banks have an interest (connected party loans). A characteristic of the Bolivian banking system has been a high degree of concentration (that is, few owners and, indeed, in some cases, a single owner). This, in turn, made it possible for some banks to exceed the concentration limit for connected lending loans allowed by law. That limit, 20 percent of a bank's capital, reached well over 60 percent in the case of the banks liquidated. Tied loans were a common feature of the Bolivian financial system, in which bank directors and officers were accomplices. In the worst cases, the owners of the liquidated banks granted loans to third parties (known elsewhere as *testaferros* and in Bolivia as *palos blancos*), creating fictional corporations and granting non-existent guarantees. A frequently used technique to dodge loan concentration limits was to extend loans to friends in excess of their needs on the condition that the unused portion of the proceeds was transferred back to the bankers, who agreed to service that portion of the loan. When the bank was liquidated, these friends found that they were being sued for the entire amount of the loan and obliged to pay it.

Another ploy commonly used by unscrupulous bankers to avail themselves of public funds illegally and avoid the concentration limits set by the regulatory system

was to create parallel or offshore banks. Typically, these were registered in countries acting as financial and tax havens. Offshore banks thus served as channels for accepting deposits from the public, financing the corporate activities of their owners, and purchasing the poor-quality portfolios of the legally established banks so as to clean up their balance sheets.

Such illegal activities can also be blamed on overly lenient regulations regarding the issue of operating licenses to new banks. These made it easier for equity investors of questionable moral and ethical character to enter the business. Furthermore, such entities did not possess the management expertise or the technology to operate a business whose main aim is to manage risk, itself a complex task.

The mid-1990s financial crisis was also a result of a credit boom. This led to a relaxation in credit policy standards on the part of those financial entities that were subsequently forced to merge or go into liquidation. There can be no doubt that rapid credit portfolio expansion led to a relaxation in the rigor employed in evaluating credit risk, especially where the owners themselves were using these resources for their own benefit.

The absence of proper credit allocation policies and procedures to evaluate borrower risk also reflected the scant professionalism of the Bolivian banking industry, faced with the challenges of conducting its business in a new free-market environment.

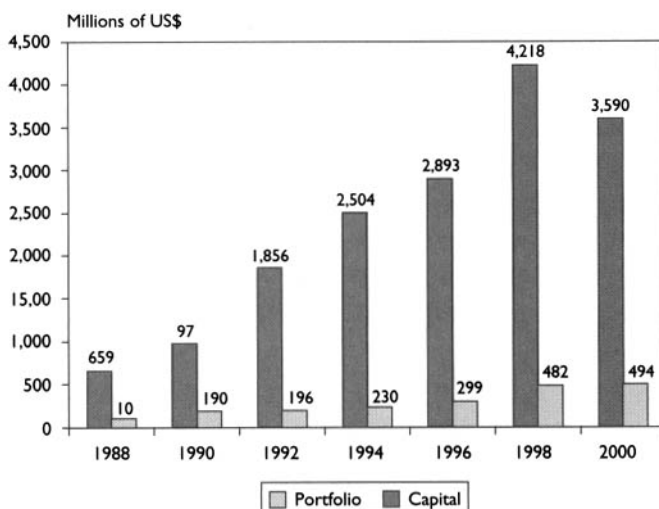
The reduction in legal reserves, the high returns on domestic financial savings as a result of macroeconomic stabilization, the closure of state banks, along with the liberalization of the capital account and the encouragement that this gave to (mostly short-term) external financing, all encouraged the overexpansion of loan portfolios. Between 1988 and 1994, these increased at an average rate of 30 percent (in real terms), while the economy grew at a rate of 4 percent over this period. It is thus clear that growth in lending bore no relation to the growth in the economy.

Historically, excessive lending during an expansive phase of the economic cycle is a cause of financial crises, because it becomes more difficult to discriminate between good and bad loans when the economy is growing rapidly. The reason for this is that in these circumstances many borrowers are, at least temporarily, quite profitable and liquid.

The growth in the loan portfolio bore little relation to the policies required to sustain that growth and prevent a relapse. Shareholder capital did not grow at the same rate as deposits and bank portfolios, since bankers—who did not lack access to political power—pressured government to maintain low levels of capitalization and, consequently, high levels of leveraging.

In fact, the poor quality of the loan portfolios called for higher reserves and immediate steps to increase banks' capitalization levels. However, bank capitalization

Figure 2.2. Banking System: Evolution of Portfolio and Capital



Source: Prepared by the author on the basis of information from the Superintendency of Banks.

was being conducted fraudulently through ‘self-lending’. Another method was to use public resources to invest in foreign bank debt instruments. These were then used as guarantees, and bank shareholders would then lend themselves the money to capitalize the bank. Unsurprisingly, the deposits taken by the offshore banks were also used to finance bank capitalization.

The scarcity of reliable information and the lack of transparency with which most Bolivian firms are managed make financial analysis quite difficult, as well as the credit market much more risky. As a rule, firms keep three balance sheets: one that they submit to the bank, showing an excellent financial situation; a second that they give to tax collection agencies, showing a loss; and a third revealing the true situation that the owners keep to themselves.

The unreliability of the financial information distributed by firms hinders and distorts analysis of their financial and economic situation. Banks therefore make decisions based on incorrect data, a fact that further increases credit risk. In order to cover this risk, they demand high real guarantees that simply increase the cost of credit and restrict access for many to finance. Consequently, the viability of a loan tends to rely on a mortgage guarantee rather than on the financial analysis to determine a business’ capacity to repay.

**Table 2.2. Bolivian Banking System:
Stratification of Portfolio**
(In millions of US\$)

Range	December 2000				March 2001			
	Amounts	%	No. of borrowers	%	Amounts	%	No. of borrowers	%
Greater than \$500,001	2,088	49.6	1,229	0.5	1,956	49.2	1,169	0.5
\$100,001 to \$500,000	780	18.5	3,713	1.5	733	18.5	3,504	1.5
\$30,001 to \$100,000	563	13.4	10,786	4.4	539	13.6	10,332	4.4
\$10,001 to \$30,000	379	9.0	21,571	8.7	366	9.2	20,884	8.8
Less than \$10,000	398	9.5	209,561	84.9	376	9.5	199,859	84.8
Total	4,208	100.0	246,860	100.0	3,970	100.0	235,748	100.0

Source: Prepared by the author on the basis of information from the Superintendency of Banks.

Since the creditworthiness of a borrower depends on such guarantees, a high proportion of all credit is allocated to non-tradable sectors (land, real estate, rural property), thereby generating benefits to the wealthiest sectors, particularly those with inherited wealth. In Bolivia, 68 percent of all credit is concentrated in just 2 percent of all borrowers.

Fictitious increases in the value of guarantees encourages over-indebtedness, especially among corporate groups. It also generates a speculative rise in the value of the goods accepted in guarantee, creating financial bubbles. These tend to burst abruptly during periods of economic downturn, exposing the true values of the assets involved and undermining the solvency of creditor banks.

Concentration of ownership in a single person or family group made it possible for bankers (whether owners or directors) to involve themselves in almost all aspects of a bank's operations, placing at risk the governance, transparency, profitability and efficiency of the bank. Bank managers came under constant pressure from owners, who for all practical purposes managed the bank. Those involved in management therefore were not motivated to use the normal rules that govern the granting of loans. Internal controls were non-existent, and internal auditors answered to the interests of the owners.

At the same time, external auditing in Bolivia provided little by way of a corrective. Legally, banks are required to submit yearly external audit reports that contain

an opinion as to their capital and financial standing. Unfortunately, such statements have tended to be vague, limited to general opinions as to the reasonableness of the financial statements provided. External auditors, at least in the case of Bolivia, have tended to be extremely negligent.

Since access to liquidity (credit) was guaranteed, bankers had strong motives to buy new businesses (not always viable) or to acquire assets on favorable conditions through foreclosures. Supervision was made more difficult in these circumstances by the paucity of credible information on borrowers.

Inadequate credit controls were responsible for an increase in delinquent loans that did not always appear on the balance sheet. They were deliberately obscured through the continuous reprogramming of loans, the granting of new loans to finance debt service on former operations, the creation of cross-credits, and the approval of loan restructurings that lacked any analysis of borrowers' repayment capacities.

The absence of effective debt payment freezes bank portfolios. Such assets thus cease to produce positive flows while ongoing operating and financial costs continue to produce real negative flows. This situation leads to a vicious cycle whereby new losses are incurred that grow out of the need to finance previously accumulated losses, generating in turn problems of severe illiquidity, diminished solvency, and loss of capital.

The insolvency of a financial entity becomes obvious when it increases its rates of interest on deposits far above the average for the banking system as a whole. The higher the price that a bank must pay for its deposits the more it is forced to increase its interest rates on loans and to grant loans that are more risky in nature. Problems multiply when such a financial entity can no longer capture deposits from the public, still less from the inter-bank market, in particular when it lacks access to external funding.

So it was in this way that the Bolivian debacle began; the banks' problems of illiquidity were but symptoms of their insolvency.

Solutions to the Crisis

Despite some of the advances made in preventive regulation, there was still a need to strengthen the regulatory framework by adjusting the rules governing activities of financial intermediation to avoid, so far as possible, these sorts of difficulties mentioned. The measures taken were as follows:

- Financial entities were expressly prohibited from granting loans to owners, bank managers, or groups with ties to the latter (i.e., connected party loans).

- Capitalization levels of financial entities were requested to be increased. The capital adequacy ratio was increased from 8 to 10 percent and the system for weighting assets in determining the ratio was made consistent with international standards. Between 1994 and 2000, bank capital more than doubled from \$230 million to \$494 million.
- Minimum bank capital requirement was increased from \$3.2 million to \$8.5 million.
- Offshore banks were expressly prohibited from taking deposits in Bolivia.
- Banking Superintendency was empowered to conduct an assessment of the suitability and solvency of the shareholders. If required, it was given the authority to order changes in the ownership and management of financial entities with inadequate capital structures.
- Banking Superintendency was empowered to do likewise in instances where financial entities place the deposits of the public and their own viability at high risk, due to poor management or lack of internal control. The regulatory system sets out a series of instances that it characterizes as high-risk.
- Public tender required when the new shareholder assessment recommends a change in ownership, so that the entity can be sold while still in operation, thus avoiding the devaluation of asset values once an entity is intervened.

To facilitate mergers, absorption and purchase of financial entities with liquidity or solvency problems, the state has to intervene and to establish an institution for bank rehabilitation, i.e., the Fund for Strengthening the Productive and Financial Sector (*Fondo de Fortalecimiento del Sector Productivo y Financiero*, or FONDESIF). Its purpose is to restore liquidity, establish a time frame for repayment of bad debts, and improve the capitalization of entities involved in financial intermediation. These objectives are met through subordinated capital loans, structural liquidity loans, and the purchase of assets with or without a repurchase agreement.

As of June 30, 1998, FONDESIF had approved five such plans and carried out operations worth a total of \$176.6 million. Although the portfolio recovery process is still underway, it is estimated that losses will total 4 percent of GDP as a result of the liquidation of the three entities not rehabilitated by FONDESIF and the four that were.

The creation of FONDESIF helped restore public confidence in the financial system, encouraged the capitalization and strengthening of financial entities, and promoted management restructuring in those banks that obtained resources from the

Fund. With the help of significant foreign funding, changes were made in shareholder and management structures along the following lines:

- Sale of 100 percent of BHN to Citibank, which thus became owner of all of the shares of the capital stock.
- Purchase by Banco de Crédito, with Peruvian capital, of the BLP and, subsequently, a significant portion of the portfolio and deposits of the BBA. Management of another portion of the BBA portfolio was transferred to Banco Mercantil, owned by a Bolivian financial group.
- Capitalization and strengthening of the BUN achieved in similar fashion, with 29 percent of shares in its capital stock being transferred to a Chilean group.

Banco BIDESA also applied for financial assistance from FONDESIF, but did not meet its requirements. Consequently, it had to be liquidated.

Through this policy of bank rehabilitation, it was possible to:

- Strengthen confidence in the financial system;
- Maintain stability of the payment system;
- Minimize costs to the state compared to those of forcible liquidation;
- Keep financial flows to the entity's clients;
- Protect and increase community savings; and
- Reduce level of panic among savers.

A basic principle employed was that government financial support was not to benefit bad bankers, and management staffs were replaced in their entirety. Furthermore, criminal proceedings for fraud were brought against primary shareholders and executives, who eventually went to jail, even though most were freed after two years, with the exception of the main shareholder in the IBC. However, the judicial processes have continued, and two verdicts favorable to the Banking Superintendency have been handed down to date: one against the IBC offshore bank, and the other against the shareholders of Banco Sur. In addition, the principal shareholder of BIDESA was stripped of his parliamentary immunity at the request of a judge so that action could be taken under normal civil justice procedures.

Comparative analysis of these two crises shows that the first (1986–87) was mainly a product of the very negative macroeconomic conditions of the early 1980s. By contrast, the Bolivian economy performed fairly well in the 1990–95 period. The

Table 2.3. Comparison of Banking Crises in Bolivia

	1986–87	1994–95
<i>Macroeconomics</i>		
GDP growth (%)	-3.2	+3.8
Fiscal deficit (% GDP)	30.0	3.6
Inflation (%)	23,500	18.0
NIR ¹ (in months of M)	Negative	6.7
Portfolio (in millions of US\$)	60.0	2,600.0
Interest rate (%)	32.0	20.0
<i>Institutional Framework</i>		
Bank legislation	Law of 1928	Law of 1993
Banking supervision	Division BCB	Independent SBEF
Off-shore banking	Yes	Yes
Public banks	Yes	No
<i>Banking Prudential Regulation</i>		
Accounting manual	No	Yes
Capital adequacy	Insufficient	Insufficient
Loan loss provision	Weak	Weak
Related credits	Yes	Yes
Liquidation of banks	No	No
Granting of licenses	Limited	Excessive

¹NIR: Net International Reserves

crisis of the 1990s was a consequence of the rapid growth in lending and the deterioration in portfolio quality. In the mid-1980s, the loan portfolio scarcely reached \$60 million. The 1980s bank crisis was principally in the public sector, and state-owned banks were closed down and liquidated in the late 1980s and early 1990s on account of their inefficiency and politicization. There is no doubt that the lack of a modern normative framework contributed to the 1986–87 crisis, along with weak banking control by a division of the BCB.

Although Bolivia has enjoyed a system of autonomous control since 1988, it was only in 1993 that a new banking law brought the norms applied into harmony with Basel principles. New prudential regulations with respect to credit regulation and minimum capital requirements only came into force with the new Central Bank Law of 1995, following the second banking crisis. The norm on portfolio risk and forecasting was only brought in at the beginning of 1999, three years afterwards. Summing up, the country confronted the two crises with a weak system of prudential regulation.

Conclusions and Recommendations

Experience in recent years has shown that, as a rule, the first symptom of a banking crisis is a lack of liquidity. The lesson from this is clear: entities with problems of liquidity (or solvency) should not be left unaddressed. Policies are needed to tackle such situations in a timely fashion. Portfolio recovery strategies are needed to reduce problems of delinquency, especially with respect to those parts of the portfolio of poorest quality.

At the same time, entities that have insufficient capital need to be capitalized. This should take place immediately in the form of capital provisions, either from shareholders or third parties. If such measures are not taken, distrust increases and options for maintaining the solvency of the entity are reduced. By the same token, the potential for facilitating mergers with strategic partners decreases.

Maintenance of macroeconomic stability is a *sine qua non* for the proper functioning of the financial system. During the past 15 years and over the course of four governments of differing political stripes, Bolivia has managed its economy in exemplary fashion. To avoid repercussions of disastrous proportions to the financial system, it is recommended that no changes are made that might endanger stability.

Wisely, Bolivia opted to close the state banks. Although there are political pressures to re-establish public sector banks—the proponents allege a lack of long-term resources in certain sectors—there is no evidence for this. Pension funds have generated significant levels of institutional savings but lack investment opportunities. To remedy this situation, the capital market needs to be strengthened. For this to happen, firms will have to make themselves and their operations more transparent.

In view of the high concentration of ownership in the banking system, there is a need for more effective supervision of financial groups. Likewise, there is a need to improve standards of governance that grant greater autonomy to internal control units and ensure that licenses to operate are issued only after exhaustive analysis of the moral and ethical standards of equity investors, not to mention the professionalism of senior management.


Control over monetary aggregates to avoid credit booms is an aspect of monetary policy. However, it should not be forgotten that the primary responsibility for sound credit management falls on bank directors and officers.

Perhaps the most important regulatory measures are those related to ensuring adequate capitalization, maintenance of sufficient reserves, and control over interest earnings. The permanent struggle between supervisors and the banking industry takes place in this area. Regulators are required to demand adequate capitalization and the

establishment of sufficient reserves to protect depositors, while the bankers strive to maximize profits with the lowest possible levels of reserves and capital provisions. In this respect, it is advisable that the regulatory framework not be made too flexible. This can work directly against depositors, as well as the state, which ultimately has to pick up the tab.

It is essential that the strengthening and modernization of the judicial apparatus is accelerated; if not, the damage caused to the national economy through legal uncertainty can be irreparable.

In recent years, the Banking Superintendency has been able to maintain a sufficient degree of independence and autonomy to comply fully with its normative and supervisory functions. However, the danger always exists of regulatory capture either by the private sector or political powers. This is something we trust will not happen.



PART II
POLICY ACTIONS

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CHAPTER 3

Financial Sector Reform in Japan: Progress and Challenges

Yoshio Okubo

Japanese financial sector reform has been a major focus of attention in the last few years both in Japan and in global markets. After the bursting of the asset price bubbles of the late 1980s and early 1990s, the Japanese banking system has been afflicted by a heavy burden of non-performing loans. These took the financial system to the brink of crisis in the midst of the global financial difficulties in late 1997 and 1998. At that time, global confidence in Japan's major banks was shaken to such an extent that the so-called "Japan premium" at some points reached 70–100 basis points.¹

Since then, a measure of stability has been re-established in the Japanese financial system, despite continued deflationary pressures. Although non-performing loans on banks' balance sheets have remained high, an institutional infrastructure has been put in place that requires banks to dispose of them while protecting the stability of the banking system. This chapter aims to provide an overview of the policy initiatives being pursued by the Financial Services Agency (FSA) of Japan. The focus is on the ongoing policy initiatives to address longer-term structural issues affecting not only the financial services sector but also corporate sectors. It also seeks to put these initiatives in a proper historical perspective.

The chapter addresses three aspects of financial sector reform in Japan. First, it discusses the measures taken to re-establish stability in the financial system. The changes in the regulatory and supervisory structures are discussed here. Secondly, it analyzes the reforms to increase the efficiency of the financial system in the context of the "Big Bang." Thirdly, it reviews structural issues, including the recent initiatives to deal with the non-performing loans of banks and corporate borrowers.

¹ Defined as the premium over three-month Libor on the inter-bank market.

Re-establishing Stability

The predominant role played by bank intermediation and that of other deposit-taking institutions is a hallmark of the Japanese financial system. Households place a large part of their savings in bank deposits and domestic businesses rely heavily on borrowing from banks, although corporations have also been active in the domestic and international capital markets.

The most important single factor affecting the Japanese financial system in recent years was the bursting of the asset price bubbles of the late 1980s and early 1990s. As a consequence of this, the banking system has been awash with large amounts of non-performing loans, leading the financial system close to disaster during the global financial crisis of late 1997 and 1998. In November 1997, such major financial institutions as the Sanyo Securities Co., Hokkaido Takushoku Bank and the Yamaichi Securities Co. (one of the largest four securities houses) collapsed. Such was the global crisis of confidence in Japan's major banks that, as pointed out above, the "Japan premium" rose as high as 70–100 basis points at various points during this period.

The continued sluggishness of the Japanese economy since the mid-1990s has made it more difficult to resolve the problems afflicting the financial sector. Despite unprecedented efforts to use fiscal and monetary policies to achieve recovery, the economy has shown little dynamism, despite occasional but brief upturns in output. While there has been an important pick-up in corporate investment, reflecting the rapid technological changes in information and communications-related sectors, household consumption—the largest component of GDP—has remained relatively weak. Against a background of demographic changes (due to the rapid aging of Japanese society), bulging fiscal deficits at local and central government levels, and increased uncertainties, consumer confidence has remained low.

Although macroeconomic policy remains very important, the focus of policy debate has increasingly shifted towards structural issues, including those in the financial sector. In view of such prolonged economic difficulties and increased competitive pressures in a rapidly changing business environment, financial institutions have embarked on consolidation at various levels. The number of financial institutions has fallen dramatically in the past few years, and further changes are expected as the major financial institutions undergo consolidation (see Table 3.1). Such consolidation of deposit-taking institutions accelerated further in the financial year ending March 2002.

The regulatory and supervisory framework was strengthened in many important respects during the 1990s, especially in 1998. The first and most important aspect was the strengthening of supervisory standards and the framework for their implementation. The introduction of rules governing prompt corrective actions was proba-

Table 3.1. Financial Institutions in Japan
(Number of financial institutions in each category)

	Mar 94	Mar 95	Mar 96	Mar 97	Mar 98	Mar 99	Mar 00	Mar 01
Major banks	21	21	21	20	20	19	19	18
Regional banks	64	64	64	64	64	64	64	64
Regional banks II	65	65	65	65	64	61	60	57
Shinkin banks (credit unions)	428	421	416	410	401	396	386	371
Credit cooperatives	383	373	369	363	351	322	291	280
Total	961	944	935	922	900	862	820	790

Note: Out of the 18 major banks, 11 banks are in the process of being merged into four major financial groups in a few years.

bly the single most important policy initiative. An objective supervisory system was established that created a series of triggers governing different regulatory responses. Financial institutions produced self-assessments of the quality of their loans and their capital adequacy rates, followed up and reviewed by external audits and regular inspections by the supervisory authorities. Where such reviews indicate that financial institutions are inadequately capitalized, regulatory responses seek to address the underlying problems. This framework is illustrated in Table 3.2.

Second, there was a strengthening of disclosure standards using market forces to establish confidence in the financial system. Given the significance of the problem of non-performing loans, disclosure standards for such loans needed to be clarified and strictly implemented. Disclosure criteria for non-performing loans were brought in line with international standards, including those set down by the U.S. Securities and Exchange Commission. The Financial Revitalization Act established some additional disclosure requirements for all deposit-taking institutions. The latter requirements cover a somewhat wider range of exposures, including off-balance sheet items. The aggregate data on riskier loans as identified by financial institutions for self-assessment purposes (including those for provisioning purposes) are published. Data for all banks are available on a half-yearly basis and data for all deposit-taking institutions, including the *shinkin* and credit cooperatives, on an annual basis. Although the availability of so much data has complicated the task of analysis by market participants, it has contributed greatly to the transparency of the financial sector.²

² Many economists publish projections or estimates on the potential size of non-performing loans by making macro-economic assumptions, including the future deflationary impact of real estate prices. FSA data are compiled from supervisory and disclosure figures and are aggregate past numbers, not projections or estimates. They are therefore different in nature. Individual institutions also publish aggregate data on their own non-performing loans.

Table 3.2. Outline of Prompt Corrective Actions in Japan

Class	Capital adequacy ratio		Actions
	International standard	Domestic standard	
1	<8%	<4%	Order the formulation of a management improvement plan (in principle, including measures to increase capital) and its implementation
2	<4%	<2%	Order such measures as: <ul style="list-style-type: none"> • Formulation of a plan for capital increase • Restraint or prohibition on paying dividends, or on paying bonuses to directors and senior management • Restraint on the increase of total assets, and reduction of total assets • Restraint or prohibition on receiving deposits at high interest rates • Prohibition on entering new business fields • Curtailment of currently performing business • Prohibition on opening new offices and curtailment of currently operating offices • Curtailment of business activities of subsidiaries and overseas affiliate companies, and prohibition on establishing or holding such entities
2-2	<2%	<1%	Order to implement measures selected from the following <ul style="list-style-type: none"> • Significant increase in capital • Drastic curtailment of currently performing businesses • Merger or closure
3	<0%	<0%	Order to suspend the whole or a part of banking business. <ul style="list-style-type: none"> • However, the 2-2 class of actions can be taken in the following cases: <ol style="list-style-type: none"> 1. If the net value of assets, as with unrealised gains of financial institutions, is positive 2. Even when the net value as with unrealised gains is negative, if the net value is expected to be positive after considering such aspects as: <ol style="list-style-type: none"> a. Implementation of management improvement plans and other specific measures b. Rate of business income and expenditures, and profitability, c. Non-performing asset ratio <p>Furthermore, even if a financial institution does not belong to this class, a business suspension order can be issued when the net value of assets, including unrealised losses, is negative or when it is expected to become negative</p>

Source: Financial Services Agency (FSA).

Table 3.3 provides an overall picture of non-performing loans held and disposed of by Japanese banks up until the end of September 2000, when (based on internationally equivalent disclosure criteria) total non-performing loans held by all banks came to 31.8 trillion yen. This represented about 6 percent of the total lending and about 6 percent of Japan's GDP. Outstanding non-performing loans have not shown any significant decrease in recent years. This has been due to the sluggishness of the economy, continued deflationary pressures in the real estate market and, to some extent, the result of more stringent rules for classifying non-performing loans (particularly in smaller banks). In compliance with strict supervisory and inspection standards, banks have aggressively striven to deal with the problem, incurring losses between 13 to 14 trillion yen in FY 1997 and FY 1998, and about 7 trillion yen in FY 1999 (fiscal years end in March). As a result of such efforts, the recoverability of non-performing loans has been secured at 77 percent of book value, either through collateral, which has to be conservatively assessed and regularly revalued to reflect market values, or through provisioning in line with the data for the major banks. In spite of these efforts, non-performing loans have remained at high levels, reaching 33.6 trillion yen at the end of March 2001 and 43.6 trillion yen at the end of March 2002.³ Policy initiatives to persuade the banks to remove non-performing loans from their balance sheets, along with efforts to help revive debtors were pursued with greater vigor as of April 2001, as we shall see below.

Thirdly, capital adequacy in the banking system was significantly improved by means of an injection of public funds in 1999. Two legislative initiatives allowed the banks to receive public funds for the purpose of capitalization. The second of these, based on a law enacted in 1998, involved the infusion of some 8.3 trillion yen. The authority to inject public funds to capitalize weak but viable banks expired in March 2001, although the authority to capitalize cooperative deposit-taking institutions expired in March 2002. After intensive discussions over deposit insurance systems, a comprehensive reform was introduced, as outlined in Appendix 3.1.⁴ The FSA has become vested with powers to utilize a wide range of instruments to provide a safety net against crisis-induced financial failures or other contingencies.

Regulatory structures were reformed through a series of measures, partly as a consequence of the overall reorganization of government agencies. The Financial Supervisory Agency was established as a single comprehensive supervisory agency in June

³ The levels of nonperforming loans for all deposit-taking institutions for the respective dates were 43.6 and 52.4 trillion yen.

⁴ A review of the deposit insurance system is currently under way to cover fully non-interest bearing settlement and payments accounts on a permanent basis after the removal of the full insurance coverage of liquid deposits, now scheduled to start in 2005.

Table 3.3. Non-performing Loans Held and Disposed of by Japanese Banks

Outstanding non-performing loans (All Japanese banks) (Trillions of yen)			
1997	1998	1999	Sept 2000
29.8 (26.6)	29.6 (29.6)	30.4 (28.6)	31.8 (29.3)

Note: The figures in brackets exclude the Long-Term Credit Bank (presently Shinsei Bank) and the Nippon-Credit Bank (presently Aozora Bank).

Loss on disposal of non-performing loans (All Japanese banks)
(Trillions of yen)

	1997	1998	1999	Sept 2000
Loss in each year	13.3	13.6	6.9	2.3
Aggregate from FY1992	45.1	58.8	65.7	68.0

Note: All Japanese banks.

Non-performing loans covered by mortgage or provisions
(In percent)

Ratio of secured loans covered by mortgage or allowance for bad loans	77.2
Bankrupt or <i>de facto</i> bankrupt	99.5
Risk	81.8
Special attention	50.1

Note: Based on the Financial Reconstruction Law. As of September 2000. Major banks.

1998. The Financial Reconstruction Commission (FRC) was created in December 1998 to deal with the re-capitalization of viable banks and with bank failures. In July 2000, responsibility for policy formulation in the financial services sector and the regulatory system was transferred to the Financial Supervisory Agency from the Ministry of Finance (MoF), and its name was changed to the Financial Services Agency (FSA). By January 2001, the reorganization of the regulatory and supervisory systems was complete, and the FRC was abolished and its functions transferred to the FSA.

The FSA thus has overall responsibility for the planning of the financial system, the inspection and supervision of financial institutions, and surveillance over transactions in the securities market. Its remit covers the entire financial sector, including banking, insurance and securities. Its mission is to ensure the integrity and stability of the financial system; to protect depositors, insurance policyholders and investors; and to maintain the stability and integrity of financial markets.

A key focal point of the FSA's activities has been to strengthen its inspection role. It undertakes the constant monitoring of the financial health of the institutions it supervises, on the basis of frequent reports and consultations. Much effort has gone into strengthening the FSA's inspection function, including a substantial increase in its staffing levels. One important initiative to this end has been the publication of the inspection manuals made by the staff and some outside experts. The purpose of this is to ensure transparency and to promote better risk management by financial institutions. In the case of the major banks, "special inspections" were introduced to assess the adequacy of the classification of and provisioning for major borrowers. These took place between October 2001 and March 2002. On-site inspections introduced in April 2002 provide the FSA with first-hand information on the management of these institutions, including their credit management systems, their liquidity and operational risks, and their compliance with the relevant laws and regulations. Inspection teams are assigned to monitor major banking groups on a permanent year-round basis. Their role is to detect the impact of rapid market changes on the soundness of financial institutions.

As a result of all these efforts, much has been done to stabilize the Japanese financial system, despite the continued adverse environment. Changes in the regulatory system have encouraged greater stability. Since 1999, the "Japan premium" has disappeared.

Improving Efficiency

Improving the efficiency in the financial system has been an equally important goal in Japan in the past several years. Wide-ranging reforms, in line with the changes brought about by the Big Bang, have been pursued with vigor and in accordance with the pre-set timetable to improve the efficiency, stability and the flexibility in the financial system. First announced in 1997, Big Bang reforms have been simultaneously pursued with the measures to stabilize the financial system. The reforms were not only implemented fully and on schedule but were wider in scope than originally intended.

The reforms, summarized in Appendix 3.2, were wide-ranging in their application. They sought to increase flexibility in business strategies, making full use of market forces and competition, as well as adapt the Japanese financial system to changes in the global environment. Among other things, the main features of the reform included: (i) allowing banks, securities companies and insurance companies to enter into each other's business by means of subsidiaries or holding companies; (ii) permitting cross sales

of certain financial products, such as the sales of mutual funds by banks, (iii) completing the deregulation of brokerage fees, (iv) making major changes in the securities market and getting rid of government approval for stock listings; (v) allowing the de-mutualization of stock exchanges; (vi) strengthening accounting standards and making mandatory consolidated statements and mark-to-market accounting for financial products, and (vii) improving the legal and regulatory infrastructure for the securitization of various assets.

Given the rapid changes taking place in information technology, another important item on the policy agenda is improving the infrastructures for e-finance and e-banking. Recently, many initiatives have been announced or are contemplated in this sphere. Some new banks have been licensed and will concentrate on providing e-banking services to customers. Guidelines have been established to ensure sound banking principles are observed in this new sector of banking business. Efforts are also being made to tighten the rules governing eligibility for shareholders and management, given the increasing number of non-financial firms planning to enter into banking either through new operations or acquisitions. A bill was submitted to the Diet in 2002 to this end.

There have been many new private sector initiatives to take advantage of these changes in the regulatory environment. Major financial groups are being formed on the basis of a radical consolidation in the industry. Foreign financial institutions are also active players. The landscape of the Japanese financial system is thus changing very rapidly. Greater efficiency and better services to consumers, combined with adequate protection, are the expected outcomes.

Broader Structural Initiatives

Despite these efforts in the past several years, strengthening the financial sector still remains at the top of the country's agenda. The financial sector is receiving renewed attention, since the economy has yet to emerge from its protracted slump.

Japanese banks have vigorously tried to tackle the problem of non-performing loans over the past few years. Financial institutions are setting aside the required provisions and making significant write-offs. Those non-performing loans still on banks' books are mostly either provisioned or secured by appropriately assessed collateral or guarantees (see Table 3.3). Notwithstanding such efforts, non-performing loans have not declined and still account for 6 to 8 percent of all bank lending. Since they are still on the banks' balance sheets, they detract from efforts to boost bank profitability. Further deflationary effects of the sluggish economy on real estate prices will necessitate greater provisioning on those non-performing loans. To escape this problem, banks

need to remove their non-performing loans from their balance sheets. To do so, a broader approach is needed that covers not only the banking sector, but also corporate sector restructuring.

With this in mind, the government announced a package of economic measures on April 6, 2001. Among other things, this sought to address the question of corporate debt and non-performing loans (see Appendix 3.3). To tackle this issue, a comprehensive and time-framed approach was introduced, premised on the idea that major banks should take steps to remove from their balance sheets those outstanding non-performing loans classified as “doubtful” (or in danger of bankruptcy) or worse within a two fiscal year period. Any loans that become classified as such in the future should be removed within three fiscal years. The FSA will monitor the progress made, requiring banks to make periodic disclosures of how their situation evolves.

To encourage both corporate reorganization and debt forgiveness, guidelines are to be set that encompass such international principles as those of the International Federation of Insolvency Professionals. These will be formulated in consultations between the authorities and the private sector. The guidelines will seek to promote coordination among creditors by ensuring fairness in the way they are implemented. At the same time, they will provide a yardstick for tax treatment and other policy initiatives. Use of the law for industrial revitalization, entailing tax and other incentives, is envisaged with respect to cases involving debt forgiveness.

The package also addresses a wide range of institutional and regulatory issues in its attempts to remove non-performing loans from bank balance sheets and restructure indebted corporations. These include measures to facilitate debtor-in-possession (DIP) financing and debt-equity swaps, to clarify the tax treatment of debt forgiveness, and to review the role played by public financial institutions. The remit of the Resolution and Collection Corporation (RCC) is to be widened to include trustee business that can get to grips with rapid reorganization of the debtors. The measures also contemplate developing markets for trading loans through the standardization of contracts and transaction procedures.

Since April 2001, outstanding non-performing loans in the doubtful category or below held by major banks (12.7 trillion yen) as of the end of September 2000, fell to 4.7 trillion yen as of the end of March 2002, a 63 percent decrease over 18 months. Newly identified loans in these categories, which stood at 3.4 trillion yen as of the end of March 2001, were down 45 percent. The rate at which these loans have been removed from balance sheets has been similar or even higher. Nevertheless, the continued emergence of such loans, partly a consequence of the rigorous “special inspections” and other supervisory efforts, brought the level of non-performing loans for major

Table 3.4. Disposal of NPLs by Major Banks: Credits Classified as “Doubtful” or Below
(In trillions of yen)

<u>September 2000</u>	<u>March 2001</u>	<u>September 2001</u>	<u>March 2002</u>
12.7	8.3 (-34.7%)	6.6 (-47.9%)	4.7 (-63.2%)
[Newly emerged]	3.4 (-34.7%)	2.6 (-24.0%)	1.9 (-45.3%)
		[Newly emerged] 3.0	2.0 (-33.6%)
		[Newly emerged] 6.9	
Outstanding			
12.7	11.7	12.2	15.4

banks to 15.4 trillion yen at the end of March 2002. Table 3.4 provides an overall picture of the progress by major banks in disposing of non-performing loans, including credits classified as “doubtful” or below. Efforts to make banks remove their non-performing loans were strengthened during 2001 to 2002 through the special inspections and the increased involvement of the RCC. The government is currently aiming to speed up the resolution of the whole problem of non-performing loans so that their normal levels can be reached by FY 2004.

The package also addresses the risks associated with the banks’ large stock holdings and their exposure to equity market volatility. Major banks held about 38 trillion yen of stocks as of the end of September 2000, while their primary capital was around 24 trillion yen. Such large stock holdings by banks have a long history and they helped provide much-needed equity financing during the period of Japan’s post-war economic development. Nevertheless, because of recent increased market volatility, there has been some unwinding of such holdings. Due to uncertain conditions in global equity markets and the introduction of full mark-to-market accounting methods for financial products, stock market volatility increases the risk that affects the major banks’ financial positions. These still hold large amounts of stocks because of

their traditional cross-holding relations with corporate borrowers. Essentially, the package proposed the introduction of limits on bank stock holdings, for instance in relation to their capital, so that the banks can exercise more control over the volatility risk. Such limitations may also help promote structural changes in the stock market, improve corporate governance, and contribute to the revitalization of the Japanese economy. To offset any adverse impact of such limits, a temporary scheme was introduced in some subsequent measures. These provide a safety net by allowing the purchase of such stocks at market prices, consistent with market discipline.

Restoring the efficacy of intermediation by banks and financial institutions is key to the revitalization of the Japanese economy. The residual problem of non-performing loans is the mirror image of that of corporate debt and the revitalization of the corporate sector. The effectiveness of the financial sector can be restored only by addressing these broad structural issues.

Final Remarks

A key challenge is to improve the working of the capital market in Japan. Much still needs to be done to make it more efficient, transparent and attractive. Movement in this direction will reduce an excessive reliance on bank intermediation, improve the allocation of risk, and boost the resilience of the financial system. Policy initiatives to this end include upgrading the securities settlement system and reviewing the tax system. Two pieces of legislation were passed by the Diet in 2001 and 2002 to allow a broad range of securities to be issued and settled in a dematerialized (paperless) fashion so as to enhance the efficiency and safety of the settlement system. Moves are now afoot to implement this legislation. Other important initiatives are being taken to strengthen capital markets, notably a new policy package announced in August 2002. This includes measures to (i) improve investor access to brokerage services; (ii) bolster confidence in disclosure and auditing by speeding up reform in these areas; and (iii) increase the efficiency of capital markets, including a review of the role of stock exchanges.

Any financial system forms part of the global financial system. No country can escape from the rapidly changing global environment and the increasing incidence of global market forces. This is particularly true of the capital markets, but is also of relevance in the banking and insurance industries. As the activities of financial institutions become increasingly complex and global, it is important for any regulatory and supervisory agency to work closely with domestic and international counterparts in discharging its duties. As an integrated supervisor covering banking, securities and the in-

insurance sector, Japan's FSA is well placed to coordinate domestically the supervision of financial conglomerates and the complex workings of the markets for financial products. However, given the increasing complexity and speed at which financial markets are changing, ensuring the stability of the financial system and protecting depositors and investors is increasingly becoming an international effort.

Appendix 3.1. The Deposit Insurance System in Japan

Japan's deposit insurance system was originally designed to be limited-coverage, initially with the ceiling of 1 million yen per depositor, with this subsequently being raised to 10 million yen. However, in 1996, following the failures of several credit co-operatives, the deposit insurance law was amended to fully protect depositors as a temporary special measure. Japan is in the process of transition towards a limited-coverage deposit insurance system.

The Report on the Framework of the Deposit Insurance System and Resolution of Failed Financial Institutions after the Termination of Special Measures reveals the basic thinking behind the recent amendment of the deposit insurance law. The excerpts of the report are summarized below.

(1) Framework of Resolution Methods

- When a financial institution that is not allowed to continue to exist because of failure is resolved through the use of the deposit insurance system, the least expensive resolution method should be chosen within the limit of the payoff cost. At the same time, financial functions such as payment and lending should be continued so as to minimize the disruption caused by the failure.
- In choosing a resolution method, financial assistance (where an assuming financial institution takes over the financial functions of a failed financial institution) should be favored. Payoff in which a financial function is diminished should be avoided as much as possible, although both methods involve the trimming of a portion of deposits due to the loss incurred by the failure. Thus, it is necessary to introduce measures that serve to expedite resolution processes as well as provide various resolution methods in accordance with the circumstances of the failure.
- The above consideration suggests that the deposit insurance system must take into account of maintaining payment functions and protecting borrowers because it contributes to minimizing resolution cost and leads to protecting depositors.

(2) Accelerating transfer of business with financial assistance (assisted merger)

The resolution of a financial institution involves various legal procedures. With respect to a financial institution that has managerial problems, to expedite the

resolution process, the supervisory authority and the Deposit Insurance Corporation (DIC) should work closely together. In anticipation of a possible failure, they should make as many prior preparations as possible, such as grouping of deposits held by the same depositor and evaluation of assets prior to closure of the failing financial institution.

(3) Preservation of financial functions

The payoff method should be avoided as much as possible since it diminishes the financial functions of failed institutions. However, if chosen, it should be implemented speedily to minimize disruption.

(4) Ensuring depositors' convenience

In ensuring depositors' convenience (repayment of deposits and access to payment services), depositors should be able to dispose of their deposits up to a certain amount before the transfer of business, even if it takes time after the failure was publicly announced. Thus, the DIC should be authorized to make advance payments and repay deposits up to the insured amount as well as lend necessary funds to the failed financial institution, even if bankruptcy proceedings have commenced. As for the portion of deposits exceeding the insured amount, the DIC's power to purchase excess deposits,⁵ allowed in the case of payoffs, should also be applied in this case.

(5) Full coverage of liquid deposits

Until April 2003, liquid deposits should be protected in order to avoid any disruptive impact on the economy as a whole and the financial system caused by interruption of payments of individual and corporations as a transitional measure.⁶

⁵ "Purchase of deposits" is a means to ensure depositors' liquidity and smooth judicial proceedings by empowering the DIC to purchase a portion of insured deposits exceeding the insured amount (at present those in excess of 10 million yen) at a certain ratio (estimated liquidation value).

⁶ A review of the deposit insurance system is currently under way to fully cover non-interest bearing settlement and payments accounts permanently after the removal of the full insurance coverage of liquid deposits, which is now scheduled for April 2005.

(6) Measures applicable to cases where a crisis situation is foreseeable (systemic risk exception)

When a failure could disrupt the overall financial stability and affect the stability of the national and local economies (systemic risk), the standard resolution methods may not be adequate. Therefore, in cases where the stability of the financial system could be disrupted unless exceptional measures are taken, the government may need to provide fiscal measures as the cost of ensuring the stability of the economy as a whole, on the condition that financial institutions make special contributions.

(7) Expanding the definition of the insured deposits

To date, deposits have been considered eligible for deposit insurance when they have satisfied the following criteria:⁷ widely used by the public as a basic savings instrument, repayment of the principal is guaranteed, and holders are identifiable and deposits are non-negotiable. In terms of preventing depositor panic and speeding the process of resolution, the following instruments should also be eligible while abiding by the above criteria: bank debentures, deposits of public funds, and interest on deposits. Financial institutions are required to inform depositors whether individual instruments are insured or not.

(8) Maintaining the current insurance limit (10 million yen)

In light of per capita savings in Japan, the level of depositor protection in other countries, and the premium burden on insured institutions, it has not been necessary to increase the insurance limit from the present level.

⁷ To date, insured deposits were only limited to those deposits, installment savings, installments, and money in trust of which the principal is guaranteed.

Appendix 3.2. Big Bang Financial System Reform

Expansion in Means of Asset Investment

1. Enhancements to investment trusts	
• Introduction of general securities accounts (CMA)	1997–98: Made necessary deregulation. Further improvements in product attractiveness: salary/amendment concerning salaries.
• Introduction of company-type investment trusts	1998: Establish the general institutional framework (Investment Trust Law)
• Introduction of privately-placed investment trusts	1998: Stipulate privately-placed investment trusts in law (Investment Trust Law)
• Introduction of over-the-counter sales of investment trusts by banks and other financial institutions	1997–98: Store space lent for direct sales by investment trust companies. Sales by banks themselves (Securities and Exchange Law).
2. Full liberalization of securities derivatives	1997–98: Tokyo Stock Exchange and Osaka Stock Exchange Introduction of options on individual stocks. Introduce over-the-counter securities derivatives (Securities and Exchange Law, Law on Foreign Securities Law Firms).
3. Enhance attractiveness of stocks	1997: Expanding use of stock options. Promoting share buy-backs as a means of writing down profits.
4. Smaller minimum investment lots for stocks	1997: Have already articulated how the Commercial Code is to be interpreted regarding conditional changes in the Articles of Incorporation.
5. Streamlining of foreign equity listing by using Depository Receipts (DRs)	1998: Introduced DR-based trading in listed foreign equities. Designate DRs as securities (Securities and Exchange Law). Revision of listing standards (Tokyo Stock Exchange)
6. Improved access to trading and quotation information	1997–98: Eliminated the system that gives access to real-time information only to branches in the vicinity of the market. Tokyo Stock Exchange: Enhancement of market information.

Facilitation of Corporate Fundraising

1. Introduce new corporate bond products	1997–98: Perpetual bonds (clarified interpretation of the Commercial Code). Introduce bonds linked to share-price indexes (enhanced laws related to over-the-counter derivatives on securities).
2. Expand use of ABS	1998: Review issues concerning protection against third-party claims and established of SPC (enhanced laws related to SPC).
3. Promote use of MTN	1997: Measures taken (Clarified that boards could delegate representative directors, and improved system for registering issues).
4. Facilitate listing and initial public offering	1997–98: Introduced book-building method (modified association and exchange rules). Move to after-the-fact notifications for equity listings (Securities and Exchange Law).
5. Revision of listing standards	1998: Osaka Stock Exchange, Tokyo Stock Exchange, Nagoya Stock Exchange.
6. Strengthen registered over-the-counter (OTC) market functions.	1997–98: Introduced share lending system (modified association rules). Introduced margin trading and date-of-issue trading. Alter the characterization of registered over-the-counter market as a “supplement” (Securities and Exchange Law). Introduction of market maker system (alteration of association rules). Revision of OTC registration standards (alteration of association rules).
7. Deregulation unlisted and unregistered equities market	
• Permit securities companies to handle unlisted and unregistered equities	1997: Ban lifted (modified association rules).
• Permit investment trusts to investment in unlisted and unregistered equities	1997: Ban lifted (amended ministerial ordinance and enhanced association rules).

(Appendix continues on the following page)

Appendix 3.2. Big Bang Financial System Reform *(continued)*

Provide a Wider Variety of Services

1. Eliminate restrictions on the range of business open to securities companies	1997–98: General securities accounts. Eliminate compartmentalization (Securities and Exchange Law, Law on Foreign Securities Firms). Introduce wrap-around accounts (Securities and Exchange Law, Law on Foreign Securities Firms).
2. Liberalize brokerage commissions	1998: Reduce to in excess of 50 million yen. 1999: Full liberalization (Financial System Reform Law).
3. Reform of the rating organization system	1998: Eliminate the obligation for member insurer of the rating organization to use premium rates calculated by the rating organization (Law Concerning Non-Life Insurance Rating Organization).
4. Strengthen asset investment business	1997–98: Permitted investment trusts to invest in unlisted and unregistered equities (amended ministerial ordinance and enhanced association rules). Introduce outside consignments (Investment Trust Law, Law for Regulating Securities Investment Advisory Business). Review business regulations (Investment Trusts Law, Law for Regulating Securities Investment Advisory Business). Switch from approvals to notifications for investment trust deeds (Investment Trust Law).
5. Expand the range of fund raising for banks	1999: Allow banks to issue straight bonds (Financial System Reform Law).
6. Expand the range of fund-raising for finance companies (Allowing to issue bonds for financing funds for lending)	1999: (Law on Bond Issuance for Financial Companies)
7. Reform market-entry regulations	
• Switch from licensing to registration system for securities companies	1998
• Switch from licensing to authorization for investment trust companies	1998
• Promote competition across sectoral walls	

Provide a Wider Variety of Services *(continued)*

<ul style="list-style-type: none"> Expand range of business permitted securities subsidiaries and trust-banking subsidiaries Permit cross-sectoral competition between insurance companies and other financial institutions 	<p>1997: All business except equities-related. 1999: Eliminate all regulations (Financial System Reform Law).</p> <p>1998: Entry of insurance companies into securities business and securities companies into insurance business accelerated (Insurance Business Law, Banking Law). 1999–2000: Entry of insurance companies into banking business (Financial System Reform Law). Entry of banks into insurance business.</p>
8. Over-the-counter sale of insurance by banks	2001: Lift ban on handling of certain products.
9. Utilization of holding companies (HCs)	1997: Enacted two laws on HCs.

Create Efficient Markets

1. Improve exchange trading and review exchange market operations	1997–98: Improved trading systems within the exchange. Formulate merger rules for securities exchanges (Securities and Exchange Law). 1999: Improvement of trading systems within the exchange for amortization of company's own stock.
2. Abolish requirement of consolidation of order-flow for listed securities	1998: Abolish the requirement of consolidation of order-flow for listed securities—formulate fair trading rules (Securities and Exchange Law).
3. Strengthen the functions of the registered over-the-counter market	1998: Securities and Exchange Law
4. Deregulate unlisted and unregistered equities market	1998: Securities and Exchange Law
5. Create share-lending system	1998: Review rules on margin rates (Securities and Exchange Law). Formulate rules for share lending.

(Appendix continues on the following page)

Appendix 3.2. Big Bang Financial System Reform

Create Efficient Markets *(continued)*

6. Enhance clearing and settlement system	1997–98: Expanded and enhanced system trading. Bond delivery and settlement system (JB-NET). Same-day cash delivery. Enhance notifications from custodial and registrar institutions to issuing companies of actual shareholders (Equity Custody and Transfer Law).
7. Promote reduction of Settlement risk	1998: Clarify the legal validity of close-out netting contracts (Close-out Netting).

Assure Fair Trading

1. Formulate and enhance fair trading rules	1998: Formulate fair trading rules for new product introductions (Securities and Exchange Law). Review rule for short selling (Securities and Exchange Law).
2. Strengthen punitive measures	1997–98: Strengthened punitive measures against insider trading etc. (Enacted Law on Punitive Measures for Financial Matters): Formulate rules for forfeiture of illicit profits from insider trading etc. (Securities and Exchange Law).
3. Formulate regulations to prevent conflicts of interest	1998: Formulate rules against conflicts of interest (Securities and Exchange Law, Law on Foreign Securities Firms, Investment Trust Law, Law for Regulating Securities Investment Advisory Business).
4. Enhance disputes-settlement system	1998: Enact arbitration procedures (Securities and Exchange Law).
5. Expand and enhance the definition of securities	1997–98: Designate DRs covered warrants and ABSs by SPCs as securities (Securities and Exchange Law).
6. Enhance disclosure system	
• Switch to consolidated reporting	1997–98: Published opinion paper on reviewing consolidated financial statements. Published opinion paper on setting standards for the creation of interim consolidated financial statements and consolidated cash flow statements. Phased in from the business year. 1999: Move to full implementation
• Formulate accounting standards for financial products	1998: Accounting standards for tax effect accounting. Achieve all objectives from the business year started on April 1, 1999. Published opinion paper on accounting standards for research and development costs. Achieve all objectives from the business year started on April 1, 1999. Accounting standards for retirement allowances. Accounting standards for financial instrument. To be phased in from the business year starting on April 2000. Achieve all objectives (2001).

Ensure Soundness of Intermediaries and Prepare System for Dealing with Failures

1. Review capital adequacy requirements	1998: Review in conjunction with expansions in range of business (Securities and Exchange Law, Law on Foreign Securities Firms). Formulate clear withdrawal procedures if below a set ratio (Securities and Exchange Law, Law on Foreign Securities Firms).
2. Enhance financial-institution disclosure	1998: Enhance disclosure requirements on banks and others (Banking Law etc.). Oblige disclosure by securities companies (Securities and Exchange Law, Law on Foreign Securities Firms).
3. Prepare rules of bank and insurance subsidiaries	1998: Clarify the scope of subsidiaries (Banking Law, Insurance Business Law). Review rules on margin rates.
4. Prepare framework to protect customers in the event of failure	
• Thorough separation of accounts	1997–98: Enacted for futures and options trading. Enhance overall legal system (Securities and Exchange Law, Law on Foreign Securities Firms).
• Creation of Investor Protection Fund	1998: Incorporate under the Securities and Exchange Law, establish and expand system (Securities and Exchange Law).
• Enhancement of bankruptcy procedures	1998: Create special procedures for securities company bankruptcies and reorganizations (Law for Improving the Reorganization and Bankruptcy Procedure for Financial Institutions).
• Creation of Policyholders Protection Corporation	1998: Creation of Policyholders Protection Corporation in order to protect policyholders (Insurance Business Law).
• Review securities taxation	1998: Reduce the rate of the securities transaction tax and the bourse tax. 1999: Elimination of the securities transaction tax and the bourse tax on.

Appendix 3.3. Summary of the Government's Economic Measures: Financial Issues

1. Revitalization of the financial and corporate sector

i) Integrated approach to the non-performing loans (NPLs) of banks and excessive corporate debt

Drastic removal of NPLs from the banks' balance sheets

- Principles—to be effective from April 2001
The major banks will take measures to remove NPLs already classified as “in danger of bankruptcy” and below within the next two fiscal years. They will also take measures to remove NPLs newly classified as such within three fiscal years after such classification.
- Periodical disclosure of the actual record of removals of NPLs by the banks and monitoring by the FSA
- Require banks to develop schemes for improving the quality of loans to debtors classified as “need attention.”

Promoting corporate reorganization

- Establish guidelines regarding the process of corporate reorganization and debt forgiveness through private-sector consultation in which the authorities participate (along the lines of the principles of the International Federation of Insolvency Professionals and the “London Approach”)
- Effective use of the Law on Special Measures for Industrial Revitalization

Enhancement of debt forgiveness by financial institutions

- Enhancement of DIP (Debtor-in-possession) finances.
- Effective use of debt-equity swaps
- Harmonious tax treatment and measures by public financial institutions with respect to the guidelines mentioned above

d) Sales of Loan Assets

- Standardization of contracts and transaction procedure for trading of loans
 - Enhancement of the RCC (the Resolution and Collection Corporation) to include trustee business, etc.
-

1. Revitalization of the financial and corporate sector *(continued)***ii) Limitation on shareholdings of banks***Introduction of a limitation on shareholdings of banks*

- The amount of shares that a bank can hold is to be limited, for example, to the equivalent of the bank's capital.
- The portion of shareholdings exceeding this limit must be disposed within a certain period.

Establishment of the Banks' Shareholding Acquisition Corporation (BASAC)

- As a temporary measure, shares held by banks are to be purchased by the BASAC, which would be established jointly by banks, etc.
- Public sector support for the funding of the share purchases of BASAC will be considered.
- Shares are to be purchased from banks, and at market value.
- ETFs (exchange-traded investment trust funds), investment trust funds, and investment defined contribution pension funds will be actively used for the sale of shares acquired by the BASAC

Work Plan

A concrete work plan will be developed as soon as possible

2. Structural Reform in the Securities Markets**i) Deregulation of the "Treasury Stock" (acquisition of own-shares)**

- The acquisition of own-shares by the issuing companies (so called "Treasury Stock") will be allowed under certain conditions.
- Relevant rules are to be revised and the capacity of the Securities and Exchange Surveillance Commission will be strengthened to prevent insider trading and price manipulation.
- Removal of the net-asset requirement per investment unit in shares

ii) Introduction of Defined Contribution Pension Schemes and Defined Benefit Pension Schemes**iii) Improvement in the Securities Settlement Systems**

- Creating a book entry system for CBs, CPs, JGBs, etc. to enable paperless trading and shorten the settlement period.

iv) Introduction of an ETF linked to stock price indexes

- Creating a system of ETFs to contribute to market activity by enabling convenient and prompt investment in small amounts.

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CHAPTER 4

Prudential Policy in Transition: Changes in the Japanese Financial Failure Resolution System

Takafumi Sato

Innovation in information processing and telecommunication technologies, rapid advances in financial technologies, and the internationalization/globalization of financial transactions have all brought about changes in financial businesses, as well as quantitative and qualitative expansion in financial markets. At the same time, since the burst of the so-called “bubble” economy, failures of financial institutions have been frequent and malfunctions of Japan’s financial system have had serious adverse effects on its economy. This has heightened awareness of the need to maintain financial stability. Financial management in Japan has thus been undergoing dramatic changes in response to this changing environment.

In the 1990s, Japan saw a string of financial failures in a way that had previously been unimaginable. The problem of non-performing loans progressively worsened in the years following the bursting of the bubble economy in early 1990s, giving rise to improved methods of dealing with individual cases of failure, as well as the development of a new institutional framework. This chapter provides an overview of the general direction taken with the radical changes made to prudential policy, and reviews Japan’s experience of failure resolution in the 1990s. It also examines the significance of the new deposit insurance system, with its shift towards more limited protection.

The first section discusses trends in financial management in the 1990s from the prudential policy viewpoint, focusing on the general direction of change and the reasons for it.¹ Although such movements may seem chaotic at a first glance, they form

¹ Prudential policy is that area of policy that aims at maintaining the stability of the financial system, in which government authorities regulate, supervise and monitor financial intermediaries. Usually banks attract special attention as they constitute the payment system and are prone to deposit runs and contagion. This is not the case with securities houses, insurance companies and the like.

part of an overall trend with a definite direction. It is important to recognize this when, in the following sections, the system for resolving financial failures is discussed. The second section discusses the policy of full deposit protection and its side effects, and the significance of legislative changes in 2000 that created a more limited system of protection. Section three presents some conclusions. Appendix 4.1 seeks to summarize conceptually the purpose of financial failure resolution and provides an overview of the principles applied to it and the tools to deal with it. Appendix 4.2 focuses on individual financial failures and the successive additions/modifications made to the institutional framework, dividing these into separate periods.

Discussion in this chapter is concentrated on banks and other deposit-taking financial institutions. These operate in a field that requires extensive government involvement, firstly because they form the basis of the settlement system and secondly because they are vulnerable in ways that other types of financial institutions are not. Prudential policy that aims at stabilizing the financial system consists of promoting good management in each financial institution through market discipline and government regulations/supervision (*ex ante* policy), together with failure resolution to prevent the adverse effects of failures from expanding to the whole system (*ex post* policy). While these functions are in fact closely related, the discussion in the second and third sections focuses mainly on the latter and how it changed in the 1990s.²

Japan's Prudential Policy in Transition

A series of broad changes have been taking place during the last decade or two with respect to the financial services industry. These include remarkable advances in computing and telecommunications, innovation in financial technology, globalization of financial transactions, and the intensified application of market forces. Domestically in Japan, a new situation emerged in the mid-1990s when failures of financial institutions became commonplace.

Partly in response to this, there were frequent policy changes in the Japanese financial supervisory and regulatory frameworks during the latter half of the 1990s.

² Actually, the *ex ante* policy of strengthening "health-check" regulations and the *ex post* policy of expanding and improving safety nets took place in tandem. The phrase "safety net" is taken to mean the aggregate of resolution schemes and financial support used for failure resolution. The deposit insurance system is at the center of safety net arrangements. Another typical example of safety nets is that of special loans by the Bank of Japan (BoJ) to cope with temporary liquidity difficulties confronting financial institutions. However, this is not taken up expressly in this chapter, and the discussion assumes the smooth operation of liquidity-related safety nets.

Three marked features can be observed: (i) the reduction or abolition of competition-restraining regulations; (ii) the strengthening of regulations to check the soundness of financial institutions (health-check regulations); and (iii) the introduction of improved failure resolution measures and safety nets. These policy changes have become indispensable elements in the new prudential policy framework, though such changes are not yet fully consolidated. This chapter looks at some key elements and the background factors that have brought about this important transformation in the policy framework, while also giving an overview of the present state of affairs.

Policy Framework during the Rapid Growth Period

To gain an overview of the changes that have taken place in Japan's prudential policy, it is helpful, briefly, to go back to the period of rapid growth. With the exception of the special measures taken immediately after World War II, all deposits placed in deposit-taking financial institutions were fully protected, either by the discretionary mediating operations of the authorities or by explicit legal provisions. This played a vital role in the policy of maintaining financial stability. However, the ways by which deposits were protected have undergone important changes. More importantly, the basic understanding about the desirability of full deposit protection has shifted, largely because of its "moral hazard" implications. Such policy changes illustrate the differences between the "old regime" and the "new," separated by the changes brought about in the 1990s.

The old regime is typically associated with the post-war period of rapid economic growth, particularly with the 1960s, and much of the following discussion pertains to that period. However, as far as the basic framework for prudential policy is concerned, it remained largely unchanged through the 1970s. Financial deregulation progressed in the 1980s, when the context for prudential policy changed alongside the internationalization of financial transactions. It was in the 1990s, however, that the policy framework underwent explicit change, in response to the frequent failures of that period. It is useful, therefore, to begin by contrasting the policy framework of the old regime of rapid growth with the new framework established in the late 1990s. Table 4.1 summarizes this contrast.

The fundamental components of the old policy framework included the following:

- The economy expanded at high rates of growth, while simultaneously experiencing fund shortages. The financial system as a whole was thus designed to assure a stable flow of low-cost funds to key industrial sectors.

Table 4.1. Old and New Regimes in Contrast

	Old regime	New regime
1. Economic conditions	High growth rates + shortage of funds	Low growth rates + surplus of funds
2. Market conditions	<p>Competition-restraining framework</p> <ul style="list-style-type: none"> • Separation of domestic and foreign markets • Regulation on interest rates • Segmentation of markets 	<p>Competition-promoting framework</p> <p>Innovations in financial technology</p> <p>Globalization of financial markets /transactions</p>
3. Role of financial system in economy	Stable supply of funds to key industrial sectors	Market/consumer oriented services
4. Banking business	Stable revenues without much risk Bank failures are exceptional	Risk management capability is essential Bank failures are not exceptional
5. Interim target in prudential policy	Failure prevention	Failure isolation
6. <i>Ex-ante</i> policy	Restriction on business lines and competition Government regulation and supervision (sometimes discretionary)	Market discipline Government regulation and supervision (mostly rule-based and transparent)
7. <i>Ex-post</i> policy	Failed bank to be merged into a healthy bank (based on high franchise values of a bank) Very limited safety net <i>De facto</i> full protection of deposits	Scarcity of candidates for a relieving bank Diversified resolution measures to retain the financial functions of a failed bank Temporary full protection of deposits Limited protection of deposits
8. Cost sharing	Relieving bank (franchise value)	Insurance premium + taxpayers Insurance premium + depositors (+ taxpayers in case of systemic risk)

- Domestic financial markets were kept separate from external market forces, with restrictions on external capital transactions.
- In accordance with the allotted role of the financial system, a series of competition-restraining measures were in effect. The most important of these were regulations governing interest rates and the segmentation of markets (the separation of banking and securities business, of trust banking and commercial banking, of long-term and short-term finance and so on). The scope of activity of each financial intermediary was thus confined to a fairly narrow line of business.
- The business environment for financial institutions presented the following features:
 - Stabilized and secured field from the entry of newcomers.
 - Limited price-competition, because interest rates were regulated and the regulation on deposit interest rates lowered banks' funding costs.
 - Vigorous demand for funds, owing to the rapidly growing economy, brought stable revenues for banks.

In such a business environment, failures of financial institutions were rare. If a failure took place, the failed institution was merged into a larger, more profitable bank, often through the mediation of the supervisory authority. The absorbing bank in any case enjoyed the advantages of business expansion, which brought additional profits. Under the competition-restraining regime, the franchise value of a bank was high, and it was not difficult to find a candidate willing to absorb a failing bank.

An implicit objective of banking sector policy in this period was to avoid financial failure. This dates back to the Showa financial distress of 1927, when many banks failed and suspended repayment of deposits, producing systemic risk. Failure prevention became regarded as an interim objective to avoid systemic disaster. Accordingly, there were few safety nets and failure resolution mechanisms in place; the failure of a financial institution was regarded as an exceptional phenomenon, and in any case a failing institution would be merged into another bank without much difficulty.

Prudential policy in this period was seemingly designed to fit into an overall system for national economic management. Financial regulation and supervision were thus an integral part of an overall macroeconomic strategy to ensure the stable flow of funds to key industrial sectors. At that time, prudential policy and high economic growth were mutually dependent policies.

Financial Failures of the 1990s and their Causes

The deposit insurance system was introduced in 1971, but constituted only a limited scheme of deposit protection.³ This limitation did not cause much difficulty, because financial failures were resolved in the way stated above, outside the formal scope of the deposit insurance system. In fact, there was not a single case of financial failure to which deposit insurance was applied during the two decades from 1971 to 1990.

However, failures have occurred every year since 1991, and since 1995 failures have become unexceptional events. The number of failures has grown rapidly and the scale of resolution costs has surged. Failures included those of major banks: the Hokkaido-Takushoku Bank (1997), the Long-term Credit Bank of Japan (1998), and the Nippon Credit Bank (1998).

In the course of the 1990s, after the burst of the bubble economy, widespread bad loan problems afflicted all Japanese banks, and their financial position worsened. It therefore became much more difficult for the authorities to find a relieving bank that would absorb a failed bank, a measure indispensable under the deposit insurance system's Financial Assistance Scheme. The new situation therefore necessitated a series of amendments to the existing procedures for resolving failures.

In addition, the losses of failed banks grew, and it was clear that the full protection of deposits would become impossible unless the deposit insurance system was amended to cover fully the losses of failed banks through expanded financial grants.⁴ The collection of a special insurance premium for that purpose was introduced. In addition, as of early 1998, public funds were used to this end.

The direct cause of these many bank failures was the growth (late 1980s) and the bursting (early 1990s) of the bubble economy and the changes in asset values to which it gave rise. Many high-risk loans carried out during that period turned into bad non-performing loans, with the resulting losses exceeding many banks' capital. Apart from these dramatic macroeconomic changes, the following factors also played important roles in making financial failures unexceptional. They stemmed from the irreversible changes in the environment affecting the financial service industry as a whole:

- The entire national economy changed into one of low growth with a surplus of funds.

³ The only scheme available at that time was the Pay-off Scheme, through which a failed bank was supposed to be liquidated and insurance money was paid to depositors when insurance contingencies occurred. At that time, no consideration was given to maintaining the financial functions of a failed bank. Later, in 1986, the Financial Assistance Scheme was introduced for that purpose.

⁴ At that time, the deposit insurance system was legally allowed to pay the limited amount of grants up to the pay-off cost. But in many failures, the losses exceeded that ceiling.

- Globalization of financial transactions and financial markets strengthened the role of market forces.
- Financial deregulation proceeded steadily. Moreover, market forces were making the regulations to restrain competition ineffectual.
- Wide-ranging developments in financial technology and other changes described above made high-quality risk management essential in individual financial institutions.
- The diminishing franchise value of banks reduced the incentives for prudent management.
- Large latent profits from land and equity delayed the change towards strengthened risk management on the part of financial institutions. Excessive reliance on the collateral value of land also aggravated the situation, since banks did not examine adequately the reliability of borrowers and the profitability of loans.

Changes in the Policy Framework

With the strengthening of market forces in the 1990s, it turned out to be very difficult to prevent the failure of an ailing individual bank simply by an authority's discretion. On the part of the supervisory authorities, the policy response to an inevitable individual failure thus shifted the emphasis from failure prevention to failure resolution to reduce the negative consequences for the financial system as a whole.

While the ultimate goal of prudential policy remained unchanged (maintenance of the stability of the financial system as a whole), the interim target is presumed to have changed during the course of the 1990s. The interim targets under the "old" and the "new" frameworks can thus be clearly contrasted. Under the old framework, the target was to prevent the failure of individual financial institutions under the competition-restraining regulations. Under the new framework, the target was to accept inevitable financial failures, but to avoid systemic risk by blocking the negative repercussions of a failure. This new focus was never declared explicitly by the government, but it provides a useful premise for understanding changes in the overall policy framework.

Such changes were closely related to rapid financial deregulation and the shift towards enhanced competition. On the one hand, promoting competition eliminates financial institutions that poorly manage risk and are in a difficult financial condition. On the other hand, the new framework also promotes, through market discipline, good management by financial institutions, thus enhancing the stability of the financial system as a whole. The new framework for prudential policy attaches importance to the stability of the financial system and responds by a combination of strengthened

health-check regulations (ex ante policy) and appropriate failure resolutions (ex post policy).

There were frequent amendments to policy with regard to the Japanese financial supervisory and regulatory frameworks during the second half of the 1990s, partly in response to the fact that failures of financial institutions were no longer exceptional events by that time. These policy changes can be grouped into three main types:

1. *Reduction or abolition of regulations restraining competition.* Financial deregulation was initiated in the 1980s and progressed gradually, until the Financial System Reform of 1998 (Japan's financial "Big Bang"), which was radical and comprehensive, and dramatically shifted the country's financial system into one geared towards competition. By the end of the 1990s, the regulatory framework was such that:

- The separation between the domestic and the foreign financial markets/transactions had almost disappeared;
- The regulation of interest rates was virtually removed; and
- The segmentation of business fields had been greatly reduced through measures such as the introduction of financial holding companies, debenture issuance by ordinary banks, sale of investment trusts by banks.

From the prudential point of view, this policy of promoting competition was based on the notion that competition restraint would allow the badly-managed financial institutions in a poor financial state to remain in the market, thereby encouraging imbalance in the medium/long run and destabilizing the financial system. Financial failures may increase as a result of intensified competition. However, strengthened health-check regulations and enhanced safety nets should respond to the new situation.

2. *Strengthening of health-check regulations.* Either through market mechanisms or better supervision, such measures are meant to encourage individual financial institutions to strive for financial health and soundness. The most important measures include the establishment of a rigorous and reliable disclosure system, observance of capital adequacy regulations, and prompt corrective action when needed.

- The disclosure system was strengthened in 1998, with the introduction of obligatory disclosure rules and tighter penalties. A reliable disclosure system has the effect of enhancing market discipline.

- The capital adequacy of a financial institution reduces the probability of failure, providing an objective measure of financial health. The minimum capital requirement scheme was introduced in 1991 as an international uniform standard based on the 1988 Basel Accord, and expanded in 1998 to cover the market risk. The scheme gained additional importance in Japan in 1998 with the implementation of the prompt corrective action scheme.
- The authorities issue orders to financial institutions with low capital ratios (according to the pre-publicized classification of capital ratio values—see Table 4.2) to introduce financial and/or managerial improvements. Such “prompt corrective action” is based on an objective index, comparable with that of other institutions, and helps to enhance the objectivity and transparency of such measures. Under the scheme, supervised institutions can predict the supervisor’s future actions and it therefore provides a strong incentive for improved risk management.

3. *Enhancing safety net and failure resolution measures.* When the failure of a financial institution takes place, it is essential to isolate and localize its negative effects to prevent systemic risk. It is also important to maintain the financial functions that were previously provided by the failed institution to its customers. Deposit insurance schemes are key here. In response to the frequency of failures in the late 1990s, the failure resolution measures were amended and expanded to cover new situations. The most important changes were:

- Introduction of a temporary measure to give full protection for deposits (1996).
- Application of public funds (fiscal measures) to provide full protection of deposits (1998).
- Diversification of failure-resolution measures, such as the introduction of the Financial Reorganization Administrator scheme, Bridge Bank system, Special Public Management (temporary nationalization), etc. (1998). These were all designed to resolve failures where a relieving bank is not available immediately to carry on the business of a bank that has failed.

Many financial failures have been resolved by such measures in the last few years. So far, improved safety nets have reduced the chances of catastrophic systemic problems. However, they have involved huge amounts of public funds contributed by taxpayers.

Table 4.2. Outline of the Prompt Corrective Action

Capital adequacy ratio		Contents of actions	
Class	International standard	National standard	
1	Less than 8%	Less than 4%	To order the formulation of a management improvement plan (in principle including measures to increase capital) and its implementation
2	Less than 4%	Less than 2%	To order the measures below: <ul style="list-style-type: none"> • Formulation of a capital increase plan • Restraint or prohibition on paying dividends, or on paying bonuses to directors and senior managers • Restraint on the increase of total assets, and reduction of total assets • Restraint or prohibition on receiving deposits at high interest rates • Prohibition on entering new business fields • Curtailment of currently performing business • Prohibition on opening new offices and curtailment of currently operating offices • Curtailment of business activities of subsidiaries and overseas affiliate companies, and prohibition on establishing or holding such entities
2-2	Less than 2%	Less than 1%	To order the implementation of measures selected from the following: <ul style="list-style-type: none"> • Significant increase in capital • Drastic curtailment of business • Merger or closure
3	Less than 0%	Less than 0%	To order the suspension of the whole or a part of a banking business. However, the 2-2 class of actions can be taken in the following cases. <ol style="list-style-type: none"> 1. If the net value of assets, as with unrealized gains of financial institutions, is positive. 2. As with unrealized gains, if the net value is negative but is clearly expected to become positive after generally considering aspects such as: <ol style="list-style-type: none"> a. Implementation of management improvement plans and other specific measures b. Rate of business income and expenditures, and profitability c. Non-performing asset ratio Furthermore, even if a financial institution does not belong to this class, a business suspension order can be issued when the net value of assets, including unrealized losses, is either negative or clearly expected to become negative

Source: Financial Services Agency.

1. A business suspension order (cf. Banking Law Section 261, 27) in response to a lack of liquidity can be issued to all financial institutions.
2. Even if some financial institutions fall into class 2, 2-2, or 3, higher classes of actions can be applied when they have already formulated management improvement plans deemed sufficiently rational or likely to achieve their goals quickly.

Towards a New Framework Based on Market Discipline

It has only been two years since the new framework, outlined above, was fully established. It may, therefore, be too early to evaluate its contribution. However, a few points can be made:

- Improved transparency is leading Japan towards a financial system based on market discipline, self-responsibility among participants and competition.
- New measures to resolve failures are reducing the risk from the financial instability that emerged in 1997 and 1998. At least, a catastrophic systemic problem has been prevented from materializing.

On the other hand, some side effects can also be observed, including:

- Huge amounts of deposit insurance funds, including public funds, have been used to resolve financial failures. The cumulative financial grants offered by the deposit insurance system stood at about 9.5 trillion yen at the end of FY 1999 (end-March, 2000) and many failures have yet to be resolved under such assistance schemes. As much as one-half of this amount has so far been financed by government expenditure, and more will be needed. This is mainly because the failure resolution measures have been based on full protection of all deposits. Although this seemed indispensable to prevent systemic risk in such unstable financial circumstances as those of 1997–98, such a large burden on taxpayers does not seem sustainable.
- Full protection of all deposits is seen as causing moral hazard problems on the part of depositors and financial institutions. With all deposits fully protected, depositors lose the incentive to evaluate the reliability of the individual financial institutions and to choose from them where to deposit their money. Free from such pressures from depositors, financial institutions are insufficiently motivated to improve their risk management. The present system is therefore not fully compatible with the functioning of market discipline. Considering the above, the new framework should be regarded as somewhat transitional.

Of the three components of the “new framework” (i.e., shift to a competition promoting framework, strengthening of health-check regulations, and enhanced failure-resolution measures and safety nets), the first two should be regarded as more or less permanent, while the last is of a temporary nature. Legislation to amend the

temporary parts of the present framework was passed in the spring of 2000. These bills include a switchover from full to partial protection of deposits, as well as the introduction of a mechanism to limit the use of public funds to cases of urgent systemic risk.

The new prudential policy framework will become permanent with the abolition of full deposit protection. Under the permanent system, it is expected that:

- Improved disclosure will make depositors share the risk of loss in case of a failure, in accordance with the principle of self-responsibility.
- Improved functioning of market discipline will provide strong disciplinary incentives to individual financial institutions.
- Improved functioning of market discipline will enhance the failure-prevention mechanism over the medium and long run and it would alleviate the burden on the supervisory authorities that are now playing a larger role in providing disciplinary incentives to individual financial institutions.
- Improved deposit protection schemes and mechanisms to prevent failures will alleviate the burden on public finances.

Prudential policy with regard to banks can broadly be divided into two categories: the *ex ante* policy of reducing the probability that financial failures will occur and the *ex post* policy of avoiding the materialization of systemic risk in cases of individual failure. In contrast with the “old framework,” a feature of the new one is the decentralized nature of both.

Regarding *ex ante* policy, the decentralized disciplinary mechanism, based on self-responsibility and market discipline, is expected to replace the centralized disciplinary approach that depended heavily on government regulation and supervision. The rather paternalistic discretion of the authorities is thus replaced by the transparency and predictability of a rule-based supervisory system. With regards to *ex post* policy of resolving failed financial institutions, a decentralized system of cost sharing on the part of depositors and creditors is to be introduced. Under the old framework, the burden was carried by the deposit insurance system (in the final instance by the taxpayer) and there was no cost sharing by depositors.

The Shift to Limited Deposit Protection

The New System of Deposit Insurance Based on the 2000 Amendment

The new deposit insurance system enacted during the ordinary 2000 session of the Diet will be implemented along the lines detailed in Appendix 4.2, albeit subject to the modifications mentioned in footnote 4 of that appendix. From the viewpoint of a failure resolution policy, the following points stand out:

- The main underlying assumption of the conventional system of failure resolution, namely the full protection of deposits, is abolished, albeit subject to special provisos in the event of “critical situations.” It is replaced by a system of deposit insurance with an upper limit of 10 million yen per depositor. At the same time, the scheme for providing public finance to cover the resolution cost for amounts exceeding the pay-off cost is also abolished. This represents a change to the original deposit insurance system in which limits were set for both benefit and burden.
- The distinction between normal and emergency conditions is clarified. Stabilization of the financial system will be based on the principles of self-responsibility and market discipline, with limited safety nets and cost burdens. In times of emergency, exceptional measures will be available like, for example, full protection of deposits or systems of “special crisis management.” The procedures established in January 2001 are those decided upon by the Financial Crisis Council to cope with critical situations with a high possibility of systemic risk. Access to public finance is restricted to cases where exceptional measures need to be implemented to ensure “maintenance of financial stability in a narrow sense” (namely avoidance of systemic risk). We can surmise that the conditions for applying such exceptional measures are clarified in the new system.
- The interaction of failure resolution ex post and prevention ex ante will be further clarified, and priority given to the latter through preventive policies rooted in market discipline. The new system is meant to remedy the adverse effects of excessive safety nets with their propensity for moral hazard among market participants and lack of market discipline.
- The tooling of failure-resolution schemes, already diversified, will become more so as these are expanded through new measures to enhance their effectiveness.

Specifically, improved depositor data control and quicker legal procedures for business transfer are being promoted. An example of such diversification is a measure to add the partial transfer of business as a case in which application can be made to the Financial Assistance Scheme. In view of these considerations, maintaining financial operations will remain a key criterion of policy.

The Role Played by Full Protection of Deposits

The role of full deposit protection in preventing systemic risk during the 1990s should not be underestimated. It appears to have acted as a floodgate preventing a chain reaction of collapsing confidence among financial institutions, given the asymmetries of information and the liquidity-related interdependence in the banking network. In November 1997, a default in the inter-bank market produced a credit contraction through much of the system. If deposits had been affected, its influence would have been much more serious, since the problem of asymmetrical information is more marked among general depositors than in the inter-bank market. Probably, part of the background to this problem was the lack of trust in financial disclosure and in the system of accounting/auditing set up to this end. Even in the inter-bank market, a market for professionals, a single case of default quickly generated widespread suspicion. Given the lack of a system to remedy such asymmetries, self-responsibility of market participants may cause investors to adopt extreme caution, and credit may contract over a wide area.

Full protection of deposits can therefore be regarded as providing a breathing space in which to build a highly transparent financial system, based on principles of self-responsibility and market discipline. For market discipline to work well and encourage good management in financial institutions, an infrastructure (such as a trustworthy disclosure system) must first be established so that a lender can judge a borrower's ability to repay (and the asymmetry of information can be rectified). Secondly, the incentives have to be sufficiently widespread among market participants so that they can take responsibility for the judgments they make. These, therefore, are two conditions to be satisfied. The second condition will only be satisfied by introducing a causal relation: that the full protection of deposits is abolished so that depositors become responsible for the losses borne. On the other hand, the first condition can be satisfied only when the system has been improved, the rules are observed, and adequate information is disclosed. Naturally, this takes time. So, while full protection for deposits was maintained, the disclosure system was significantly strengthened by the 1998 amendment to the Banking Law. This has now been implemented, and measures

are being taken so that the system takes root.⁵ In order to satisfy the second condition, Japan is moving towards lifting the ban on loss-bearing by depositors and moving towards greater self-responsibility.

Full Deposit Protection and Market Discipline

In spite of the important role played in the 1990s by full deposit protection, its side-effects cannot be ignored. The first of these is moral hazard. This focuses on the relationship between ex post measures of failure resolution and ex ante measures of failure prevention. Reducing the number of cases of failure resolution through successful prevention is the most desirable course, but in the real world failure resolution tools (safety nets) are needed. However, even carefully crafted safety nets may discourage market discipline, reduce the effectiveness of preventive measures, and increase the need for failure resolution.

In a highly liberalized, competitive environment, health-check regulations for each financial institution lie at the core of preventative policies. They can be roughly classified as follows: (i) market discipline-oriented regulations such as those to improve the disclosure system and related monitoring arrangements; and (ii) administrative leadership-oriented regulations, such as capital ratio regulations, prompt correction measures, and financial inspection. In fact, the main reason why an excessive safety net provision may undermine prevention policy is that it may have an adverse effect on regulations for market discipline. As a result, it seems that administrative leadership-oriented regulations have to bear a greater burden. Putting it plainly, if deposits are fully protected, each depositor loses the incentive to choose a financial institution of his own and monitor the operational situation of the institution where he has deposited money (i.e., depositors' moral hazard). As a result, financial institutions that are not selected in this way by depositors have less incentive to manage risk properly and apply other aspects of good management (i.e., financial institutions' moral hazard).

⁵ In the December 1999 Report of the Financial Council (Financial Council, 1999, pp. 19–20), it is pointed out that improvement of the disclosure system ought to be the first step in improving the environment to be completed by the expiry of the special measure (full protection of deposits). The 1998 amendment of the Banking Law provided (i) a change from instruction to obligation, (ii) a change from setting the items for disclosure by auto-regulation (unified disclosure standards of the Banking Association) to mandatory edict announced by the administrative authorities (ordinance of Prime Minister's Office/ordinance of MoF), (iii) the obligation of disclosure on a consolidated basis, and (iv) stronger penalties, including the introduction of criminal punishment for breaches of the disclosure obligations (Kinoshita, 1999; Part 2, Chapter 6).

From another point of view, such a situation will cause malfunction in the pricing mechanism, which works through fluctuations in deposit interest rates (interest on financing for financial institutions). To raise funds, an unhealthy (or high risk/high return type) financial institution would have to offer a higher interest rate than a healthy (or low risk/low return) one. Yet with the full protection of deposits they can do so at a relatively low interest rate. The full protection of deposits will thus conceal differences in the financial situations or operating policies of different financial institutions. As a result, investment risk will not be reflected in financing costs and excessive risks may be taken by society as a whole, as opposed to the level of risk taken when there is a clear risk premium. This situation does not allocate resources efficiently and is likely to lead to more failed financial institutions and undermine the effectiveness of failure prevention policy as a whole. Furthermore, it will discourage the establishment of an effective disclosure system, thus impeding market discipline in the financial market.

If we look at this as a combined problem of failure resolution policy and failure prevention policy, the choice is between having elaborate administrative leadership-type health-check regulations plus widespread safety nets (the first combination), or a system based on market discipline-oriented health-check regulations plus limited safety nets (the second combination). The shift towards the new deposit insurance system is a shift from the first to the second combination with its reliance on market mechanisms. Given the enhanced power of the markets and the advances in technology and risk management, the effectiveness of the administrative leadership-type health-check regulations is significantly reduced because it depends on a uniform ratio, sometimes to an excessive degree.⁶ Therefore, the shift to the second combination appears to be part of the natural course of events.

Under the system of full deposit protection, the failure-preventive health-check regulations appear to lean towards an administrative leadership-oriented sort of system. Thus with the shift towards limited deposit protection, an appropriate supplementary relation between these two types of health check regulations needs to be established. Under the new framework, individual failure resolution must be made con-

⁶ For example, Okina (1997) pointed out the problem of the current capital ratio regulations with a uniform ratio in her introduction on the effectiveness of the incentive-compatible approach. She further stated "it is quite paradoxical that public involvement in the form of 'safety nets' has necessitated public involvement in owned capital ratio 'regulations'." (p. 20) The argument holds that the provision of safety nets makes government regulations necessary. Such a line of reasoning involves the problem of where the starting point of the argument is to be found, that is, whether to set the entirely competitive world (where market mechanism is fully working) as the starting point or rather to set the actual situation of society (where minimum safety nets are needed) as the starting point.

sistent with principles of market discipline. The failure resolution principle used in the United States demands that the resolution scheme selected must abide by market discipline. This means that Americans are keenly aware that individual failure resolution has a substantial impact on how failure-prevention policy will work in the future. Typical is the concern that if deposits not covered by insurance were to be fully protected somewhat discretionally, problems of moral hazard might arise and spread among market participants, and that market discipline might not work. In real cases of individual failure resolution, as the 1999 Financial Council report notes, it is naturally desirable for liabilities over and above the assets of a failed financial institution to be minimized through prompt resolution, as should the damage arising from large deposits or other deposits not covered by insurance. At any rate, it is vital to make it known that the system of deposit protection with an upper limit is stable and not easily changed.

Full Protection of Deposits and its Cost

The second side effect of full protection of deposits is the burden it places on public funds. The major part of failure resolution costs is borne by the deposit insurance system. Financial assistance comes in the form of grants, a loan/deposit, asset purchases and guarantees/underwriting of debt. Out of this, the final losses from deposit insurance arise mainly from grants to cover the liabilities over and above the assets of a failed financial institution, and the secondary losses that arise when the non-performing loans of a failed financial institution are acquired. The grants in the former case represent a particularly large burden.⁷

As has been mentioned above (except during the post-war period), deposits received protection even before the deposit insurance system came into being. Prior to 1990, failure resolution was conducted outside the deposit insurance system. Large-scale banks with surplus funds provided the necessary funding, motivated by the prospect of business expansion. Between 1991 and 1995, it became more difficult to find such large-scale banks with surplus funds, and deposits were protected by payments from deposit insurance within the pay-off cost. However, since the gap between liabilities and assets usually surpassed the pay-off cost, the full protection of deposits was achieved through a combination of contributions from relieving financial institutions and payments from deposit insurance.

⁷ Financial assistance is also applied to resolution by Special Public Management and Financial Reorganization Administrator/Bridge Bank based on the Financial Function Reconstruction Law.

From 1996 to the present, when the full protection of deposits was guaranteed by the system, the gap was normally covered by payment from deposit insurance. This was paid for up to 1997 by general insurance money (up to the pay-off cost) and special insurance money (for amounts above the pay-off cost). Since 1998, when public funds were introduced, general insurance money (present and future) has covered amounts within the pay-off cost and special insurance money from public funds (through national bonds) has covered the excess.

What has been the financial situation of the deposit insurance system during this period of transition? Table 4.3 provides a breakdown of profit and loss concerning financial assistance (grants) of the deposit insurance system. It covers the period between 1971 and 1991, when no financial assistance was given; the period between 1992 and 1995, when financial assistance was provided, but there was no system for the full protection of deposits; and the period between 1996 and 1999 when the system of full deposit protection was established. The accounts of the Deposit Insurance Corporation (DIC), the organization in charge of financial assistance, are divided into the general account (which covers “general financial assistance” for amounts within the pay-off cost, along with sources of revenue from general insurance moneys) and the special operations account (which covers “special financial assistance” for amounts exceeding the pay-off cost, financed by special insurance money and national bonds).⁸

In the period between 1971 and 1991, when there was no financial assistance, the revenue from the insurance premium totaled approximately 490 billion yen over this 21-year period, and the total amount combined with its operating revenue was approximately 690 billion yen. This amount was accumulated as a reserve fund at the end of 1991, which reached its peak at the end of 1994 at approximately 870 billion yen. In the period between 1992 and 1995, a little less than 710 billion yen was spent as grants, with the insurance premium revenue totaling a little less than 260 billion yen and a deficit between basic revenue and expenditure of about 450 billion yen. (So far as this chapter is concerned basic revenue and expenditure is taken to mean the insurance premium revenue minus the amount of grants for each period). By the end of 1995, the reserve fund was down to about 380 billion yen.

Over the next four years (1996–99), the insurance premium revenue increased to 1.8 trillion yen (seven times the amount during the previous four years) due to a hike in the premium charged. However, due to the huge grants (some 8.8 trillion yen), the balance between revenue and expenditure was in deficit to about 7 trillion yen. To

⁸ Here the years shown are Japanese financial years (April to March).

Table 4.3. Financial Assistance and Financial Status of Deposit Insurance Corporation
(100 million yen)

Category and year	Revenue from insurance premium (A)	Financial assistance (monetary donation) (1) (B)	Basic balance (2) = (A) - (B)	Encashment of granted national bond	Reserve / loss (Δ) at year end
1971-1991 (General account)	4,944	—	4,944	—	6,964
Total of 1992-95 (General account)	2,586	7,092	Δ 4,506	—	3,866
1996 General account	2,640	7,055	Δ 4,415	—	154
Special account (3)	1,980	6,076	Δ 4,096	—	Δ 4,105
Total	4,620	13,131	Δ 8,511	—	Δ 3,951
1997 General account	2,645	1,346	1,300	—	1,444
Special operations account	1,984	201	1,783	—	Δ 2,384
Total	4,630	1,546	3,083	—	Δ 940
1998 General account	2,657	11,645	Δ 8,987	—	Δ 7,580
Special operations account	1,993	15,642	Δ 13,649	11,992	Δ 4,297
Total	4,650	27,286	Δ 22,636	11,992	Δ 11,876
1999 General account	2,747	8,240	Δ 5,493	—	Δ 13,142
Special operations account	2,060	38,429	Δ 36,368	36,457	Δ 5,825
Total	4,807	46,669	Δ 41,861	36,457	Δ 18,968
1996-99 General account	10,689	28,286	Δ 17,596	—	Δ 13,142
Special operations account	8,017	60,348	Δ 52,330	48,449	Δ 5,825
Total	18,707	88,633	Δ 69,926	48,449	Δ 18,968
1992-99 General account	13,275	35,378	Δ 22,102	48,449	Δ 13,142
Special operations account	8,017	60,348	Δ 52,330	48,449	Δ 5,825
Total	21,293	95,725	Δ 74,432	48,449	Δ 18,968

Forecast for 2000-01: 1. Revenue from insurance premium (total of general insurance premium and special insurance premium) is expected to be about 480 billion yen per year. The total for two years is expected to be revenue.

2. The large banks, which failed but have not been resolved yet as of the end of 1999, were Nippon Credit Bank, Kokumin Bank, Kofuku Bank, Tokyo Sowa Bank, Namiyaya Bank, Niigata Chuo Bank, etc. The total of liabilities, which exceed the assets of those six banks amounted to 4.8 trillion yen at the settlement time of March 2000.

3. Out of the issued national bonds of 7 trillion yen, the amount of a slightly over 4.8 trillion yen had been used at the end of 1999 and the balance was slightly over 2.1 trillion yen, so the grant of national bonds of 6 trillion yen was added by the 2000 budget.

Source: Calculated on the basis of the profit and loss statements in the Annual Report of Deposit Insurance Corporation for each year. The figures may change due to reduction of monetary donation and calculation adjustment, etc.

1. Because it takes several months from the announcement of failure to the completion of resolution, it can be assumed that the trend of financial assistance for each year generally shows the trend of failures in the previous year.

2. The formal profit and loss statement of each account consists not only of this "Basic Balance" but also of other profit/loss items like interest revenue on assets, general management expenses, provisioning on lending assets, etc., but the fundamental financial situation can be measured by this "Basic Balance" and the encashment of granted national bonds.

3. The special account of 1996 is the total of the special account for general financial institutions and the special account of credit cooperative unions.

cope with this, public funds of around 4.8 trillion yen were granted, but there was still a deficit (an accumulated deficit) of some 1.9 trillion yen at the end of 1999. The figures covering the many failures in 1998 and 1999, but still unresolved as of the end of 1999, are not included in the grants for this period. The anticipated amounts required to deal with the major cases (such as Nippon Credit Bank) are expected to total about 4.8 trillion yen.

Looking at the eight years from 1992 to 1999, revenues from insurance premiums were about 2.1 trillion yen, grants about 9.5 trillion yen, and the deficit between revenues and expenditures 7.4 trillion yen. If we add the resolution costs of about 4.8 trillion yen for the cases still unresolved as of the end of 1999, the grants required for financial failure resolution in the 1990s are likely to rise to over 14 trillion yen. As a result, the expected deficit for the 1990s would be over 11 trillion yen, even if we take into account revenue from the insurance premiums in 2000 and 2001.

If we now look at the period 1996–99 in greater detail, paying attention to the measures for full deposit protection, there were financial grants of about 8.86 trillion yen. These can be broken down as follows: grants within pay-off cost (general financial assistance) was about 2.83 trillion yen, plus special financial assistance of about 6.03 trillion yen. By contrast, the total revenue from the insurance premiums in the same period was only 1.87 trillion yen (despite the sevenfold increase in premiums), of which 1.07 trillion yen came from general insurance premium and 800 billion yen from special insurance premiums. Therefore, in the general account of the DIC, the amount of financial assistance surpassed revenues from the insurance premiums by 1.76 trillion yen. Even though the accumulated revenue (386.6 billion yen at the end of 1995, 876 billion at the end of 1994) has been consumed since then, the amount of cumulative deficit surpassed 1.3 trillion yen at the end of 1999. In order to eliminate this deficit, the government will have to depend on future revenues from the general insurance premium. At the same time, the deficit in the special operations account totaled 5.23 trillion yen during this period, far higher than the general account. To meet this shortfall, some 1.2 trillion yen of national bonds were cashed in 1998, and 3.65 trillion in 1999 (a total of about 4.85 trillion yen). To pay for future resolution of the failures still unresolved at the end of 1999, special financial assistance totaling a further several trillion yen is likely to be needed. Existing national bonds of up to 7 trillion yen were expected to be used up, with a further 6 trillion to be added in 2000. Therefore, of the grants required for the resolution of financial failures to the end of 1999, that pertaining to the full protection of deposits will total about 6.03 trillion in special financial assistance plus about 3.53 trillion yen from general account, for a possible total of about 10 trillion yen. Since the revenue from the special insurance premium is ex-

pected to total only about 1.2 trillion yen, including the expected revenue for 2000–01, the major portion is expected to be covered by public finance.⁹

Total financial grants of 8.86 trillion yen represents 0.44 percent of Japan's total GDP for this period (1996–99) and 1.4 percent of the average deposit balance at year-end for each year for all banks and cooperative financial institutions participating in the deposit insurance system. Further, when we consider the total 1.87 trillion yen of general and special insurance premiums in terms of the financial system to bear the burden, it represents 9.3 percent of the total business profit made by those participating in the insurance system for the same four years. Further, if we look at the amount of public finance required (4.84 trillion yen) it represents 5.1 percent of the total national general account tax revenue of 95.1 trillion yen.¹⁰

How should we regard such a situation where huge costs arise from the full protection of deposits?¹¹ The deposit insurance premium is paid directly by each financial institution depending on its deposit balance, and this burden is reflected in either the expansion of the margin of deposit and lending interest rates (spreads) or the decrease of net profits for the financial institution concerned. In other words, interest rates for depositors would be lower and/or lending rates higher than would otherwise be the case, dividends to investors/shareholders would be lower, or reserves would be reduced. The burden of deposit insurance premium is thus shifted to depositors, borrowers or shareholders. Part of the special insurance premium is positioned as an extraordinary/emergency burden, but it is borne basically by a beneficiary (though the benefit that depositors, borrowers or shareholders receive from the deposit insurance system varies).

⁹ According to Matsumoto (1999 p. 222), to resolve the Savings and Loans (S&L) crisis in the United States in the 1980s, about \$161 billion was required for failure resolution from 1980 to 1994. Of this, about \$28 billion was paid from deposit insurance premiums and about \$132 billion from government funding.

¹⁰ The GNP calculation is based on the Prompt Report of National Income Statistics by Quarter (June 2000). The deposit balance and business net profit of financial institutions participating as members of the deposit insurance system are based on published data, settlement notes, and prompt report of settlements of industrial organizations such as the Federation of National Banks Association, Local Bank Association, Second Local Bank Association. The general account tax revenue is based on the Settlement Explanation for FY 1998 and Explanation for FY (secondary) Supplementary Budget. Business net profit to be given to failed financial institutions was excluded from calculation for the FY in which they failed.

¹¹ To understand the cost incurred by the introduction of the full protection of deposits, it is necessary to divide the cost burden (grants by special financial assistance) into two parts: (i) the part generated by such changes as the rapidly increasing number and scale of failures, based on the increase in non-performing loans; and (ii) the part caused by systematic changes (such as financial assistance for the amount exceeding the pay-off cost even though there may have been no major changes in the trend of failure occurrence). In fact, the general financial assistance within pay-off cost was about 710 billion yen for the four years 1992–95, and this sharply increased to 2.83 trillion for the four years 1996–99. Since this suggests that trend of part (i) was the main cause, it seems inappropriate to judge that the increase of the cost burden is mainly attributable to systemic change when compared with the previous period.

On the other hand, there are cases where the bulk of the burden has not been shifted to others but has been borne internally by the financial institutions themselves. When this occurs, the burden may fall on the financial sources applied to bad loans resolution and/or internal reserves. In such cases, excessive insurance premiums may hinder a financial institution's capacity to resolve its bad loan problems and/or reinforce its owned capital. It can therefore add to the instability of financial institutions. In either case, so long as public finance is used in the deposit insurance system, an additional burden (on the industry or its beneficiaries) is created by means of a special insurance premium. To justify the fiscal burden, the financial institution must show that it is used to supply public goods that go beyond the framework of the beneficiary's burden, and the existence of a special insurance premium proves that.

When public finance is clearly positioned as a last resort, intervening only when a financial institution has made the maximum efforts and beneficiaries have shouldered the maximum burden, then it is construed as contributing to the supply of public goods. A huge amount of the current fiscal burden of several trillion yen can be classified as such.

Public goods here mean the maintenance of financial stability in a narrow sense (i.e., to prevent materialization of systemic risk). The stability of the financial system maintained by preventing systemic risk is of benefit to all citizens, and it is impossible to exclude any group from enjoying it (impossibility of exclusion). At the same time, the stability of the financial system is undertaken for all citizens so the marginal cost to expand marginally the scope of beneficiaries is zero (joint consumption). Individual private bodies are given few incentives to provide goods or services having these attributes, so they must be supplied instead by a public body.

In practice, it is no easy task to judge at what point the maintenance of financial stability is truly necessary to avert systemic risk. In particular, where no sign of systemic risk has become apparent (whether preventive measures have been successful or even if no policy has been implemented), mounting risk may often continue without being known to the general public. If in such situations public funds are to be used, it is reasonable that the question arises of whether the risk is serious enough to ask the taxpayer to bear the burden. Where such action is taken only when systemic risk is widely apparent, it is no longer a preventive measure and the need for public finance may well rise to prevent spiraling damage.¹² The new deposit insurance system, as

¹² Financial authorities may be destined to face such difficulties. Goodhart et al. (1998, p. 54) pointed out that society in general tends to be negatively biased towards evaluating financial administration. The reason for this is, they suggested, that successful resolutions are not usually published, for the sake of stability of the system or for reasons of confidentiality, while unsuccessful resolutions become widely known as the problems surface.

amended in 2000, aims to overcome this difficulty of judging whether the situation is critical enough to justify exceptional measures by establishing a procedure to distinguish times of emergency from times of stability, and to introduce criteria for the application of public funds. If public funds are used to protect deposits when there is no systemic risk, it involves shifting income from taxpayers to depositors with large deposits. Making this an emergency response and creating a strict procedure reduces the chances of this happening.

Changes and Effects of the Intended Incentive Structure

A shift to limited protection of deposits implies modifying the balance between ex ante and ex post measures. While we are aware of the need to prevent escalation of an individual financial failure from becoming a systemic problem (ex post policy), we now place more emphasis on the ex ante policy of failure prevention through market discipline. The immediate effect of the shift will be to change the incentives for those large depositors who fall outside the system of protection.¹³ Because small deposits are to be fully protected as before, theoretically there will be no big change in their incentives.

In the case of large depositors, the effect of the change will be to strengthen their incentives in times of stability to select strong financial institutions in which to deposit money, and to monitor them carefully. However, when they learn of deterioration or when another financial institution of the same sort fails, they are more likely to withdraw their money to avoid loss. That is to say, while a shift to the limited protection of deposits will strengthen the monitoring mechanism of financial institution management in times of stability, it will have the opposite effect in times of financial difficulty or failure, increasing the chances of a chain reaction of deposit withdrawals. However, if information asymmetries have been rectified in the first case as a result of a depositor's active production of information in times of stability, the probability of escalating deposit withdrawals in the second is likely to remain small. Furthermore, active production of information promoted by the first change will improve disclosure and use of the information to which this gives rise, reducing the chances of financial institution failure. This is a positive causal relation generated by the change in the incentive structure.

¹³ When we look at this in comparison with the present situation in which creditors are also protected to a substantial degree, the incentives for creditors will also change, just like large depositors. On the other hand, shareholders/investors have an incentive related to the damages caused by the failure of financial institutions. This incentive structure will not change even with a shift to the limited protection of deposits. If we compare the influence on banking management by shareholders and large depositors, shareholders have two choices: to participate in management or to sell their shares, whereas large depositors have the single choice of withdrawing their deposits. Thus, large depositors seem to have greater influence on banking management when deposit protection is limited.

On the other hand, we cannot deny the possibility of increased financial failure due to the shift towards more limited protection. Two instances emerge. The first is one where relatively poorly managed financial institutions are eliminated through the outflow of deposits. Depositors will be inclined to be much more selective about the financial institutions they choose to deposit their money in. In policy terms, much will depend on the viewpoint adopted. It could be regarded as a healthy market mechanism to eliminate unhealthy financial institutions; or alternatively as a destructive move that drags many otherwise sustainable financial institutions into turmoil.¹⁴ One way of looking at this is to see it as a temporary phenomenon that follows in the wake of a framework change; another as a continuing phenomenon that may make the entire system unstable. If the latter is the case, and if increasing failures are likely to result in systemic risk, application of exceptional measures (full protection of deposits, etc.) in critical cases will be discussed as one option.

The second instance is that where there is an asymmetry of information between large depositors and financial institutions, and the failure of a particular financial institution leads to a run on other financial institutions. This can happen when a strengthened incentive to produce information that follows the framework change does not penetrate each and every party concerned, or when the disclosure system is not working reliably and actual monitoring activities are not conducted by large depositors. Preventing a situation that might lead in this direction was a problem that needed to be solved by March 2002.

What effects will a shift to the limited protection of deposits have on the cost burden of failure resolution? Two problems pose themselves. The first is the problem of how the total cost burden arising from failure resolution (or losses in general arising from financial failure) will change as a result of the shift. The second is how this total will be shared by the parties involved.

With regard to the first, generally speaking the effect will be to reduce the cost. Apart from the possibility of a temporary increase in failures following the shift to the new system, the effect of failure prevention policies will be enhanced by the strengthened market discipline, coupled with the health-check regulations by the administration. Failures should therefore be reduced in the medium or longer term. With regard to the second, the scheme of loss sharing arising from financial failure will change significantly. Under the current framework, a loss up to pay-off cost is covered by the gen-

¹⁴ Ikeo (1994, p. 50) insists that a run on deposits is not necessarily undesirable. For example, it is desirable socially as it will reduce failure resolution costs, because an insolvent financial institution whose failure is unavoidable will be forced to fail at an earlier stage.

eral insurance premium, and a loss exceeding this is covered by the special insurance premium or public funds. Under the new system, a loss exceeding the pay-off cost is borne by large depositors (and general creditors) of the failed financial institutions. At a time of stability (all other matters being equal), the part to be covered by the insurance premium (a burden shared by financial institutions in general, who are members of the deposit insurance system, or their depositors) will be reduced.¹⁵ The fiscal burden will also be eliminated. Large depositors (and general creditors) of each failed individual financial institution will face an increase in the burden borne, subject of course to the current situation being reinstated in the event of a "critical situation" arising.

Due to these changes in risk bearing, market discipline will play a more important role in the incentive structure. When such causal relations are thoroughly pursued, the argument may arise that market discipline could be further promoted by building in differences in the levels of insurance premiums that reflect the risk management ability and financial situation of each financial institution; or in other words, introducing variable insurance premiums. This was intended as a means to give stronger incentives to financial institutions to improve management by reorganizing the revenue structure of the deposit insurance system to one more consistent with market discipline. This could be done in such a way as to mesh with market discipline under pressure from depositors. From this viewpoint, the system of fixed insurance premiums at the current uniform rate does not take into consideration the degree of failure risk for each individual financial institution or, put in another way, the degree of cost-bearing risk in deposit insurance. The unintentional result is an income transfer from healthy financial institutions conducting excellent risk management (or their depositors) to unhealthy ones conducting careless risk management (or their depositors). This creates a problem of fairness. On the other hand, it has been pointed out that the introduction of variable insurance premiums will give rise to difficulties in evaluating the future health and revenue producing ability of each financial institution. It will have to be established whether supervisory technology has made sufficient progress to overcome such difficulties, or whether it will be possible to set administrative costs at a practical level. It may be worthwhile studying the possibility of introducing variable insurance premiums once other contextual issues have been resolved, when the issue of non-performing loans has been addressed.

¹⁵ Even if the special insurance premium burden is removed, the general account of the DIC now has a huge cumulative deficit. Its repayment depends on future revenues from a general insurance premiums, so it is difficult to forecast whether the actual level of the insurance premium burden will fall or not from its present level, or even if it is supposed to become lower when it is actually lowered. The 1999 Financial Council Report (Financial Council 1999, p. 18) states that insurance premium levels should be based on current levels, which were raised sevenfold in 1996.

Conclusions

The bad loan problem in Japan led to the failure of many financial institutions that did not have adequate risk management. However, the diversification of policies used to handle failure resolution at each stage, coupled with the expansion of safety nets, including full deposit protection, enabled the financial system to survive. Today, financial instability comes not so much in the form of classic phenomena like bank runs, rather in the form of the huge burden imposed on public finances. As Ikee has put it, “we are protected as depositors because the government guarantees payback of our deposits while we must bear a burden of loss as taxpayers” (Ikee, 1994 p.76). The use of public funds to extend full protection to deposits should be thought of as a way to reduce systemic risk. It should not be seen as the attempt to protect each individual depositor, even though in fact we cannot deny that this was a result.

During the 1990s, Japan’s failure resolution policy was characterized by the diversification of failure resolution schemes, with a view to maintaining financial operations borne by failed financial institutions and protecting deposits to cope with financial instability. The 2000 amendment basically succeeded in achieving the former, but has brought with it important changes with regard to the latter by shifting the emphasis towards principles of self-responsibility and market discipline. This shift towards the limited protection of deposits contains important changes in the way the burden of maintaining financial stability is shared. It involves a change in the relations between benefits and costs, or in other words a shift from the cost being borne by public funds/taxpayers to it being borne by beneficiaries (financial institutions/depositors), based on the principle of self-responsibility. It also seeks to reduce the social expense by strengthening market discipline. We can surmise that such changes in relations between benefits and costs aim to reduce the costs borne by society as a whole.

The transition to the new system must work effectively, avoiding the sowing of mistrust in the financial system. The following are indispensable conditions for this to happen: establishment of the infrastructure for market discipline, including a reliable system of disclosure; the infusion of an awareness of self-responsibility among market participants; and the improved effectiveness of health-check regulations for each financial institution. The period leading up to March 2002 was the ‘grace period’ in which to ensure that these improvements were firmly rooted and put well on track.

Appendix 4.1. Aims of and Policies for Financial Failure Resolution¹

Failure Resolution and Maintenance of Financial Stability

When government authorities become involved in resolving failed financial institutions, their primary purpose is to maintain financial stability. The legislation governing financial failure resolution in Japan defines its purpose as maintaining financial stability and protecting depositors. “Financial stability” means a situation in which the functions of settlement and financial intermediation are working effectively as a whole, providing for the needs of a real economy that depends on the infrastructure of the financial system. However, depending on how financial stability is defined, there may be considerable differences in the scope and manner in which failure resolution is applied. For this reason, therefore, it is important to try and sort out what the concept means.

The maintenance of financial stability in a narrow sense means preventing systemic risk, and there is a wide consensus that this is its most important purpose. Systemic risk means that problems in some part of the system will quickly spread out, eventually leading to a malfunction of the whole system. The financial system embodies its own vulnerability because of the asymmetry of information and the interdependence of financial institutions. Therefore, failure of a specific financial institution may adversely affect other institutions if the problem is left unattended. Healthy institutions may also experience financial difficulties, resulting in serious problems for the financial system as a whole. The top priority for failure resolution is to cut off this chain reaction and avoid the malfunction of the whole financial system. When an individual institution fails, the decision whether to cope with it or not therefore depends on the threat it poses to the total financial system, and the direct individual influence is treated as a secondary problem (if not neglected).²

Maintenance of financial stability in a wide sense means tackling the adverse effects of a certain financial institution’s failure, even though it is unlikely to spread to other financial institutions, since the loss of financial functions borne by this failed financial institution itself constitutes a problem. Even though a chain-reaction affecting other financial institutions may not be immediately expected, the effects of failure of a large-size financial institution on the economy cannot be ignored. Thus, it is important that the institution maintains its financial operations (mainly the settlement and

¹ Portions of this appendix are based on Sato (2000).

² For example, Ikeo (1994, pp. 45–48) distinguishes management failure of an individual financial institution and the instability problem of the whole financial system from this point of view, insisting that “maintenance of financial stability” should be interpreted as narrowly as possible.

financial intermediation functions) to the maximum extent possible, keeping its services going and minimizing the losses incurred by its customers (depositors and borrowers). This is particularly important in a situation where financial services offered by a failed financial institution weigh heavily in a given region or industry. Interpreting financial stability in a wide sense inevitably brings side effects and additional costs for failure resolution and, therefore, careful judgment is always required in weighing financial stability against the strength of social demands.

Failure Resolution and Depositor Protection

In Japan, the protection of depositors has always been viewed as the most important purpose of failure resolution, alongside the maintenance of financial stability. However, protection of depositors means a variety of things, and these need to be defined according to their functions. It is therefore useful to distinguish between the protection of small depositors and protection of deposits as a mean to avoid systemic risk.

The need to protect depositors with small deposits stems from the information asymmetries inherent in financial transactions and the costs of producing the information to rectify this problem. Defining the need of protecting depositors in this way, protection of depositors with large deposits is not the purpose of failure resolution. Many of these are professionals in the area of financial transactions, and have sufficient incentive to bear the costs of producing the information needed.

Apart from protecting small depositors, the real importance of deposit protection in failure resolution lies in maintaining financial stability and preventing systemic risk. As mentioned above, the financial system involves unique systemic risks. One of these risks, vulnerability, stems from information asymmetry and is triggered by a bank run or other rapid outflow of funds from a financial institution that no longer commands confidence. Such vulnerability will spread to other financial institutions by chain reaction. Vulnerability is also derived from the interdependence of financial institutions and will typically be set off by a shortfall on the balances they hold in the central bank. This may also lead to a chain reaction due to insufficient liquidity in the settlement system. Effective ex ante measures to prevent such a chain reaction include reducing information asymmetries through better disclosure and, secondly, lowering the liquidity interdependence through the introduction of real time gross settlement (RTGS) in the bank-to-bank settlement system. However, thinking retrospectively of measures to deal with financial failure, deposit protection is possibly a more direct measure. For example, if all deposits are fully protected, there will be no chain reaction

in the form of bank runs. Nor will there be insufficient liquidity in the settlement system, so long as the BoJ extends loans to cope with temporary liquidity shortfalls on the part of individual financial organizations. Even when only small depositors are protected, their incentive to withdraw cash will be considerably reduced. In this way, protection of deposits is the most direct measure to prevent systemic risk.³

Failure Resolution and the Protection of Borrowers

Another problem in failure resolution is determining how to treat a borrower (i.e., debtor) who has received a loan from a failed financial institution. On the one hand, a borrower who has neither the willingness nor the ability to repay his debt is partly responsible for the failure of that financial institution. The debt must be recovered from this borrower. On the other hand, for the borrower who is repaying his debt and is in a healthy financial situation, a sudden suspension of financing due to the financial institution's failure will cause a substantial economic loss. Protecting borrowers mainly means protecting this second type of borrower.⁴ Financial intermediation by deposit-taking financial institutions is typically a combination of receiving funds from depositors and making loans to borrowers. In this respect, a degree of protection for borrowers is required as well as for depositors. In maintaining financial stability in the wide sense, protection of borrowers is therefore important.

Where a loan to a healthy borrower is cut off against the will of both parties due to the failure of the financial institution acting as lender, both the borrower and the lender will be financially affected. In the case of small- or medium-sized companies that have yet to establish a market reputation, the stopping of a credit may cause real difficulties. They may be unable to switch immediately to borrowing from other financial institutions, or to turn to the capital market for direct financing. Where a borrowing company cannot raise alternative funds, it could go bankrupt. If a failed financial institution is resolved through liquidation, many of its lending assets will be evaluated by the liquidation value of a borrower, and the amount of losses for the failed financial institution will be larger too.

³ In cases where the total financial system is unstable, in fact, full protection of deposits is insufficient for this purpose. There may be situations where the protection is also needed in the inter-bank market. As has already been mentioned, when the financial system became unstable in November 1997 (due to default in the inter-bank market for the first time since the end of World War II), investors took an extremely cautious attitude. It led to a tremendous reduction in the transactions on the inter-bank market, prompting the MoF to issue a statement (1997) that led to the protection of all liabilities of the deposit-taking financial institutions.

⁴ In reality, there are a number of borrowers who are positioned between the former and the latter.

Looking at this from the policy point of view, the information that a financial institution has on a borrower (whether through screening or through his track record as a customer) helps to rectify the information asymmetry and enable a loan transaction to be undertaken. This is an important asset for a financial intermediary, however it is not always an all-purpose marketable asset because it only has value as long as financial relations continue between the financial institution and the borrower. If their relationship is broken, its value is lost. Where this happens, the information asymmetry increases and financial intermediation becomes weaker, ultimately resulting in a loss for society as a whole.⁵ The failure of a financial institution can produce such a situation if (i) it is forced to be liquidated because no relieving financial institution is found to take on its business or no scheme exists to cope with such a situation; and (ii) if, even where the business is taken over by another financial institution, the scope for loan credit is greatly reduced.

Principles of Failure Resolution

When measures are taken to resolve failure, either in the narrow or wider sense, the resources used to this end are restricted by the policy priorities within society as a whole. Also, the effects of such measures and their harmonization with norms of social fairness must be taken into account. Therefore, where failure resolution comes about through deposit insurance payments (that is, where public authorities are involved and public funds are used), the presuppositions on which this takes place must be clarified. In Japan, the principles of failure resolution were set out in a report by the Financial System Research Council in December 1995, entitled *Policies to Stabilize Financial System: Construction of New Financial System Based on Market Discipline*.⁶ This report establishes that “it is depositors and financial stability that must be protected by the deposit insurance payment, and not the failed financial institutions, their managers, shareholders/investors, or employees”. It goes on to make the following four points: (i) a failed financial institution should not be allowed to continue to exist; (ii) management should resign and its civil and criminal liability investigated; (iii) shareholders and in-

⁵ If a market is developed for securitization of loan credit and the collected information on borrowers is priced as an asset, this problem may be reduced to some extent.

⁶ This report emphasized the importance of clarifying the administrative schemes and strengthening market disciplines, with particular attention paid to the seriousness of non-performing loans, the delay in the establishment of the information disclosure system, the lack of transparency of the administrative measures, as well as that of the financial system as a whole at a time of frequent failure of financial institutions due to insufficient risk management at a time of financial liberalization. The full protection of deposits was established as a temporary measure for five years from 1996 in line with this report.

vestors should bear the loss; and (iv) borrowers' accountability should be pursued and credit should be rigorously collected from borrowers. These conditions are effective in preventing an unjustifiable increase in failure resolution costs and reducing the moral hazard among financial institution managers by clarifying the extent to which the parties concerned should take responsibility and bear the costs of failure resolution. In practice, these are the guiding principles applied in the failure resolution measures that accompany deposit insurance payments in Japan.

Taking some additional elements from the Financial Function Reconstruction Law (1998) and the Report by the Financial Council (1999), and adding them to the above, other key points emerge: (v) an unhealthy financial institution that seems unlikely to recover should be dealt with at an early stage; (vi) importance should be attached to maintaining financial operations; and (vii) the costs of failure resolution should be minimized.⁷

From these principles, attention needs to be paid to that of the non-survival of a failed institution in respect of (i) above, a condition that underlies principles (ii) to (iv). It is vital to prevent moral hazard in financial institution management. For this reason, financial assistance from deposit insurance is to be given to a relieving financial institution alone and not to a failed financial institution undergoing failure resolution under a Financial Assistance Scheme. This means, however, that if no relieving financial institution is found, it is difficult to maintain the financial operations of the failed financial institution under the Financial Assistance Scheme. As mentioned above, how to cope with this problem was a key point in improving failure resolution schemes in the 1990s.

Basic Characteristics of the Current Failure Resolution Scheme

Although defining financial failure resolution in the narrowest sense involves countering systemic risk and protecting small depositors, in practice (notwithstanding the principle of non-survival of a failed financial institution) emphasis was placed on minimizing the losses of financial functions caused by failure. To achieve this, there are an

⁷ In the United States, the Federal Deposit Insurance Corporation (FDIC) produced four principles for failure resolution in 1990 (Okina, 1993, pp. 44–45). These are, (i) securing the reliability of the financial system and maintenance of its stability, (ii) selection of a resolution scheme that can keep market discipline working for financial institutions, (iii) minimization of failure resolution costs, and (iv) securing maximum fairness and consistency between each failure resolution. Furthermore, as secondary targets, it established (v) minimization of confusion in the area where a failed financial institution is located and (vi) limitation of the government's role in failure resolution and the importance of private leadership.

array of schemes in place and financial support is institutionalized. At this point, it would be useful to review the tools available for failure resolution.

Failure resolution schemes can be classified as follows: (i) liquidating a failed financial institution without maintaining its financial functions; (ii) liquidating or substantially liquidating a failed financial institution but transferring its financial functions on a limited basis mainly to protecting depositors; (iii) transferring the financial functions of a failed financial institution to a relieving financial institution; and (iv) trying to maintain the financial operations of a failed financial institution even when there is no relieving financial institution. In Appendix 4.2, Table 4.1 illustrates this classification, depending on whether or not there is a relieving financial institution and whether or not financial operations are to be maintained.

Firstly, the Pay-off Scheme of the deposit insurance system is one whereby depositors are paid insurance money from the DIC when an insurance event (suspension of repayment of deposits or cancellation of license/declaration of bankruptcy of a financial institution) takes place. Basically, this is a scheme to protect the monetary value of deposits within a certain range. In this case, the financial functions of the failed institution are not taken into consideration, so it falls under category (i). The Deposit Purchasing Scheme, a variation on the Pay-off scheme, also falls under category (i). Without waiting for the completion of bankruptcy resolution of the failed financial institution, the DIC will pay in advance the expected amount equal to the liquidation dividend to depositors for the amount exceeding the upper limit of insurance.

Next, the transfer of business to the Resolution and Collection Corporation, under the supplementary provision to the Deposit Insurance Law, means the partial maintenance of financial functions (although no new credit is given) mainly for the purposes of depositor protection and credit collection. This thus comes under category (ii). The Hanwa Bank Scheme, whereby failure was resolved by a newly established assuming bank whose job is only to manage/pay-back deposits of a failed financial institution, falls under category (ii).

The Financial Assistance Scheme, based on the Deposit Insurance Law is a scheme by which the DIC donates money to apply to the excess liabilities of a failed institution and purchases its non-performing assets on the basis that the financial functions of the failed financial institution will be maintained by transferring the failed institution's business to a relieving financial institution. This falls under Category (iii).

Each scheme falling under categories (i) through (iii) was combined with the temporary measure fully to protect deposits. That is, in the case of category (i), the Deposit Purchasing Scheme was established, whereby the expected dividend rate could be set as 100 percent, and in the case of categories (ii) and (iii), a system of Special Financial Assistance was established under which financial grants could cover the amount

exceeding the pay-off cost (the amount borne by the DIC, which is required for original limited protection of deposits). In practice, such schemes are utilized to achieve the full protection of deposits.

The Financial Reorganization Administrator/Bridge Bank scheme and the Special Public Management system, based on the Financial Function Reconstruction Law, fall under category (iv). The Financial Reorganization Administrator Management is a scheme in which the supervisory authority selects and dispatches a financial reorganization administrator to the failed financial institution. It authorizes the administrator to conduct the business of (or manage or dispose the assets of) the failed financial institution, subject to certain conditions that are applied to allow it to continue to exist as a corporation and thus to maintain its operations. Such conditions are applied when the financial institution's business operations is considered important, or where closure without transfer to another business would upset the smooth flow of demand for and supply of funds or greatly prejudice customers in the area or field in which it does business. In the case of management by a financial reorganization administrator, the system aims to transfer the failed financial institution's operation to a private financial institution as an outlet. However, if this is not possible and the failed financial institution continues to meet the second condition mentioned above, and if the provisional continuance of its business is regarded as necessary, it will be taken over by a Bridge Bank (established as a subsidiary of the DIC) as a business transfer. With this achieved, the transfer of business to a private financial institution as an outlet would be sought. If this proved impossible, then liquidation would follow.

Special Public Management is a scheme whereby, if certain conditions are applicable to the failed bank, the DIC forcibly obtains all its shares and nationalizes it, and the management and auditor appointed by the authority operate the bank. Under this scheme as well, the failed financial institution continues to exist as a corporation and its business continues so that its financial operations continue for the time being. The Special Public Management scheme is designed to avoid systemic risk such as the widespread effect of failure on other financial institutions or on the international financial market. Its target is assumed to be a large bank with an extensive business.

Those schemes based on the Financial Functions Reconstruction Law seem to be partly in breach of the principle of the non-survival of a failed financial institution. Nevertheless, they are intended to be exceptional measures for circumstances when there is no relieving financial institution immediately to be found and when, at the same time, it is vital to maintain financial functions to protect financial stability. In this case, the management is forcibly replaced either by a financial reorganization administrator or through temporary nationalization. In the case of the category (iv) schemes as well, the measures are supplemented by the temporary full protection of deposits, as in (i) to (iii).

Appendix 4.2. Formation of Failure Resolution System

The framework for the current system, consisting of a diversity of failure-resolution schemes, was developed in stages during the 1990s, when financial failures were no longer exceptional phenomena.

The deposit insurance system, founded in 1971, originally limited itself to protecting small depositors through the Pay-Off Scheme until amended with the introduction of the Financial Assistance Scheme. Up until 1990, failure resolution was conducted outside the compass of the deposit insurance system, which gave full protection to deposits and allowed for failed financial institutions to carry on with their financial functions. However, with the increased weight of bad loans from 1990 onwards, rescues involving deposit insurance payments became much more common. To cope with this situation, the conventional de facto policy targets (full protection of deposits and extensive maintenance of financial functions) were maintained, and efforts devoted primarily to those ends. In such circumstances, it became increasingly difficult to implement conventional failure-resolution schemes, which involved the burden being borne by other financial institutions with surplus funds, while no new framework was established to replace the old one. In this situation, measures were taken on an ad hoc basis in response to each failure whilst efforts were made to improve the overall framework at each stage.

In the natural course of events, what followed was a shift from a resolution method that depended on individual administrative efforts to one based on the deposit insurance system, a system functioning as a common and proactive rule. In the process, the following interaction took place: on the one hand there was an existing framework for failure resolution that provided (or restricted) solutions on individual cases, and on the other there were cases of individual failures that shed light on failings of the system and thus generated further improvements in it.

In summarizing how financial failure resolution procedures were adapted from the period of high economic growth period up to the present, three main points emerge. First, apart from the immediate post-war period, priority was given to protecting depositors. Second, in addition to the protection of depositors, priority was always given to those measures that aimed to ensure continuity in the financial functions of each failed financial institution. Third, in the latter half of the 1990s when the bad loan problem was becoming serious and the number of failures was growing, depositors found themselves fully protected and systemic catastrophe was averted. However, this involved a huge burden being shouldered by the deposit insurance system, ultimately a fiscal problem.

Here, the transition is divided into three periods, starting with the high growth period and moving up to the present. Thereafter, the transition will be evaluated, focusing mainly on the 1990s. Then, by analyzing the shift towards a more permanent system after the end of the special measures, current and future trends are linked. Appendix Table 4.1 summarizes the transition in the 1990s, linking major failures to improvements in the safety-net.

Up to the 1970s: The High Growth Period

In the period immediately after World War II, as financial institutions incurred losses due to the suspension of wartime compensation (debt repayment to companies to which the government owed money), small depositors were protected but larger ones were not.¹ Subsequently, as we have seen, all deposits came to be protected, but there was no call for public financial support either in this period or the next. The most common response to failure was for financial institutions to merge, with the supervisory authority playing a mediating role. In this way, losses were absorbed by the relieving financial institution. As a result, all deposits were fully protected. The banks in those days had quite large franchise values (privilege value as a licensed industry) within a framework that restricted competition by regulating inside/outside financial transactions, business fields, interest rates, etc. As the operational scale expanded through absorption (in particular acquisition of shop networks) and this was directly connected to increases in profits, financial institutions were assumed not to bear too large a burden.

From 1971 to 1990: Deposit Insurance

The deposit insurance system was founded in 1971, but in the beginning consisted only of the Pay-off Scheme with an upper limit of 1 million yen per depositor in the eventuality of a failed financial institution being liquidated. In 1986, the Fund Assistance Scheme was added in the case of a business transfer to a relieving financial institution, and the payment limit was raised from 3 million to 10 million yen. Still, there was no deposit insurance payment made in this period, and failure resolution still took the form of consolidation or relief by a large-scale financial institution with the necessary surplus funds. Depositors were supposed to be protected up to a certain limit under the deposit insurance system, but deposits were actually fully protected outside the scope of the deposit insurance scheme.

¹ See Ministry of Finance (1983) for details, especially Chapter 1.

Appendix Table 4.1. Major Financial Failures and Improvement of Safety Nets

Year	No. of failures (1)	Major cases of financial failures (2), (3) (month, year) and resolution cost (amount of financial grant (4): unit of 0.1 billion yen)	Improvement of safety nets (month, year)
'71-'90	0		<ul style="list-style-type: none"> • Foundation of deposit insurance system (Apr 71)—deposit insurance with upper limit; pay-off scheme • Introduction of financial assistance scheme (Jul 86)
91	1	Toho Sogo Bank (Jul 91) loan of 80	
92	1	Toyo Credit Cooperative (Apr 92) 200	
93	2		
94	4	Tokyo Kyowa Credit Cooperative (Dec 94) Anzen Credit Cooperative (Dec 94) 400: total of two credit cooperatives	
95	6	Cosmo Credit Cooperative (Jul 95) 1,250 Hyogo Bank (Aug 95) 4,730 Kizu Credit Cooperative (Aug 95) 10,048 Taiheiyo Bank (Mar 96) 1,170	<ul style="list-style-type: none"> • Establishment of Tokyo Kyodo Bank (Jan 95) • Establishment of Resolution and Collection Bank
96	5	Hanwa Bank (Nov 96) 803	<ul style="list-style-type: none"> • Establishment of special financial assistance scheme (full protection of deposits)
97	17	Kyoto Kyoei Bank (Oct 97) 438 Sanyo Securities applied for the Stock Company Reorganization and Rehabilitation Act (Nov 97) Hokkaido Takushoku Bank (Nov 97) 17,732 Yamauchi Securities announced discontinuation of business (Nov 97) Tokuyo City Bank (Nov 97) 1,194	<ul style="list-style-type: none"> • Raising of insurance premium and introduction of special insurance premium (Jul 96) • Diversification of resolution schemes such as new establishment/merger; etc. (Dec 97)
98	28	Midori Bank (May 98) 7,700 Fukutoku Bank/Naniwa Bank* (May 98) Long-term Credit Bank of Japan *(Oct 98) 32,391 Nippon Credit Bank *(Dec 98) 32,440	<ul style="list-style-type: none"> • Introduction of public fund for full protection of deposits • Expansion of the facilities of Resolution and Collection Bank
99	45	Kokumin Bank (Apr 99) ***1,769 Kofuku Bank (May 99) ***4,259 Tokyo Sowa Bank (Jun 99) ***4,312 Namihaya Bank (Aug 99) ***3,740 Niigata Chuo Bank (Oct 99) ***1,687	<ul style="list-style-type: none"> • Foundation of capital infusion system for financial institutions (Feb 98) • Introduction of special public management system • Introduction of financial reorganization administrator/bridge bank system
'91-'90	109		<ul style="list-style-type: none"> • Capital reinforcement system for financial institutions (Oct 98)

Source: Deposit Insurance Corporation (July 2000). Annual Report of Deposit Insurance Corporation for 1999.

*: a special merger which means buying-up alone and not a financial grant.

**: a special public management.

***: management by a financial reorganization administrator.

1. The number of failures was counted as the number of failure resolution cases accompanied by exercise of deposit insurance based on the announcement date of failure. All failures of banks and major failures of credit cooperatives/unions are included in the chart as individual cases.
2. The failure resolution schemes employed were generally the Financial Assistance Scheme under the premise of transfer of operation/business (partly relieving merger) but since 1998 new resolution schemes were often used.
3. In the resolution of Long-term Credit Bank of Japan, besides the above-mentioned financial grant of 3,239 billion yen, the additional amount of 348.9 billion was supplemented from the financial reconstruction account. In the cases of Nippon Credit Bank and five banks which failed in 1998, their financial resolution was not completed and the amount of financial grant was not ascertained when this paper was written, so the amount of liabilities exceeding the assets is shown at the end of March 2000.
4. The amount of financial grant may change due to reduction at a later date.

From 1991 to 1993: Deposit Insurance Kicks In

Deposit insurance was used for the first time during the resolution of Toho Sogo Bank (merged into Iyo Bank) after its failure in July 1991. The following year, deposit insurance was paid in the case of the failed Toyo Credit Union (April 1992) and others, and thus its use began to spread. However, there were only four such cases in this three-year period. However, as the 1990s proceeded, relieving financial institutions began to request financial assistance more persistently from deposit insurance as they undertook the bail-out of failed financial institutions. This position became the norm, and changes were evident in the financial situations of financial institutions in general, as well as in the way they regarded franchise value in this period. Deposit insurance was implemented through the Financial Assistance Scheme once a relieving financial institution had been found.

The full protection of deposits was observed de facto, although de jure financial assistance from deposit insurance was limited to a fixed pay-off cost, usually insufficient to cover all the losses of a failed financial institution.² Therefore, special efforts were made to ensure the full protection of deposits for each individual case, meeting the shortfall through cooperation with related private financial institutions.

From 1994 to 1995: Frequent Financial Failures

In these two years, there were ten cases of financial failure. A series of large-scale failures occurred in succession, including the collapse of Tokyo Kyowa Credit Cooperative/ Anzen Credit Cooperative (December 1994), Cosmo Credit Cooperative (July 1995), Hyogo Bank (August 1995), Kizu Credit Cooperative (August 1995), and Taiheiyo Bank (March 1996). These generated great public apprehension for two reasons. Firstly, it was no longer possible to assume that another financial institution would appear as a candidate to help relieve the financial institution concerned, a necessary condition for the Financial Assistance Scheme to be applied; and secondly it became difficult to maintain a policy of full deposit protection through financial assistance within pay-off costs.

² When the operation of a failed financial institution with its liabilities in excess of its assets is transferred to a relieving financial institution, the excess liabilities must first be reduced to zero to achieve a balance between assets and liabilities. If no liability (including the accepted deposits) is reduced as a result of loss-sharing by creditors, the total amount of excess liabilities must be supplemented in one way or another. This procedure was applied to ensure full protection of deposits. However, financial assistance from deposit insurance with the pay-off cost at its specified limit was usually insufficient to cover the excess liabilities. Pay-off cost means the amount to be borne by deposit insurance when insurance is paid within the upper limit (10 million yen per depositor).

The Tokyo Kyowa Credit Cooperative/Anzen Credit Cooperative was the first case in which no relieving financial institution came to the rescue. As already mentioned, since financial assistance by deposit insurance was available only to a relieving financial institution, the Pay-off Scheme (a scheme limited to partial protection of deposits) had to be invoked, and the full protection of deposits (hitherto the norm) had to be amended. To avoid pay-off, a new financial institution, the Tokyo Kyodo Bank, was established for the primary purposes of protecting deposits and collecting credits. In this way, financial assistance was made possible by transferring business to this bank. Through this financial assistance and the cooperation of related financial institutions in covering that part of the excess liabilities over and above pay-off costs, full deposit protection was achieved.

Failure resolution without a relieving financial institution continued to occur in succession, and the Cosmo Credit Cooperative and Kizu Credit Cooperative were resolved by transferring their business to Tokyo Kyodo Bank in the same manner. In a slightly different way, a new assuming bank was established to resolve the failure of the Hyogo Bank and Taiheiyo Bank because these institutions needed to continue their business while also protecting their deposits. Their business was transferred to the newly established Midori Bank and Wakashio Bank.

With the losses from failed financial institutions reaching huge proportions, it became increasingly difficult to cover the gap between liabilities and assets when this exceeded the pay-off cost. Such liabilities could not be covered by the deposit insurance available at that time. Among the above-mentioned banks and credit cooperatives/unions, the policy of filling the gap with financial cooperation from related private financial institutions was undertaken for the Cosmo Credit Cooperative, Hyogo Bank, and Taiheiyo Ban, albeit with special effort in each case. However, in the case of Kizu Credit Cooperative, the losses totaled approximately 1 trillion yen, too much to cover in such a manner. Full deposit protection became impossible without public financial assistance to cover the amount exceeding the pay-off cost. This obliged the government to improve its Special Financial Assistance scheme. As a result, the problem of Kizu Credit Cooperative was only finally resolved through financial assistance to cover the surplus once the Deposit Insurance Law was amended in 1996.

There were four reasons for the difficulty in finding a relieving financial institution in this period. Firstly, financial liberalization reduced the franchise value of banks and the increase in business scale did not bring direct advantages like increases in profit. Secondly, those financial institutions that had previously come forward in relieving institutions had less surplus and felt constrained in accepting the transfer of business/operation from failed financial institutions. Thirdly, it was difficult to say

whether the assets to be transferred from the failed financial institution were healthy or not, and even when a relieving financial institution absorbed its assets after an evaluation of their worth, there was a high risk of secondary loss when the economic situation was deteriorating. Fourthly, where the relieving financial institution took on the business of the failed financial institution with assets and losses in equal amounts, its own capital ratio would drop, thereby increasing the burden on its own financial situation. The practice of providing capital for a relieving financial institution was introduced later on in response to this problem.

The main innovation in this period was to create a new relieving financial institution for each individual case when no relieving financial institution was readily to be found to protect deposits fully and to keep financial operations going. The Tokyo Kyodo Bank was reorganized into the Resolution and Collection Bank by the 1996 amendment and this was supposed to become a permanent institution for taking on failed financial institutions.

With regard to the aim of enabling failing financial institutions to carry on functioning, each was judged according to how best to meet the criterion of “maintaining financial stability” in the wider sense. In the cases of Hyogo Bank and Taiheiyo Bank, their businesses were taken over by a newly established assuming bank and it continued. In the cases of Tokyo Kyowa Credit Cooperative, the Anzen Credit Cooperative, Cosmo Credit Cooperative, and Kizu Credit Cooperative, their businesses were transferred to the Resolution and Collection Bank and suspended. As the Resolution and Collection Bank does not provide new credit, business transfer to this bank aims primarily to protect depositors and collect credits.

From 1996 to October 1998: Institutionalization of Full Deposit Protection with Public Funds

In this period, the systems were improved in response to two big problems that emerged in 1994–95. First of these was reconciling the framework of limited protection of deposits with the actual policy goal of providing full protection, especially in terms of finding a financial source. The second was that the lack of relieving financial institutions was no longer an exceptional matter, and this meant that failure resolution through the Financial Assistance Scheme became limited in its uses.

Regarding the first of these, the actual policy target was confirmed on a time-limited basis and the institutional framework was revised in this respect. This led to full deposit protection being institutionalized with the 1996 amendment to the Deposit Insurance Law. Specifically, Special Financial Assistance was added to make it possible

to cover the amount exceeding the pay-off cost for a time-limited period until March 2001,³ and a “Special Insurance Premium” (0.036 percent) was also introduced as an additional source of finance. Also, in response to the rapid increase in expenditures on deposit insurance, the general insurance premium was raised fourfold from 0.012 percent to 0.048 percent, increasing the total premium to 0.084 percent of the deposit balance covered by insurance. As a result, the total insurance premium level, including special insurance premiums, increased sevenfold over the earlier level. To help evaluate those measures, it is worthwhile looking at the report of the Financial System Research Council of December 1995 (Financial System Research Council, 1995), on which the amendment was based. The report aimed to build a more transparent financial system based on the promotion of market discipline and the principle of self-responsibility. To this end it proposed establishing a transparent new administrative structure to underpin it. At the same time, it emphasized that strenuous efforts had to be made to protect depositors and maintain financial stability, since the situation was insufficiently stable to guarantee orderly credit flows for up to five years. In other words, the report advocated full deposit protection for a certain period, under the provision of a shift to a limited deposit protection system at the end of that period.

So, the Kizu Credit Cooperative had its business transferred to the Resolution and Collection Bank (with financial assistance to cover the amount exceeding the pay-off cost). Hanwa Bank, which failed in November 1996, had its business liquidated. The authorities ordered business to be suspended with a full guarantee on deposit protection. The failure was resolved by establishing the Kii Deposit Management Bank, whose only purpose was to pay back depositors.

A string of new financial failures in November 1997 called for further changes. In quick succession, Sanyo Securities applied for the Corporate Reorganization Law on November 3, which was followed by a default on the short-term inter-bank financial market (the first case of its kind since World War II). Hokkaido-Takushoku Bank failed on November 17, Yamaichi Securities announced the cessation of business on November 24, and Tokuyo City Bank failed on November 26. As a result, transactions on the inter-bank market fell sharply, leading to difficulties in raising funds. At the same time, share prices dropped, the ratings of financial institutions fell, the Japan premium grew, and there was a run on deposits in some financial institutions.

Together, these developments upset confidence in the banking system and in the country as a whole. In this situation, the policy to protect not only deposits covered by insurance but also deposits not covered, as well as debts other than deposits, was announced by the Minister of Finance on November 24. The reluctance of banks

³ A Special Deposit Purchasing Scheme provided for the full protection of deposits.

to lend money threatened a loss of the intermediation function in the financial system. To cope with the problem, the Deposit Insurance Law was amended at the beginning of 1998. Public funds totaling 17 trillion yen were provided for failure resolution, under the provision of full protection for deposits. Of this, 7 trillion yen came from national bonds and 10 trillion in government guarantees. Thus, the Special Financial Assistance for the amount in excess of the pay-off cost was underwritten financially with public funds, in addition to the special insurance premium. In the case of the failure of Kyoto Kyoei Bank, Hokkaido-Takushoku Bank, and Tokuyo City Bank in the autumn of 1997, a relieving bank was found for each of them from among existing private financial institutions, and deposit insurance was applied under this system.

The second major problem was what to do if no relieving financial institution could be found. The Resolution and Collection Bank was established as an assuming institution for failed credit cooperatives/unions as the reorganized Tokyo Kyodo Bank, on the basis of a 1996 amendment to the Deposit Insurance Law. In another amendment to the Law (December 1997), new measures were taken to add to the circumstances in which financial assistance would be provided for resolution failure, when financial institutions in difficulty were merged and re-established as a new financial institutions. Another amendment (at the beginning of 1998) gave the Resolution and Collection Bank responsibility as a relieving bank not just for failed credit cooperatives but for failed financial institutions in general, including banks. However, since the bank did not give any further new credit to the borrowers of a failed bank, it was not until the Financial Function Reconstruction Law (enacted in the fall of 1998) that systematic improvement was achieved for maintaining financial operations and protecting the borrowers.

On this point, measures were taken to create a context in which a relieving financial institution was likely to appear through the Financial Function Stabilization Emergency Measures Act, enacted at the same time that the Deposit Insurance Law was amended at the beginning of 1998. This provided a system through which a capital injection of public funds could be carried out in a relieving financial institution, and thus alleviating its problems in terms of capital adequacy. The transfer of business (including risk assets) from a failed financial institution will lead to a lower capital ratio in a relieving bank. The measure is intended to compensate for this burden, so that existing banks are encouraged to come forward as candidates for a relieving bank.

From October 1998 to March 2001: Full Protection Framework

The most important change to the system during this period was to establish a scheme to cope with situations where it proved difficult to find a relieving financial institution,

but where it was particularly important to maintain financial operations. This was an issue left pending in the previous period. In an extraordinary session of the Diet in the summer of 1998, legislators discussed the resolution of the Long-term Credit Bank of Japan. Later, in October, the Financial Function Reconstruction Law was enacted as a piece of time-limited legislation, and a new failure resolution scheme, the system of Financial Reorganization Administrator/Bridge Banks and the system of Special Public Management was introduced. With these changes, the financial operations of a failed bank could be maintained for a while, even if a relieving financial institution was not found. As there was less need to find a relieving financial institution, attempts at failure resolution could start early on, and the authorities were vested with strong powers to do this. Considerable importance was attached to maintaining financial intermediation and protecting borrowers. Even as temporary measures, these had characteristics that existing failure resolution systems did not have. Also, regarding the full protection of deposits, the framework for special financial assistance and public funding, established in preceding periods, was applied to those rescues undertaken under the Financial Function Reconstruction Law.

Since the Financial Function Reconstruction Law came into force, it has become common for either special public management teams or a financial reorganization administrator to handle proceedings for resolving major financial failures. At the same time, the Financial Assistance Scheme, based on the Deposit Insurance Law, was mainly used in cases where small and medium-sized financial institutions, such as credit cooperatives/unions, had failed and where a relieving financial institution could be found. Of the most important individual cases, The Long-term Credit Bank of Japan (October 1998) and Nippon Credit Bank (December 1998) were resolved through a special public management scheme. The Kokumin Bank (April 1999), Kofuku Bank (May 1999), Tokyo Sowa Bank (June 1999), Namihaya Bank (August 1999), Niigata Chuo Bank (October 1999) were managed by a financial reorganization administrator.

Thus the current system of failure resolution is a combination of the original deposit insurance system being placed on a permanent footing and various temporary measures established in the second half of the 1990s. The latter involved additional measures to enable the full protection of deposits, financial backing including public funds, and the resolution scheme envisaged in the Financial Function Reconstruction Law. Appendix Table 4.2 summarizes the procedures for failure resolution. The system was to remain in force up until March 2001. For the future, a series of bills to reorganize the system, involving temporary measures as well as a shift to permanent limited deposit protection, was submitted to the ordinary session of the Diet in 2000. This was based on the Financial Council's report of December 1999, ratified the following

Appendix Table 4.2. | Pattern of Failure Resolution Schemes

Resolution of failed financial institution	Failed financial institution will not survive		Failed financial institution will temporarily survive
	Functions not to be maintained	Functions to be partially maintained	
Existence of relieving financial institution	—	—	Functions maintained
Existing private financial institution as relief-giving financial institution	—	—	<p>Financial assistance scheme (2)</p> <ul style="list-style-type: none"> • Transfer of business grants and assets purchase, etc. • Absorption /merger • Merger and new establishment • Acquisition of shares
Newly established a relieving bank for individual cases	—	<p>Hanwa bank scheme Implementation of financial assistance (2)</p>	<p>Establish a relieving bank for an individual case Exercise of financial assistance scheme (2)</p>
No private relieving financial institution available	<p>Pay-off scheme / deposit purchasing scheme = failed financial institution is liquidated Insurance payment / deposit purchasing scheme (1)</p>	<p>Transfer of business to resolution and collection corporation Implementation of financial assistance (2)</p>	<p>Financial reorganization administrator / bridge bank Assets purchase, loss compensation, etc. (3) Special public management Exceptional financial assistance (3)</p>

1. "Special deposit purchasing scheme" for the full protection of deposits as a temporary measure.

2. "Special financial assistance" for the full protection of deposits as a temporary measure.

3. Both are temporary measures and combined with the full protection of deposits.

May. The main points (and how these relate to the preceding periods) are described in the next two sub-sections.

From April 2001 to March 2003: Transitory Measures

Many parts of the Financial Function Reconstruction Law were no longer applicable after March 2001. On the other hand, the Financial Reorganization Administrator/Bridge Bank system was to be succeeded by the Deposit Insurance Law (its main provisions) on a permanent basis. At the same time, the Special Public Management System was to be applied in exceptional circumstances as a way to coping with “a critical situation” (e.g., situations of systemic risk) through a Special Crisis Management Bank as part of the new system. Also, the system of reinforcing capital through injections of public funds was to be abolished at the end of March 2001 (March 2002 in the case of cooperative financial institutions). While the system to reinforce the capital of relieving financial institutions was to continue on a permanent basis, the capital injection of public funds was brought in on a permanent basis but applied only in “critical situations.”

The full protection of deposits was to be extended by one year on a temporary basis to the end of March 2002. From April 2002, limited protection was to be applied to term deposits, with an upper limit of 10 million yen. However, liquid deposits (current and ordinary deposits) were to be fully protected for another year from April 2002 through March 2003 as a transitory measure. Deposits not covered by insurance were not to be protected, and an ordinary liquidation dividend was to be paid, for instance, in cases where deposits exceeded the 10 million yen limit.

As an exceptional measure, and only in “critical situations,” full protection of deposits would be made available. To finance this, the possibilities of public financial support is not excluded, though there is an understanding that the burden will be borne first by financial institutions. As we have already seen, the capital reinforcement system was also available as an emergency measure.

April 2003 and beyond: A Permanent System of Limited Deposit Protection

When these transitory measures of full protection for liquid deposits end, the whole system will be made permanent with an upper limit to deposit protection. In part, this was to come about during the previous period. What follows are the main points of the permanent system.

The instruments available for failure resolution in normal situations will include: (i) the Pay-off Scheme; (ii) (with an upper limit of pay-off cost) the general Fi-

nancial Assistance Scheme; (iii) the Financial Reorganization Administrator/Bridge Bank Scheme; and (iv) the transfer of business/operations to the Resolution and Collection Corporation (for the time being). Some additional and exceptional measures are still available for critical situations of systemic risk. There is the Special Crisis Management Bank, the system of special financial assistance (which can provide financial assistance for amounts exceeding the pay-off cost), and the capital reinforcement system.

Regarding deposit protection, deposits covered by insurance will be protected to the upper limit of 10 million yen. Deposits not covered by insurance will not be protected, and money will be paid back according to an ordinary settlement dividend, just as would be the case of deposits exceeding the 10 million yen. On an exceptional basis, limited to “critical situations,” full protection of deposits will remain an available option. To finance it, public sector support is not excluded as a possibility, even under the supposition that the burden would be borne first by financial institutions.⁴

⁴ On July 30, 2002, Prime Minister Koizumi directed Financial Services Minister Yanagisawa to examine measures to ensure the stability of the payment/settlement system and to produce a plan for revision of the introduction of the Permanent System of Limited Deposit Protection cited above. Accordingly, the Financial Services Agency requested the Financial System Council to check the measures in place for reducing payment/settlement risk and to consider other appropriate measures to ensure the stability of the payment/settlement system whilst preventing moral hazard. This new development presumably was in recognition that the payment/settlement is the key function of the financial system, other than financial intermediation. It seems to indicate the authorities' firm intention to avoid any malfunction in the payment/settlement system under the new system of the limited deposit protection. With only partial protection for depositors, the failure of a financial institution would result in losses for depositors, and this might lead to lack of liquidity in payment and settlement. It is understandable that avoiding such an eventuality carries a high priority. The Financial System Council was expected to complete its deliberation on this matter by the fall of 2002. How to protect the payment/settlement account deposits would be the central issue. So, the result may well lead to some modification to the permanent system described with regard to the extent of deposit protection. However, any modification is likely to be rooted in the basic philosophy of adhering to market discipline and preventing moral hazard. The author presumes that, in any event, modifications will not stray far from the Permanent System of Limited Deposit Protection as described. Accordingly, the fundamental drift of the argument in this chapter still applies.

References

- Financial Council. 1999. On Deposit Insurance System and Failure. Resolution of Financial Institutions after the End of Special Measures. Unpublished report of Financial Council, December 1999.
- Financial System Research Council. 1995. Policies to Stabilize the Financial System. Unpublished report of Financial System Study Commission, December 1995.
- Goodhart, C., P. Hartmann, D. Llewellyn, L. Rojas-Suárez and S. Weisbord. 1998. *Financial Regulation: Why, How and Where Now?* London: Routledge.
- Ikeo, K. 1990. *Economics of Bank Risk and Regulation*. Tokyo: Toyo-Keizai Shinposha.
- _____. 1994. Chapter 2 Financial Stability and Bank Regulation. In *Lectures: Public Regulation and Industry*, (ed) A. Horiuchi: Tokyo: NTT Shuppan.
- Kinoshita, N., 1999. *Commentary-Amended Banking Law: a New Framework of Bank Management*. Tokyo: Nihon-Keizai-Shinbun.
- Matsumoto, K. 1999. Bank Supervision and Failure Resolution in the USA. *Financial Review* 51 205–37.
- Ministry of Finance. Financial History Dept. 1983. *Financial History of Showa—from End of War through Peace Treaty—Vol. 13*. Tokyo: Toyo-Keizai-Shinposha.
- Okina, Y. 1993. *Bank Management and Financial Stability: Background and Countermeasures of Bank Failure* Tokyo: Toyo-Keizai-Shinposha
- _____. 1997. New Trend of Financial Supervisory Policy—Incentive Compatible Approach, Functional Approach and Market Discipline-Oriented Supervision, *Japan Research Review* 6.
- Sato, T. 2000. Changing Financial, Environmental and Japan's Prudential Policy. *Economic Science* 47(4).

CHAPTER 5

Banking Crises in Latin America: Regulatory and Supervisory Issues

Ruth de Krivoy

Notwithstanding their diversity, banking crises in Latin America and the Caribbean region follow a pattern common to emerging markets in general. They have been costly, their effects on the banking system have been severe and protracted, they have had dire consequences on the domestic economies, and attempts to manage them have generally been ineffectual. Up until the Asian banking crises of the late 1990s, Latin America has had the worst record of any part of the world.

This dismal story is a symptom of some of the region's key characteristics: the susceptibility of its economies to shocks, the structural fragility of its financial systems, and poor crisis management. Many of these weaknesses persist. Although progress has been made both in the realm of macroeconomic policy as well as in that of financial regulation and supervision, the recent crisis in Argentina and instability in Brazil, Colombia, Ecuador, Peru and Venezuela may lead us to the conclusion that not much of lasting value has been accomplished. However, improvements in banking regulation and supervision have helped mitigate the political and economic shocks afflicting these countries.

In spite of the progress made in enacting modern risk-focused regulation, improving supervision and enhancing market discipline, this combination is no guarantee that systemic crises will not recur. Many of the causes of financial vulnerability in the region persist, and new risks emerge from the changing competitive landscape. Capital flows remain highly volatile, and this is potentially damaging to both government and private sector borrowers. Regulations have been modernized, but international guidelines need to be adapted to address the risk of currency mismatches between assets and liabilities, of changing valuations of government bonds in the portfolios of financial institutions, and—more generally—the need for asset valuation rules appropriate to highly volatile economies. Rule enforcement is still deficient in many countries, because of political pressures and weak institutions. Furthermore, progress and stability are at

risk in some countries from the rise of political leaders bent on reviving populist policies and ideologically biased against the banking industry.

The challenge facing Latin America is to prevent systemic crises from reoccurring, to minimize the pain caused by bank failure, and to turn banking into a powerful motor of growth factor rather than a mechanism for political control. Experiences of crisis management in Latin America in the 1990s provide a wealth of lessons. In countries where governments tackled problems head-on and succeeded in building up both public and private-sector surveillance, banking systems are thriving; elsewhere, the safety and soundness of financial systems is still in doubt.

Beyond the need for consistent, sound macroeconomic policies, Latin American countries need to be proactive toward banking regulation and supervision. A three-pronged policy is needed: (i) supervisors need to be strong and independent; (ii) corporate governance needs to be improved; and (iii) market discipline needs to be made more effective. Problems of inadequate credit are on the rise in some countries, reflecting in part a shrinkage in capital inflows, but also changes in their banking systems. Because larger segments of the financial industry now operate under risk-focused regulation and supervision and prudential rules have been strengthened, they adopt more cautious lending policies. Though such changes are a step in the right direction, the task now is to find ways to ease domestic credit by strengthening protection of creditors' rights. This will make it easier for banks to mitigate risk and lend more. Latin America also needs to develop strong second-tier public sector financial institutions to increase the flow of funds to underserved segments of society. Strong institutions are required that focus on developing microfinance and well-designed financial services for rural and urban small and medium-sized firms as well as individuals. Also needed are effective prudential regulations that are less pro-cyclical than those that currently exist.

Experiences in Crisis Management

Given the weaknesses of Latin American banking systems and the history of crises within them, shocks have tended quickly to translate into runs on deposits and capital flight. These, in turn, deplete sources of bank funding, depreciate bank assets, diminish or destroy capital, and provide strong incentives for banks to bide their time and bet on a government bailout or a change of luck. Depositors have long been quick to remove their money from banks at times of crisis, fearing real financial losses from bank failures and resulting currency crises. History has often vindicated such fears.

When times get tough in Latin America, international investors lose confidence easily. The region then finds itself squeezed out of international capital markets

in circumstances that, if they happened in developed countries, would not block their access to international funding. This affects the stability of the banking system in many ways. Sudden interruptions in capital flows, due to political events or contagion from crises elsewhere, lead to painful exchange rate adjustments that affect a country's current account and its non-tradable sector. They reduce rates of growth in the economy and damage the quality of banks' loan portfolios. The macroeconomic volatility to which they give rise makes it more difficult to manage banks soundly. Direct foreign exchange risk in banks can usually be mitigated by prudential regulations, but the indirect effect of exchange rate adjustments caused by their borrowers' currency mismatch (for example, the dollarization of liabilities by debtors) can generate severe problems if not properly dealt with. The recent situation in Argentina exemplifies this problem.

Structural fragilities in the banking sector generally stem from a history of government failure to promote healthy banks. For too many years, regulations have been used to favor political constituencies, and banking systems were seen as mechanisms of political patronage. Meanwhile, rigid rules have constrained bank activities, reducing their ability to diversify risk. Designated lending rules geared to supporting certain priority sectors and lending practices designed to serve shareholder interests have stood in the way of objective credit risk assessment. Opaque licensing policies, entry restrictions, lax accountancy rules, low capital requirements, and weak supervision have all created artificial franchise values. Unclear exit rules have allowed weak and even insolvent banks to remain open too long, increasing the cost to the taxpayer when eventually they failed. Bank supervisory agencies have lacked the know-how, the independence, the tools, the resources, the authority, and the flexibility to deal effectively with banking problems. They have also lacked political support in carrying out their mission. Private sector surveillance has been virtually nonexistent.

Governments have tended to react to crises by adopting costly strategies, such as unlimited deposit guarantees, open-ended liquidity support, repeated capitalizations, debtor bailouts, and regulatory forbearance. They have often lacked the powers to cope with crises, or have responded in such ways as to shift the cost of these onto the banks. In some cases, such costs were particularly high because public funds were used to insure offshore and off-balance sheet liabilities, and the true size of these only became known when the crisis had peaked. Delays in decision-making, contagion, political turbulence, and social upheaval all made things worse, and each time it was the taxpayer that ended up footing the bill.

Managing a crisis is always difficult, but especially so when supervisors are poorly equipped to deal with it. A survey of supervisory organizations, conducted by the Financial Stability Institute using data from 60 developed and developing countries, provides a snapshot of how organizational shortcomings hamper bank resolution and

crisis management (Financial Stability Institute, 2000). The most important shortcomings had to do with deficiencies in the laws and regulations at the disposal of supervisors handling crises. Thirty-five percent of respondents complained about a lack of prompt corrective action rules and insufficient regulatory powers to resolve problem banks. Twenty-five percent of supervisors cited what they called “people problems.” One such set of problems is the shortage of personnel with the necessary skills to supervise banks, assess their problems, and eventually run those taken over by government. Another is uncooperative shareholders, directors and managers, often unwilling to recognize losses. When asked to cite the most important success factors for dealing with bank crises, the two most frequent responses again had to do with the human element. Thirty four percent cited high skill levels among personnel as the most crucial success factor, and 25 percent mentioned inter-agency coordination. The study’s lessons are particularly apt for Latin America, where institutions often suffer from institutional weakness, especially in human resources and organizational culture.

The shortage of non-inflationary sources of funding to resolve banking crises has also hampered crisis management. This is because Latin American governments are largely confined to using scarce domestic capital and/or loans from multilateral organizations. Shallow markets for non-performing assets and failing institutions have also made it especially difficult for governments to dispose of assets acquired during a crisis. Many of the alternative methods used in the United States by the Resolution Trust Corporation are not available to Latin American countries, and the flexible methods used by the U.S. Federal Deposit Insurance Corporation to price and sell assets is either constrained by law in Latin America or is politically impractical. Government agencies thus end up holding onto assets for too long and the assets depreciate further, thus adding to the costs incurred.

Latin America has come a long way since the 1980s and 1990s, but challenges still abound. Until recently, the region’s economies seemed to have gained stability, banks were stronger and the authorities seemed better placed to deal efficiently with bank failures. Today, however, such perceptions are more questionable, given the crisis in Argentina and instability in Brazil, Colombia, Ecuador, Peru, and Venezuela. It may be that not much was accomplished after all. Still, improvements in banking regulation and supervision have helped mitigate the risk of political and economic shocks in such countries. By international regulatory standards, Latin American countries rank among the best in the developing world.¹ However, though regulations may have been mod-

¹ A World Bank comparison of bank regulatory quality in developing economies study shows that four of the top five positions are held by Latin American countries: Argentina, Chile, Brazil and Peru. World Bank (1998), cited in Calomiris and Powell (2000)

ernized, enforcement is still deficient in many countries because of political pressures and weak institutions. Insolvent public banks remain a source of problems to which solutions seem elusive. Meanwhile new leaders are appearing, ideologically biased against the banking industry and bent on reviving populist policies.

Chile: An Encouraging Experience

Having undergone severe crises, Chile was able to build credibility through a country-specific combination of macroeconomic policy, institutional reform, new regulations, and strengthened market discipline. However, best practice only partly explains Chile's accomplishments; to understand fully its success, we need to see how the country's legal framework was built on to create more prudent banking, despite the political difficulties involved.

Chile suffered a severe banking crisis in the early 1980s that cost Chileans a sum equivalent to 43 percent of GDP. In global terms, this was the second most costly crisis of its era (Honohan and Klingebiel, 2000). The authorities reacted to the crisis with a combination of macro and microeconomic measures. Regulations were modified to extend the maturity of viable loans and impose severe penalties on stockholders. Prudential regulation was made more stringent and regulatory institutions were reformed to strengthen their supervisory function. A strong fiscal effort complemented the restructuring program, and a gradual approach to financial deregulation—consistently implemented over time—allowed these changes to take root. Strong institutions and contractual commitments were developed and the quality of corporate governance and bank management improved. By creating a pension fund industry, the government helped raise the level of domestic savings, brought depth to the capital market, and helped stabilize financial flows. By 1995, almost 15 years after the crisis first surfaced, Chile had one of the healthiest and most resilient banking systems in the region. This explains why the country was not harmed by fallout from the Mexican tequila crisis of that year.

Today, the Chilean banking industry is among the largest in Latin America, with bank assets accounting for 97 percent of GDP.² According to a February 2001 World Bank survey (Barth, Caprio and Levine, 2001), in most respects, the Chilean banking system and its regulatory regime are in line with Latin American averages. Concentration in the banking industry is about average, with the five largest banks ac-

² For the purpose of this chapter, Panama is excluded from the analysis due to its offshore banking activity.

counting for 59 percent of total assets. Government-owned financial institutions hold 12 percent of bank assets and foreign-owned banks account for 32 percent, a structure similar to Chile's neighbors. Fifty percent of its 10 largest banks are rated by international rating agencies, again matching the regional average. The effective capital ratio is 13 percent, compared to a minimum regulatory requirement of 8 percent; both figures line up with regional norms. Even levels on the overall index of supervisory power and the prompt-corrective-action index are similar to those of other Latin American countries. Where Chile stands out, however, is the way in which it combines top-down regulatory supervision with bottom-up market-based incentives. Both its score in the index of overall bank activities and ownership restrictiveness and its private sector monitoring index rank among the highest in the region. Furthermore, its regulatory framework is among the most transparent in the developing world, achieved with just three professional supervisors per bank.

Argentina: A Success Story that Turned Sour

Argentina also suffered a major banking crisis in 1982 that cost 13 percent of annual GDP (Rojas Suárez and Weisbrod, 1996). In the wake of the crisis, the country embarked on a course of wide-ranging macroeconomic and bank regulatory reforms. Bank reforms promoted privatization, financial liberalization, free entry, limited safety net support, and a mix of regulatory and market discipline to ensure stable growth in the banking system. Both the economy and the banks recovered.

Unlike Chile, Argentina was unable to escape the effect of the 1995 Mexican tequila crisis, and simultaneous currency and banking crises triggered heavy runs on banks. Macroeconomic imbalances were to blame: a current account deficit, low levels of domestic savings, and a deteriorating fiscal position. Furthermore, provincial banks were not only distressed but they also kept on financing the fiscal deficits of the provincial governments. Such conditions engendered public distrust of Argentine banks. Nonetheless, the government's response to the crisis contained the macroeconomic impact. Crisis management was quick, consistent, and comprehensive. The government avoided discretionary treatment of distressed banks, allowed the closure of banks, and redoubled regulatory efforts to enhance market discipline. The Argentine banking system was later put to the test and proved to be quite resilient during the Asian, Russian and Brazilian crises of the late 1990s.

The recent history of deposit insurance in Argentina provides some interesting lessons. Before 1991, the Argentine banking system operated under a regime of op-

tional, explicit deposit insurance, coupled with extensive implicit deposit insurance (central bank willingness to aid failing banks). This system was abolished in 1991–2, and deposit insurance was repealed. The government and the central bank then tried to convince actors in financial markets that they would not, under any circumstances, rescue a failing bank, and the market responded by developing private arrangements (lines of credit) to help banks cope in times of difficulty. In 1995, with elections pending and in response to the tequila crisis, the government decided to re-institute deposit insurance in an effort to stave off an all-out bank panic. However, the new system differed radically from the old one. The new deposit insurance was made compulsory and was entirely funded by banks through risk-based premiums. Coverage for depositors was limited and incentives for depositors and bankers were aligned.

Prior to the 2002 crisis, the size of the Argentine banking system was 54 percent of GDP, close to the Latin American average, and several characteristics gave the impression that the Argentine banking system was stronger than turned out to be the case. The five largest banks accounted for 48 percent of total bank assets, one of the lowest market concentrations in Latin America (Barth, Caprio and Levine, 2001). Moreover, government-owned banks held 30 percent of total assets and foreign-owned banks held 49 percent. This market structure limited the lobbying power of the banking industry. The Argentine index of overall regulatory restrictiveness was the lowest in the region and the private monitoring index was among the highest. All of its 10 largest banks were rated by international rating agencies. Transparency in the Argentine regulatory framework was also among the highest in the developing world alongside Chile's (World Bank, 1998). Market discipline seemed to have had a significant role in encouraging banks either to limit asset risk or lower their leverage. The capital adequacy ratio before the crisis was 16 percent while the regulatory requirement was 11.5 percent, placing Argentina among countries with the highest capital positions in the developing world and asset quality was perceived to be high. According to the World Bank survey, Argentine authorities have strong and prompt corrective action powers as well as high forbearance discretion. The supervisory agency was getting the job done with 2.4 professional supervisors per bank.

However, as a premonition for what was waiting to happen, Argentina was listed among the countries providing the least protection to creditors' rights by an Inter-American Development Bank (IDB) study (Galindo and Micco 2001). It ranked together with Peru, Paraguay and Colombia in the group of countries in which the legal system provided the lowest protection to the financial system from the risk that borrowers default. All four countries scored zero on the Effective Protection of Creditors' Rights Index. In 2002, Argentina moved further in the wrong direction. In the

midst of the crisis, Congress passed legislation that temporarily suspended all legal actions by creditors to collect on their debts.

At the time when the 2002 crisis burst, Argentina's banking system was well regulated and supervised. Banks were liquid and well capitalized and could have survived a down cycle. In fact, they had been able to withstand a severe and prolonged recession that had began in 1998. However, the tide began to change when the country's credit-worthiness plunged in 2001 and the viability of its fixed exchange rate system came increasingly into question. The loss of policy credibility hurt bank assets. The banks were heavily invested in government bonds ('forced' on them by the government), which lost market value. Their loan portfolio was damaged because of the scale of their exposure to dollar-denominated loans extended to borrowers with peso-denominated incomes. In turn, loss of confidence in the banks caused massive runs, especially in the two major publicly-owned banks which accounted for a significant portion of the system's deposit base and which were directly affected by mounting fiscal problems at both the federal and provincial levels. In addition, the compulsory sale of government bonds to pension funds contributed to the fall in private bank deposits as pension funds financed the purchase of government bonds by withdrawing their deposits in the financial system.

The government first reacted by limiting monthly cash withdrawals, shortly after imposing a deposit freeze. The monetary overhang (the excess of checking and savings account balances over the level that would be consistent with the underlying transactional needs) turned crisis management into a nightmare. On the exchange rate side, the convertibility system gave way to a sharp devaluation followed by an asymmetric "pesification" of bank assets and liabilities that wiped out the entire capital of the banking system, and introduced a significant foreign exchange exposure into banks' balance sheets as foreign obligations and lines of credit remained denominated in their currency of origin.

Good regulation and supervision strengthens banks, but no regulatory or supervisory framework could have protected the Argentine banks from insolvency in this type of situation. The liquidity and solvency crisis of 2002 was largely attributable to government policy actions undertaken in the context of a severe macroeconomic crisis, associated with a loss of access to international capital markets. The payment system collapsed and the economy imploded. Along the way, several foreign banks operating in Argentina refused to recapitalize their Argentine operations and chose to leave. They thus showed that although they may have stronger muscles than others, their priority is to protect shareholder value and are unwilling to throw good money after the bad. A severe political crisis only made things worse.

Rebuilding confidence in the Argentine banking system requires restoring an adequate liquidity and capital base and restoring a functioning payment system by lifting restrictions on cash withdrawals. Furthermore, the central bank needs to regain control over monetary policy, the fiscal crisis must be brought under control, and public banks must either be restructured or privatized. There are several ways out of the crisis, but the prerequisite for any effective solution is a stable and enabling political environment. This may remain elusive for some time to come.

Work in Progress: Two Other Cases

Mexico

The Mexican banking crisis that burst in 1994 cost Mexicans a sum equal to 20 percent of their country's GDP (Honohan and Klingebiel, 2000). Even today, substantial assets are still in the hands of the Institute for the Protection of Bank Savings (IPAB), Mexico's deposit insurance and banking resolution agency, posing a major challenge for asset management. The handling of the crisis in Mexico was controversial, involving a massive bailout of banks and depositors. Subsequently, the banking system experienced substantial consolidation, and today over 80 percent of the banking system is either fully-owned or controlled by foreign banks. This seems to have taken care of systemic risk. Explicit deposit insurance has recently replaced the expensive implicit pre-crisis coverage. It still needs to take root and its effectiveness has yet to be put to the test. Regulation today is more risk-focused and supervisors are better prepared to enforce it. The authorities also have greater powers than previously to resolve problem banks. However, with 11.5 professional supervisors per bank, the highest ratio in Latin America after Honduras (12), they still face major organizational challenges.

The magnitude of Mexico's past banking troubles explains the small size of its current financial market. Bank assets measure a mere 30 percent of GDP, one of the lowest proportions in Latin America. At the same time, as mentioned above, the market is highly concentrated. Furthermore, Mexico's combination of public and private sector monitoring of the financial system differs greatly from that of Argentina or Chile. Mexico's ranking in the index of overall restrictiveness is higher than Chile's and almost double Argentina's, but its ranking in the private sector monitoring index is on the low side. Mexico's minimum capital adequacy ratio is 8 percent and (at the time of writing) the actual reported ratio was 12.5 percent.

Tight credit supply today constrains financial market activities in Mexico. This scarcity has two causes. One is that banks are now more risk-averse. Private borrower default risk rose in the wake of the crisis and the rate at which banks are willing to lend is too high for market conditions. Second, the legal system does not adequately protect banks from the risk of default. According to the IDB study, on a scale from 0 to 1, Mexico's Index of Effective Protection of Creditors' Rights is 0.1. Inadequate bankruptcy legislation is largely to blame for this; company assets are not adequately protected from insiders and banks find it difficult to foreclose on collateral.

Venezuela

The factors usually cited as potential ingredients for a banking crisis can all be found in the Venezuelan banking crisis of 1994: weak regulation and supervision, poor corporate governance, bad banking, skewed economic incentives, and moral hazard. Prior to the crisis, these factors had been silently undermining bank solvency. However, macroeconomic volatility and external shocks also played a role, Venezuela has one of the most volatile economies in Latin America, while the political turbulence that followed the failed military coup of February 1992 helped accelerate the crisis and explains its timing.

The total cost of the Venezuelan banking crisis came to 11 percent of GDP (Krivoy, 2000). Delays and inconsistent crisis management policies exacted a heavy toll. Clumsy closure of banks prompted violent contagion effects. Over an 18-month period, crisis management lurched forward through a series of disjointed, improvised measures. As a result, the crisis lasted longer, cost more, and destroyed more banks than might otherwise have been the case. Furthermore, in response to intense political pressure, Congress expanded the official safety net to include uninsured bank liabilities, thereby more than doubling the size of the financial burden assumed by the government.

Today, Venezuela has the smallest financial sector in the region, with total bank assets accounting for only 19 percent of GDP. In part, this is explained by Venezuela's dual economy. Oil accounts for 23 percent of GDP and the public sector and the oil industry together represent almost 40 percent. The banking industry mainly channels domestic deposits into local private investment, thus its market is limited largely to non-oil activities. Such activities account for only 60 percent of GDP. In addition, since 1994, lending activity has been slow, both because banks have become more risk averse and demand for loans has been sluggish. The Venezuelan banking system has also suffered the consequence of persistent demonetization since 1992.

Concentration in the Venezuelan banking ranks in the upper half in the World Bank Survey's sample, with the five largest banks holding 64 percent of total assets. The

banking system is largely in private hands, and government-owned banks account for only 5 percent of total assets. Foreign-owned banks hold 40 percent of total assets. The minimum risk-weighted capital ratio is 10 percent and the actual ratio is 14 percent. Although prudential regulations have been implemented since 1994 and supervisors now have more powers than previously to deal with failing banks, enforcement needs improvement. Key regulatory powers vested in the Office of the Superintendent of Banks by the 1994 Banking Law were transferred to the Financial Emergency Board, a political body created at the time of the crisis. This body is still in force, albeit under a different name. The deposit insurance system is weak, and both the overall regulatory restrictiveness index and the private sector monitoring index rank Venezuela low. Only 40 percent of the 10 largest banks are rated by international agencies. The dearth of skilled people to conduct risk-focused banking supervision limits oversight effectiveness, and the Venezuelan supervisory agency has only one professional supervisor per bank. Together with El Salvador, this is the lowest ratio in the region. Budget was a major problem until 1994, but today contributions from the financial institutions cover the cost of supervision.

Venezuela and El Salvador are the only two Latin American countries in the World Bank survey where discretion on regulatory forbearance is zero. This ties the hands of supervisors who handle problem cases, thereby making crisis resolution more difficult to achieve. Although some may argue that this lack of forbearance power makes bank resolution fairer and more transparent, in fact it hampers the process. The government does not give up flexibility to deal with bank failures. Rules end up concentrating regulatory power in the hands of politicians, instead of giving skilled professional supervisors the leeway they need to do their job.

The economic performance of the Venezuelan banking system is currently dwindling. Margins are being compressed both by competition and political pressures on interest rates. Operational costs are being brought down too slowly, and non-performing loans are on the rise due to a combination of volatility and plummeting growth. Directed lending rules are high on the agendas for political leaders which, if implemented, would pose a further threat to the health of the banking sector.

Looking Ahead: Some Pointers to Policy

The current wave of reforms in national bank supervision in Latin America is a by-product of the internationalization of financial markets. Market participants are free to choose and must assess counterparty risk in order to price transactions accordingly. Countries with weak banks and ineffective systems of supervision simply lose access to

international capital unless they are willing to pay very high rates for it. Therefore, the more dependent a country is on international financing, the stronger the incentives are for governments and bankers to improve bank supervision and comply with international regulatory standards.

What needs to be done to strengthen banking systems is by now widely known. First, official monitoring of banks has to be strengthened. This means empowering supervisors by giving them the authority and resources they need to be effective, and to shield them from day-to-day political pressures. Public sector banks likewise need to be placed under the authority of the bank supervisor and subjected to just the same solvency, liquidity, and disclosure rules as private banks. De facto, and sometimes even de jure, forbearance turns them into the cancer that undermines the health of the financial system and the whole economy. Latin American culture and traditions favor top-down economic management styles, so in this region it may be easier to sell the idea of strengthening supervision than putting in place bottom-up incentive systems to make bankers more responsible for bank health. Still, public supervision alone cannot ensure sound banking. Also required are solid corporate governance and market discipline. So these are the second and third rules. They mean that governments must have the political will to convince shareholders that they will be held responsible for their banks and persuade all stakeholders in the financial system that banks can fail and that they will be allowed to do so.

The three proactive strategies that are crucial for the health of Latin American banking systems are: (i) strong and independent bank supervision to make regulation work, (ii) powerful corporate governance to strengthen banks from within, and (iii) proper disclosure to improve market surveillance.

Bank Supervision

Effective financial supervision requires strong and independent supervisors, shielded from political pressures by means of a clear mandate, legal protection, and the political support needed to do their job. The Basel Core Banking Principles begin by stating the importance of “operational independence” for banking supervisors in all countries of the world. This is a complex notion, and the nuances that country-specific circumstances may bring to the problem are as varied as each country’s historical, political, and cultural realities. When trying to determine whether supervisors are independent or not it is easy to identify the clear-cut black-and-white cases; what is more difficult is to separate out the “more independent” from the “not so independent” in the varying tones of gray in between.

Making supervisors more independent requires, first of all, a helpful legal framework. Bank supervisors are increasingly called upon to exercise judgment and to be proactive, rather than to just passively apply predetermined rules. Therefore, their mandate must be clearly spelled out in law so that supervisors are accountable, can protect citizens from bureaucratic abuse and protect themselves from harassment from vested interests. The specifics of their working environment will indicate whether a particular team of supervisors is able to enforce decisions in such a fair and timely fashion so as to promote sound banking. Can supervisors work without fear of dismissal for merely doing their job? Do their contracts span pre-specified time periods? Is their removal by an incoming administration prohibited? Is their agency budget relatively secure and autonomous of fluctuating political circumstances? To strengthen their authority, clearly-defined supervisory powers and rules that also protect their staff from improper political influence are needed. Without such powers and rules, bankers will not respect supervisors. If supervisors lack the authority to enforce laws, levy fines, and (responsibly) take people to court, it will be impossible to persuade bankers to follow the rules.

However, independence has to go hand-in-hand with accountability. Regulators need to be accountable both to the executive and legislative branches of government, because social checks and balances rest on accountability. How well the system of checks and balances actually works in practice depends on the strength of democratic institutions and the overall transparency of public decision-making. Strengthening democratic governance, therefore, works in tandem with enhancing accountability.

Corporate Governance

Improving corporate governance is the path to strengthening banks from within. The private sector must become a powerful ally in the quest for banking safety and soundness. This is especially important in Latin America, where many banks are either closely held by individuals or families and run by submissive boards and managers, or are owned by the government and run by political appointees prone to caving in under political pressure. In such instances, it may be hard to protect minority shareholder rights. The board of directors may be simply a rubber-stamping body with internal controls more of a ritual than an effective check on managers. Latin American experience has shown how weak corporate governance in all of these institutions results in poor lending practices, loan concentration, connected lending, significant term mismatch or currency mismatch, careless collateral management, and poor loan recovery. Poor risk management obscures the vision of directors and managers. Ineffective internal con-

trols can just serve to conceal problems, while poor disclosure rules may block investor access to timely and reliable information. Even the best of regulatory practices is ineffective where corporate governance is weak.

Corporate governance improves when laws and regulations clearly define the responsibilities and liability of directors, and establish mechanisms for making them accountable. Boards of directors must take responsibility for bank decisions, spell out bank policies and make sure they are adhered to. Dealing head-on with conflicts of interest and making controlling shareholders, directors, and managers fully accountable leads to stronger banks that operate under more prudent policies. And effectively protecting the rights of outside investors and minority shareholders helps these to monitor bank activities.

Implementing proper rules of corporate governance can be difficult, especially in countries where bank failures usually end up in criminal proceedings. First, supervisors must have real powers to force banks to remove incompetent managers and directors, along with irresponsible or uncooperative shareholders. When asked, supervisors often say that one of the single most effective steps towards resolving a bank's problems is replacing its managers and board of directors. They ranked this a higher priority even than stripping shareholders of their control over banks (Financial Stability Institute, 2000). If supervisors suspect fraud, they must be able to make their case and bring wrongdoers before the courts. Independent and well-qualified judges are also needed in such cases. So efforts to strengthen Latin American judicial systems at the same time help to modernize financial regulatory systems. Where supervisors lack the power to remove managers and directors, no one will take any notice of them. Still, once again, they must exercise their authority prudently, and be able to distinguish between poor business decisions, negligence and non-compliance by banks with their own risk-management policies. To do this well and to have standing in the banking community, supervisors must know as much as bankers do about banking and have a clear understanding of the inner workings of any particular troubled bank.

Disclosure

In market surveillance, the crucial word is disclosure. As to the key questions what should be disclosed and when, the answer is the timely disclose of all relevant information about a bank's asset quality, risk exposure, profitability, and net worth. However, if the aim is to rein in connected lending and weak corporate governance, we need to go further. Market actors need to be informed about beneficial ownership in banks. They need to know who the real stakeholders and the real decision makers are, and to

be able to access bank risk-management policies. In countries where connected loans are allowed, market actors must be informed about the amount of each loan and its performance. Reliable risk-focused external auditor reports need be made public. Rules for compliance and disclosure for government-owned banks must be the same as those for private banks, and public-sector banks should not be given an unfair competitive advantages or be in any way shielded from the public eye.

External ratings undertaken by credible and accountable rating agencies help the market to monitor bank risk. In Latin America, however, the ratings industry is weak and capital markets are underdeveloped, so there is little incentive for companies to submit to being rated. Furthermore, conflicts of interest can bias ratings, since existing regulations do not provide adequate oversight of ratings agencies. The ability of external rating agencies to play this role is therefore reduced. Perhaps a more immediately useful step is to develop indicators on market perception of bank risk. Sophisticated depositors know well enough what it means when a bank begins to pay well over market rates. The more skilled they become in responding to such signals, the lower the cost of bank failure is likely to be. So regulators can enhance such signaling devices, both from the deposit and inter-bank markets, to communicate market perceptions of bank risk. Subordinated debt indicators, however, are not useful in most Latin American countries, because capital markets are so poorly developed.

Credit Crunch and the Risks to Long-term Financial Stability

What is the definition of a credit crunch, a term one often hears during times of economic distress? A credit crunch can be defined as a situation in which the supply of credit is restricted below the range usually identified with prevailing market interest rates and the profitability of investment projects. The key factors leading to a credit crunch can thus be divided into two broad categories: external factors (mainly stemming from sudden interruptions in capital inflows) and domestic factors (mainly associated with the regulatory framework and policy responses by governments). Concern about credit crunch surfaces at times of economic distress and can hinder business development and create social tensions.

Today's scarce and costly credit in Latin America is due in part to the decline in capital flows to the region. Paradoxically, it is the unfortunate by-product of efforts to enhance bank regulations and push for a stronger banking system and better quality assets. As banks become more risk averse, they pull back sharply on credit extended to those borrowers deemed less creditworthy. Prudential regulations thus exert a pro-

cyclical influence, deepening crises when a country suffers a shock. This is especially noticeable in markets where foreign banks are significant players and the proportion of banks operating under the new rules rises abruptly. Because large international banks are often better managed and more widely diversified, they exert a positive influence on domestic financial markets by introducing competition and making the financial system more efficient, less vulnerable to pressures from government and more able to deal with a crisis. However, their presence also changes credit allocation. Foreign banks tend to be much more risk-averse than their domestic competitors in Latin America, so less credit-worthy borrowers now find it more difficult to get loans.

Bolivia's recent credit crunch problem illustrates the point (Jemio, 2001). From 1997 to 1999, Bolivia suffered a double external shock, Brazil underwent a currency crisis and prices for Bolivia's main exports (zinc, gold and soybeans) declined sharply. The credit boom of 1997–98 thus turned into a credit crunch in 1999, and this persisted into 2000. A decline in deposits and capital outflows only partly explain the crunch; the full story requires a look at microeconomic factors. First, banks increased liquidity in response to a crisis environment. Second, stricter loan classification and provisioning rules, coupled with deteriorating borrower repayment capacity, made banks extra cautious about granting new loans, and as loan quality deteriorated higher provisioning requirements began to absorb an increasing proportion of bank resources. Third, new rules on credit risk assessment meant that greater importance was placed on cash flow than on collateral. Although these are good rules, they slowed the granting of new loans since in times of crisis corporate cash flows become more volatile, making borrowers less creditworthy. Fourth, risk-weighted capital adequacy rules induced banks wishing to show stronger capital positions to restrict lending and invest in risk-free government bonds. Fifth, foreign banks assumed a greater preponderance in Bolivian banking. Foreign banks use global rather than domestic parameters to manage risk exposure so, in response to the Brazilian crisis, headquarters directed their Bolivian operators to reduce market share in Bolivia and thus lower their exposure to Latin American risk.

The process of modernizing banking systems in Latin America, then, has reallocated credit flows. This not only has a direct social cost, but also carries with it the risk that government may react by imposing directed lending rules or credit amnesties. Such obsolete policies have fallen into disuse in recent years, but politicians may be tempted to resurrect them. This is an especially real danger in countries where populist policies are on the rise and political leaders are emerging who are ideologically biased against the banking industry. So besides a direct social cost, a credit crunch that befalls a country going through a transition to new rules and more competition in the banking sector carries with it the danger of a political backlash against prudent supervision.

At issue is not the entry of foreign banks or the region's need for prudential regulation. Foreign banks exert a positive influence in the markets and they are here to stay, provided that there is an enabling business climate and government policies allow for reasonable profits. Prudential regulations must not only be kept but strengthened, and strictly enforced. However, the impact of these new forces on domestic financial systems in the region can and should be moderated. This can be done in a number of ways.

First, governments can establish laws to improve the protection of creditors' rights. This may help banks mitigate risks, so encouraging them to lend more. New laws are needed to ease the use and appropriation of bank collateral, free parties to fix terms and conditions of credit contracts, set up bankruptcy rules that effectively protect company assets from insiders, and define more narrowly the circumstances under which companies can declare reorganization or bankruptcy. The possibility of amnesty must simply be removed from the political agenda. This may go against the wishes of strong political constituencies and spark emotional or ideological responses, but it is necessary if banking systems are to be strengthened. Informal markets in Latin America are free and competitive, and usurers can freely foreclose collateral. If governments want to expand the scope for efficient financial intermediation and channel credit to wider segments of the population at lower cost, then creditors in the formal segment of our economies must also have full rights.

Second, a strong second-tier of public sector financial institutions can be developed to make funds flow more efficiently to people who are underserved. Strong microfinance institutions and well-designed financial services for rural and urban small and medium-sized firms and individuals would fill important gaps in our economies and help put the brakes on political initiatives to establish mandatory portfolio rules.

Third, prudential regulation can be made less pro-cyclical, something that is especially important in Latin America's volatile shock-prone economies. International agency discussions on capital adequacy and provisioning rules should include topics such as cycles, shocks and their transmission to the banking sector. These need to take into account the challenges facing those countries that are just beginning to implement prudential rules as they come out of systemic crises, a stage at which they are also more susceptible to external shocks. Under current world economic conditions, this is particularly relevant.

Risk valuation and provisioning requirements are especially critical. The push to comply with stricter capital requirements gives banks an incentive to invest in government bonds that appear, in some countries, to be low or no-risk and are classified as zero-risk assets. However, they carry market risk, as the extreme volatility of the sec-

ondary market for emerging market sovereign debt clearly demonstrates. Their price is also subject to political risk. Cash-strapped governments in many countries easily get away with shirking their debt obligations to domestic banks. When governments run deficits, they like to raise funds by inducing banks to invest in government bonds, even though that may crowd out the private sector. In being overexposed to government debt, banks remain extremely vulnerable, even if capital ratios make them look good on the surface. Fiscal discipline is a precondition for prudential regulation aimed at reducing bank exposure to government debt. Reckless governments will not even consider such regulatory reforms.

Provisioning requirements are pro-cyclical since higher provisions are called when an economy goes down and non performing loans rise. This is especially significant in volatile economies. Dynamic provisioning might help solve this problem. Furthermore, provisioning requirements are usually backward looking. They are based on past performance of loans and fail properly to take into account forward-looking criteria, such as exposure to exchange rate risk. Latin American countries have significantly increased regulatory capital requirements and, throughout the region, capital ratios are significantly above the minimum. However, adoption of proper provisioning rules is less universal and less well-known. Latin American regulators, multilateral institutions, and international standard-setting bodies (in particular the Basel Committee on Banking Supervision) need to join forces to conduct research on the potential combined effects of capital adequacy rules, generic and specific loan-loss provisions, tax treatment of such provisions, and rules protecting minority bank shareholders in post-crisis volatile economies.

The challenge, then, for Latin America and emerging markets more generally, is to achieve two seemingly contradictory objectives: more lending and greater prudence.

References

- Barth, J.R., G. Caprio Jr. and R. Levine. 2001. *The Regulation and Supervision of Banks Around the World. A New Database*. Washington, D.C.: World Bank. www.worldbank.org/research/projects/bank_regulations.htm
- Calomiris, C. and A. Powell. 2000. Can Emerging Market Bank Regulators Establish Credible Discipline? The Case of Argentina. Deposit Insurance Conference, 8–9 June, Washington, D.C.
- Financial Stability Institute. 2000. *Survey on Crisis Management and Bank Resolution*. December 2000. BIS. Basle, Switzerland. Mimeo.
- Galindo, A., and A. Micco. 2001. The Rights of the Financial System. In Inter-American Development Bank. *Latin American Economic Policies*. Vol 13. Washington, D.C.: Inter-American Development Bank.
- Honohan, P. and D. Klingebiel. 2000. Controlling Fiscal Cost of Banking Crises. Paper presented at the Deposit Insurance Conference, 8–9 June, 2000, World Bank, Washington, D.C.
- Jemio, L.C. 2001. Crunch de crédito en el sistema financiero boliviano. Paper presented at the Policy Workshop, Corporación Andina de Fomento.
- Krivoy, R. 2000. *Collapse: The Venezuelan Banking Crisis of 1994*. Washington, D.C. The Group of Thirty.
- Rojas-Suárez, L. and S.R. Weisbrod. 1996. Banking Crises in Latin America: Experience and Issues. In *Banking Crises in Latin America*, eds. R. Hausman and L. Rojas-Suárez. Washington, D.C.: Inter-American Development Bank.
- World Bank. 1998. *Argentine Financial Sector Review (Report No. 17864-AR)*. Washington, D.C.: World Bank.

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PART III

MARKET DISCIPLINE

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CHAPTER 6

Japanese Financial Deregulation and Market Discipline

Mitsuhiro Fukao

A consequence of prolonged economic weakness and declining asset prices in the 1990s, the Japanese financial sector confronted an enormous problem of bad loans. When a few financial institutions failed in 1996, the Deposit Insurance Law was amended to allow the Deposit Insurance Corporation (DIC) to protect fully all deposits up until March 2001. In spite of this uncommonly extensive protection of deposits, public concern about the soundness of the financial system became intense after the successive failures of Sanyo Securities, Hokkaido Takushoku Bank, and Yamaichi Securities in late 1997.

Depositors and investors in bank debentures issued by the long-term credit banks imposed some market discipline. There was a run on the deposits of banks with low credit ratings because depositors feared that they would be unable to withdraw their deposits quickly if the banks were closed. The Long-term Credit Bank (LTCB) and the Nippon Credit Bank (NCB) faced a rush to redeem their debentures early because these were not covered explicitly by the deposit insurance system. Stock prices of weaker banks fell sharply and caused mild bank runs in some cases.

In view of the severity of the problem, the government and politicians finally moved. The government puts up 30 trillion yen of public money to pay for the protection of depositors, injects capital into weak banks, and achieves the resolution of failed financial institutions. An initial capital injection of 1.8 trillion yen into major banks in the spring of 1998 was too small relative to the size of the problem. In the summer of 1998, the stock price of the LTCB fell sharply, when Sumitomo Trust and Banking effectively refused a merger with the LTCB. In October 1998, in this disturbed climate just before the LTCB went bankrupt, the Financial Revitalization Act and the Bank Recapitalization Act were enacted.

Under the Bank Recapitalization Act, 7.5 trillion yen in capital was injected into 15 major banks at the end of March 1999. Unlike the previous year's attempt, the

program was better designed and succeeded in eliminating the persistent 'Japan premium' that emerged in late 1997. The gradual recovery of the Japanese economy and the announcements of large mergers amongst major banks also created public alarm about the financial system.

Although the banks issued large quantities of preferred shares to the government, thus diluting the ownership of existing shareholders, there was no public outcry. Despite the near collapse of the major banks, the shareholder meetings that approved the issuance of preferred shares to the government were all calm. No major shareholders objected, mainly because the management of the major banks was well protected by extensive cross shareholdings with friendly life insurance and industrial companies. While healthy industrial companies sold badly performing bank shares, weaker companies bought bank shares so as to be protected by the banks. As we shall see, the corporate governance structure of major Japanese life insurance companies is weak because they are organized as mutual companies in which representative policyholders are effectively chosen by management.

The Japanese financial system still faces a number of problems. Firstly, since the bursting of the bubble, its profit margins are too small to cover the increased default risk. Many firms have not overcome their debt overhang and survive only with the help of their banks. Banks have not succeeded in increasing their lending margins under strong competitive pressure from government-backed financial institutions. They are also facing strong pressures from the Financial Services Authority (FSA) to increase lending to small and medium-sized firms. This is because banks are obliged to increase such lending as a condition for the government's 1999 capital injection. As a result, banks cannot raise capital by promising a good return to investors. To allow the capital market to function as the source of the recapitalization of the Japanese banking sector, it is necessary to remove market distortions created by the government-backed financial institutions and FSA requirements on new lending to small and medium-sized companies. Only strong market discipline on banks exerted by shareholders will allow to overcome the bad loan problem.

Secondly, banks still have excessive stock investments. Although their balance sheets as of the end of March 2002 showed they had 30.2 trillion yen in capital, this figure is inflated by 10.7 trillion yen in deferred tax assets (present value of future tax shelter) and 7.2 trillion yen from the government's capital injection. Since the banks have committed themselves to repaying the capital injection, the remaining net capital is only 12.3 trillion yen. Their permanent capital is small compared to their stock portfolio of 31.3 trillion yen and the 67.8 trillion yen in problem loans. The cross-holdings of shares between banks and other companies need to be unwound because of their negative implications for market discipline.

Thirdly, the government guarantee of most banking sector liabilities has yet to be removed. Deposit protection has weakened market discipline. As soon as the financial system is stabilized, risk-adjusted deposit insurance premiums have to be introduced so as to strengthen market discipline on banks. Also, the scale of the huge postal savings system fully guaranteed by the government has to be taken into account. In order to remove the market distortion introduced by the postal savings system and to achieve a level playing field among financial institutions, this system has to be privatized.

Finally, the life insurance sector has yet to be stabilized, its weakness exemplified by the failure of Chiyoda Life and Kyoei Life in 2000. In the 1980s and early 1990s, life insurance companies promised high minimum returns on their long-lasting life insurance and annuity policies. Since the duration of their assets and liabilities were not matched, life insurers faced an enormous negative yield gap when Japan experienced very low nominal interest rates in the late 1990s. Life insurance policies are an important savings instrument in Japan, i.e., the sector controls about 160 trillion yen in assets. Moreover, banks provided subordinated credit and surplus notes to mutual life insurance companies that amounted to 2.3 trillion yen as of the end of March 2000. On the other hand, life insurance companies provided 6.7 trillion yen in subordinated credit to the banks and own 7.7 trillion yen in bank stock. Given this double gearing between the life insurance companies and the banks, the systemic risk of Japanese financial system remains high and capital markets do not provide proper discipline over the management of banks.

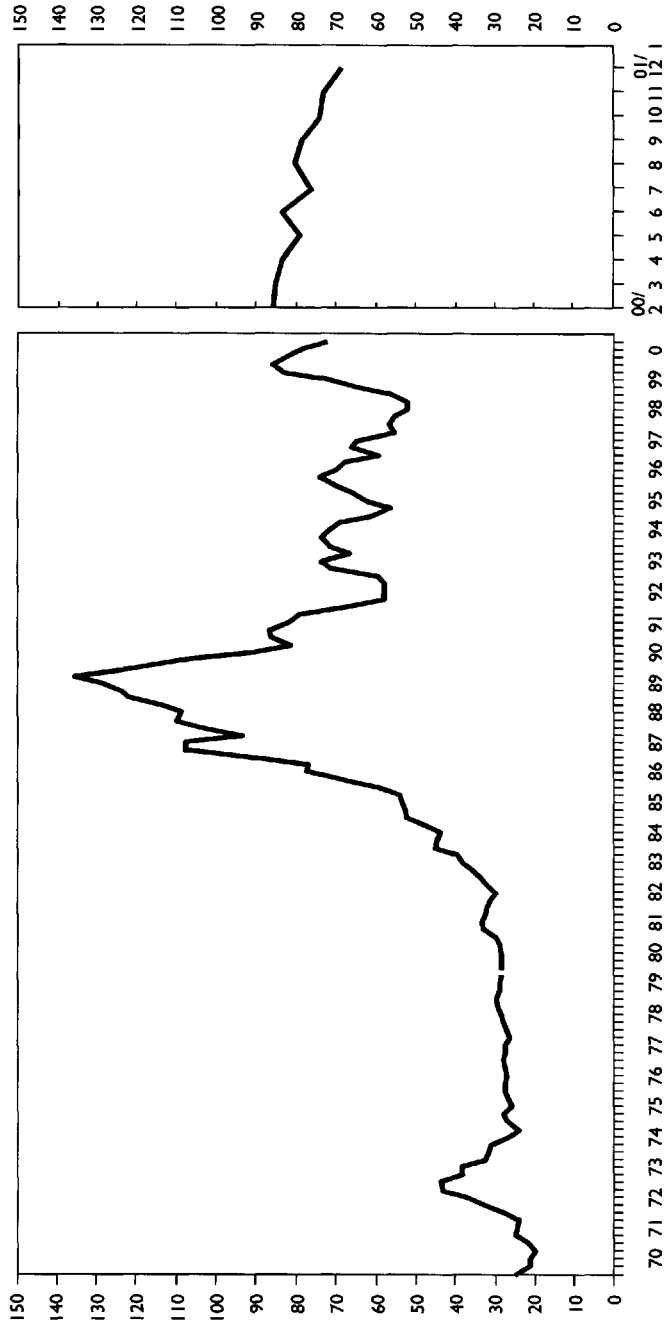
The Real Estate Bubble and the Financial Crisis

In this section, we briefly review what happened with the asset price bubble and its consequences for the financial crisis of the 1990s.

Origins of the Problem

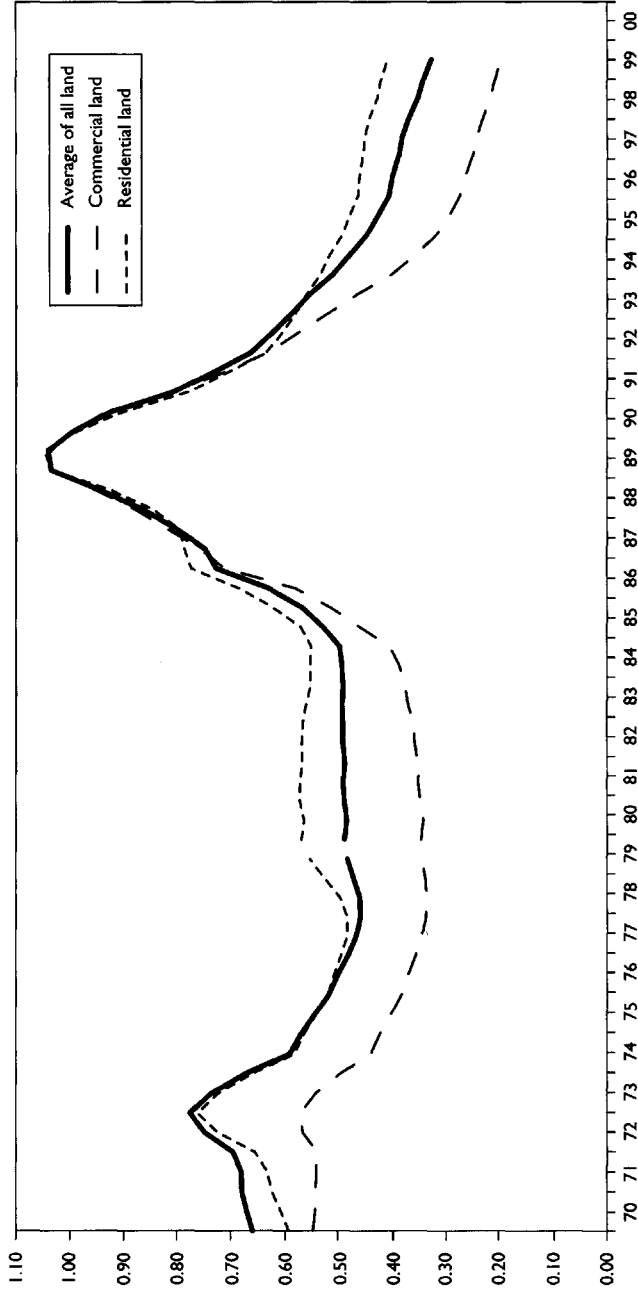
To examine the origins of the Japanese financial crisis we first require a brief review of the magnitude of the 1980s asset price bubble. From the early 1950s to the early 1980s, the market value of the stocks on the Tokyo Stock Exchange 1st as a ratio to nominal GDP had been between 20 and 40 percent (Figure 6.1). However, stock prices started to rise in the mid-1980s, with the ratio reaching 140 percent by the end of 1989. After the bursting of the bubble, the ratio fell to the 50–80 percent range. In relation to the evolution of nominal GDP, residential land prices almost doubled in the second half of the 1980s and commercial land prices tripled (Figure 6.2). After the bubble, the fall in

Figure 6.1. Total Market Value of Stocks on the Tokyo Stock Exchange 1st Section
(Percent of nominal GDP)



Source: Bank of Japan CD-ROM, 2000.

Figure 6.2. Land Price Indexes of Urban Areas (as a Ratio of Nominal GDP Index; Percent; Semi-annual)



Source: Bank of Japan CD-ROM, 2000.

Notes:

1. Land price indexes of urban areas (six large cities, 2nd half of fiscal year 1989 < end March 1990 > = 100) / Nominal GDP index (2nd half of fiscal year 1989 = 100)
2. Data until 2nd half of fiscal year 1979: 1968 System of National Accounts (68SNA) basis.
3. Data from 1st half of fiscal year 1980: 1993 System of National Accounts (93SNA) basis.

the commercial land price index was extremely sharp, dropping to less than 20 percent of its peak level relative to nominal GDP.

The asset price bubble was created by the following three factors: loose monetary policy, tax distortions, and financial deregulation.¹ Asset price inflation often occurs in countries that exhibit these three factors. The Japanese case was not a singular phenomenon. Yet the size of the asset price bubble in Japan was enormous and the impact of its bursting extremely severe.

In the late 1980s, Japanese monetary policy was clearly too loose. Policy makers put too much emphasis on stabilizing the appreciating yen and too little on stabilizing asset price inflation and overheating. The Bank of Japan (BoJ) tried to tighten monetary policy in late 1987 to counter overheating and rising asset prices. However, the October fall in stock prices on “Black Monday” in the United States thwarted this. The Bank did not raise its discount rate until May 1989, thus failing to stop asset price inflation at an early stage. Stock prices defied the intention of the BoJ and continued to rise until the end of 1989. Land prices peaked in early 1990. Had the Bank acted in late 1987 or early 1988, it could have alleviated the asset price deflation of the 1990s.

Until the bubble burst, the Japanese tax system encouraged debt financed real-estate investment. Since tax distortions on real-estate investment cover a wide spectrum, only two major factors are illustrated here:

1. The marginal rate of inheritance tax was very high in Japan. It was 75 percent over 500 million yen until 1988 and it is still 70 percent over 2 billion yen. However, the appraisal of land for taxation purposes used to be about one-half of the market value and the debt was considered at face value during the bubble period. As a result, wealthy individuals borrowed money to buy land so as to reduce exposure to inheritance tax.
2. Capital gains on land are not taxed until the time of its sale, and interest rate payments can be deducted from taxable income for companies and individuals investing in condominiums and offices. Moreover, the effective property tax rate on land was very low (about 0.1 percent of the market value) until the early 1990s. As a result, a large number of real estate investments were carried out for tax planning purposes.

¹ See Shigemitsu (1995) and the Bank for International Settlements (1993) for the causes of asset price inflation in major countries.

As far as financial deregulation is concerned, the financial system in Japan was liberalized very gradually. The driving forces were the massive issuance of government bonds in the late 1970s and the increasing internationalization of financial markets. Ceilings on bank deposit interest rates were liberalized gradually from large-denomination to smaller ones from 1985 to 1994. Restrictions on the issuance of corporate bonds were gradually liberalized during the 1980s. As a result, large listed companies, which are the traditional customers of Japanese banks, gradually shifted their funding from banks to the capital market. Banks thus faced the prospect of a profit squeeze due to rising funding costs and a declining customer base.

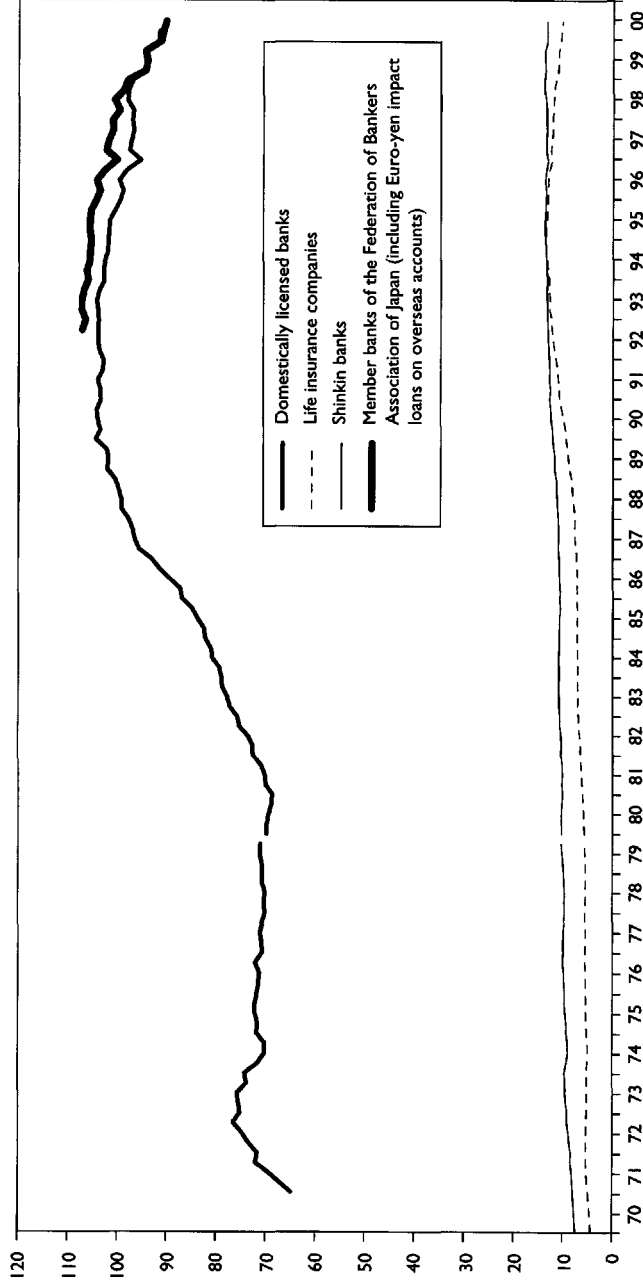
In view of the declining rents from traditional business on retail deposit-taking and commercial lending to large firms, banks tried to increase their middle-market business. Most thus started to increase real estate lending. In expanding such lending, they relied exclusively on collateral and paid little attention to the cash flow of the underlying business. This was so because the nominal land price in Japan had been on a rising trend ever since the end of World War II, and the pace of land price inflation was on average higher than government bond interest rates. This gave rise to a general perception among bankers that they could always avoid loan losses as long as loans were secured by real estate. This was certainly true until the bubble burst in the 1990s. Many banks solicited loans to customers by providing information on real estate investment opportunities. During the bubble period, even an ordinary salaried worker living in Tokyo could easily borrow up to 100 million yen for any purpose at long-term prime rate if his house was used as collateral. Thus, financial liberalization created a perfect environment for the asset price bubble since, in the 1980s, firms and households could easily acquire real estate with borrowed money.

Financial intermediation by the banks expanded significantly in the 1980s. The ratio of bank lending to GDP rose from 70 percent in the late 1970s to 108 percent by 1990 (Figure 6.3). The composition of the loan portfolio of Japanese banks also changed dramatically. The share of the manufacturing sector in their loan portfolio declined from 25 percent in 1977 to less than 15 percent by the end of 1980s. On the other hand, the share of loans to real estate and finance companies rose sharply over the same period. Since lending to finance companies, such as *jusen* (housing loan companies), was often on-lent to real estate investment, the involvement of banks in real estate-related lending became very large in the 1980s.

The Slow-moving Financial Crisis (1991–96)

Reflecting the successive tightening of monetary policy from May 1989 until February 1991, stock and real estate prices started to decline rapidly. The ratio of land prices to

Figure 6.3. Loans and Discounts Outstanding by Type of Financial Institution
(Percent of nominal GDP)



Source: Bank of Japan CD-ROM, 2000.

Notes:

1. Domestically licensed banks: banking accounts of domestically licensed banks + trust accounts of domestically licensed banks. Prior to the 1st quarter of 1977, banking accounts of former member banks of the Federation of Bankers Association of Japan + accounts of Sougo banks. Prior to the 3rd quarter of 1993, banking accounts of member banks of the Federation of Bankers Association of Japan (domestic accounts) + trust accounts of member banks of the Federation of Bankers Association of Japan.
2. Prior to the 4th quarter of 1991, based on 27 companies basis; from the 1st quarter 1992, based on all insurance companies basis; Source: Total Life Insurance Association of Japan.
3. Domestically licensed banks. Life insurance companies and Shinkin banks = data until 4th quarter 1979 = 68SNA basis, data from 1st quarter 1980 = 93SNA basis.

the nominal GDP index fell twice in the past 30 years (see Figure 6.2). When this happened in the early 1970s, nominal land prices did not decline much (the fall was caused by a sharp rise in inflation of goods and services). However in the 1990s, the decline came about because of the fall in nominal land prices. This contrast is significant in evaluating the fall-out from the bursting of the bubble. In the 1970s, investors who bought land with borrowed money could repay their debt; in the 1990s, they could not.

At first, bankers and bank supervisors thought that the fall in land prices would be temporary. They expected that by waiting for the economy to grow, banks would eventually recover most of their bad loans. However, the wait-and-see strategy did not work and real estate prices continued to fall. The understatement of bad loans by some banks involved falsification of financial statements. Since the falsification of statements for listed companies carries stiff criminal penalties, the managers of banks with large bad loans faced a difficult choice: covering up the extent of their problem to keep their banks open or facing a run on their banks by disclosing the real situation. They chose the first option. Apparently, until early 1997, bank supervisors actively connived in this choice.

Reflecting their increasing loan losses and declining stock prices, the banks saw their credit rating decline sharply. In the mid-1980s, Japanese banks enjoyed the very highest credit ratings with regulated interest rates and huge unrealized capital gains in their equity portfolio. However, financial deregulation and asset-price deflation completely transformed this. By 1992, Japanese banks had the lowest average credit rating of all major countries.

Against this dire background, both the Ministry of Finance (MoF) and the BoJ denied the severity of the bad-loan problem and collaborated in delaying the costly resolution of insolvent financial institutions. There were several reasons for their slow response.

- A number of large financial institutions were either insolvent or severely undercapitalized.
- In order to resolve the crisis, public money was necessary. However, using taxpayers' money was not a popular option.
- Top officials at the MoF's Banking Bureau rotate every few years. As a result, there was a strong incentive to postpone resolution of such politically thorny problems.

An important factor in this context was the mismanagement of the *jusen* crisis. *Jusen* companies are nonbank financial institutions that are affiliates of groups of

banks. *Jusen* started business as housing loan companies, but their development was limited by two factors. Firstly, the Japan Housing Loan Corporation, a governmental company, provided subsidized loans with prime collateral. Then, parent banks also started to provide housing loans in the late 1970s. As a result, the *jusen* companies were gradually marginalized in the housing loan market. In the 1980s, *jusen* companies started to shift their business into more risky real estate loans. They often took second rate collateral to make high-risk loans.

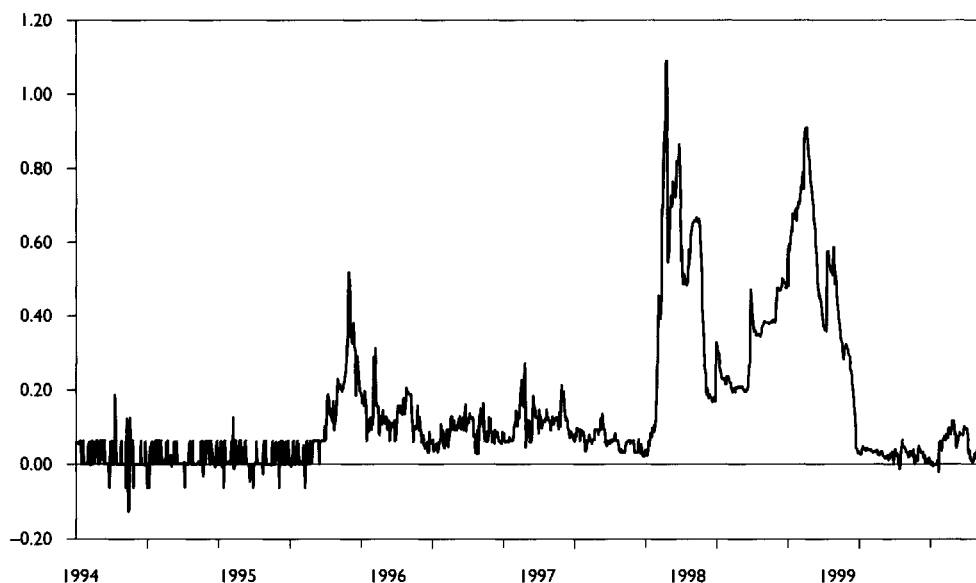
With the bursting of the bubble, *jusen* companies swiftly became insolvent. This became obvious to related parties by 1992 and 1993, but parent banks and MoF officials decided to wait for a recovery of real estate prices. By 1995, the fate of the *jusen* became a serious political problem. Since they financed their real estate loans with borrowed money from small agricultural credit unions, the failure of *jusen* companies brought with it the failure of a number of these credit unions. Since agricultural credit unions represented an influential lobby in the Diet, politicians mounted strong pressures on the MoF to resolve the *jusen* crisis without causing the collapse of agricultural credit unions. As a result, 680 billion yen of public money was used to cover part of the credit unions' losses, without any bankruptcy procedures taking place or their managers being asked to take responsibility. Seven of the eight *jusen* companies were liquidated and most of the losses were borne by parent banks. However, public opinion was highly critical at the skewed resolution of the *jusen* problem by the MoF and politicians, making it politically impossible to discuss further use of public money to resolve the financial crisis. As a result, the problem was not addressed.

Market participants were well aware of Japan's problem. As the asset price deflation continued, the funding costs for Japanese banks started to increase relative to European and American banks, due to rising perceptions of credit-risk. Even the most solid banks found that they had to pay a risk premium (the so-called "Japan premium") on their inter-bank borrowing (Figure 6.4).

The Japanese Financial Crisis since 1997

In November 1997, the failure of Sanyo Securities, Hokkaido Takushoku Bank and Yamaichi Securities sharply increased financial instability. These events generated a severe credit crunch in the Japanese financial market, inducing an extremely serious recession. What were the causes of this enormous problem for Japan? Two factors stand out: the first being the stock market crash and the bursting of the real estate market bubble in the 1990s, and the second the collapse in confidence in the accounting and auditing system.

Figure 6.4. Japan Premium (3-month Tibor-Libor)
(In percent)

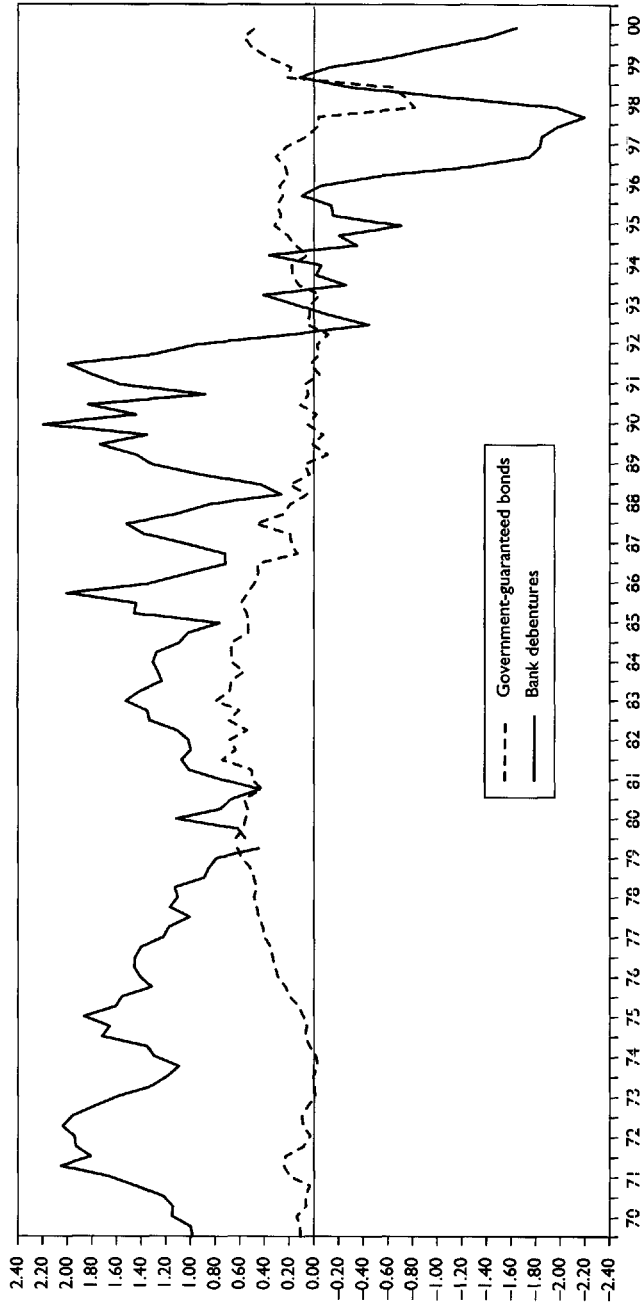


Source: QUICK.

The actual amount of bad loans uncovered at failed financial institutions was far larger than previously published. The Hokkaido Takushoku Bank was forced into bankruptcy, even though it had posted profits and paid dividends for the year to March 1997. Financial statements for that year showed 3 billion yen in capital; inspections after the failure found a negative equity of 1.2 trillion yen as of March 31, 1998. This indicates window-dressing of almost 1.5 trillion yen. Likewise, Yamaichi Securities was hiding 260 billion yen of losses on securities investments (more than one-half of its equity capital), which neither MoF inspections nor BoJ examinations had reportedly been able to uncover.

Depositors and investors in the bank debentures issued by long-term credit banks imposed some market discipline. Deposits were withdrawn from banks with low credit ratings because depositors feared that they would not be able to withdraw deposits quickly if the banks were closed. The LTCB and the Nippon Credit Bank also faced rapid early redemption of their debentures in 1997, because these were not covered explicitly by the deposit insurance system. Stock prices of weaker banks fell sharply and caused mild bank runs in some cases (Figure 6.5).

Figure 6.5. Net Amount of Bonds Issues
(Percent of nominal GDP, three quarter moving average)



Source: Bank of Japan CD-ROM, 2000.

Notes:

1. Data for the issuance of local government bonds, issuance and redemption of government-guaranteed bonds, and yen-denominated foreign bonds are not seasonally adjusted.

2. Local government bonds, government-guaranteed bonds and bank debentures: data until the 4th quarter 1979 = 68SNA basis; data from 1st quarter 1980 = 93SNA basis.

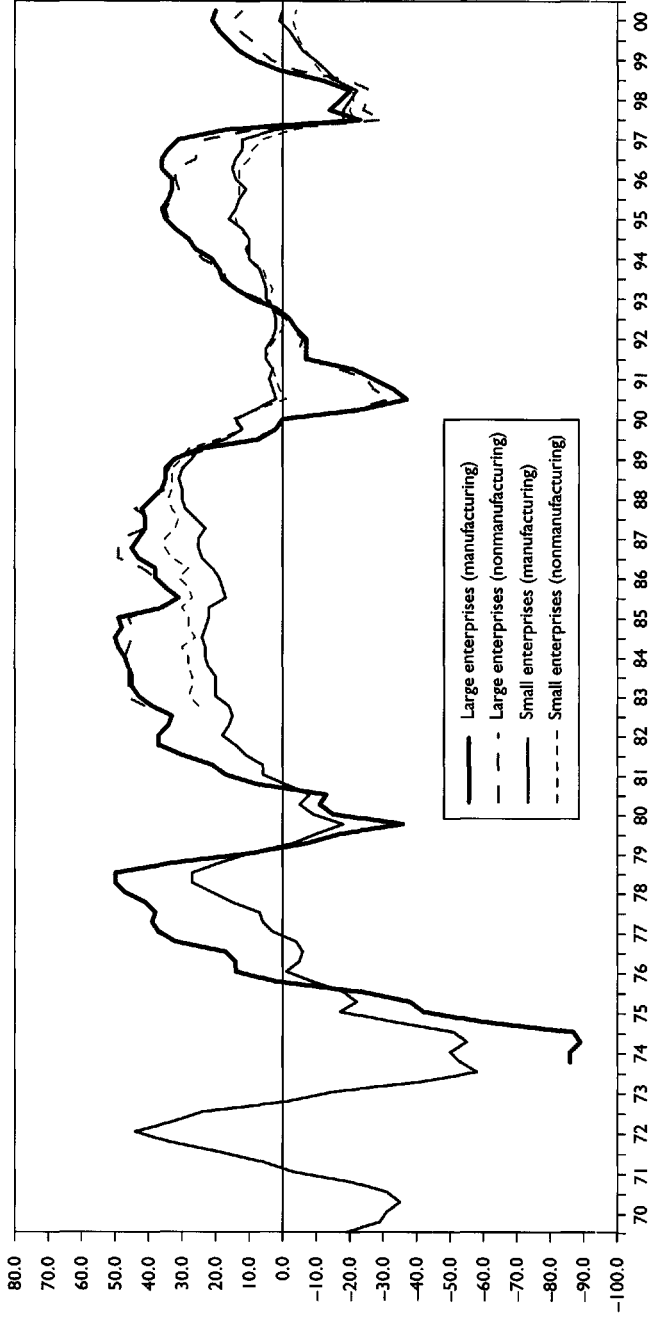
Such failures exacerbated suspicions, both in Japan and abroad, regarding the financial statements and regulatory supervision of Japanese financial institutions. It was this mistrust in banks' financial statements that caused the Japan premium to widen, blocked the domestic call market (which is used for short-term inter-bank loans), and multiplied the number of cash-strapped financial institutions turning to the BoJ for loans. Japanese financial markets thus experienced a kind of credit crunch because of the rash of failures, declining asset prices, and growing mistrust in financial statements and the regulators. This credit crunch in turn cut into corporate investment and hiring, increased bankruptcy rates, and cut into consumption and housing investments as workers feared for their jobs. This turned into a vicious circle as it led to further contraction of credit. In other words, unreliable financial statements became a serious impediment to the functioning of a market economy (Figure 6.6).

The downturn was somewhat abated by the emergency economic package announced by the Liberal Democratic Party and the MoF at the end of 1997. The government prepared to inject 13 trillion yen to boost the capital of solvent banks and 17 trillion yen to protect the depositors of failed banks. If the MoF had used the fund effectively and forced banks to write off their bad loans, public confidence in the financial institutions and oversight could have been restored. However, most of the money was left unused. A mere 1.8 trillion yen of the 13 trillion yen had been injected into 21 large banks by the end of March 1998, and there had been no exhaustive examination or comprehensive clean-up of bank balance sheets.

The failure of the capital injection only became apparent a few months later. In the summer of 1998, the stock price of the LTCB fell sharply when Sumitomo Trust and Banking refused a merger with it. The LTCB was a big bank with 26.2 trillion yen in assets as of March 1998. In October 1998, just before the LTCB went bankrupt, the Financial Revitalization Act and the Bank Recapitalization Act were enacted. This time, the government prepared to spend 60 trillion yen, about 12 percent of GDP. The Bank Recapitalization Act involved 25 trillion yen as a capital injection into solvent banks, whilst the Financial Revitalization Act readied 18 trillion yen for the resolution of failing banks, for capital injections into rescued banks, bridge banks and the disposition of bad loans, and a further 17 trillion yen depositor protection by the DIC (Fukao, 2000).

Under the Financial Revitalization Act, the LTCB and Nippon Credit Bank were nationalized in October and December 1998. Under the Bank Recapitalization Act, 7.5 trillion yen in capital was injected into 15 major banks at the end of March 1999. Unlike the earlier attempt, this program was much better designed and succeeded in eliminating the Japan premium. The gradual recovery of the Japanese

Figure 6.6. Diffusion Index of the Lending Attitude of Financial Institutions (Based on the Short-term Economic Survey of All Enterprises in Japan 'Easy-Tight')
(In percent)



Source: Bank of Japan CD-ROM, 2000.

economy and the announcements of large mergers among major banks also helped calm public concerns about the financial system.

The total net cost of these measures will not be known for years to come, because the government may recover some of the costs through sales of bad loans and bank stock. The gross cost of these operations from 1992 until the summer of 2000 was about 27 trillion yen and can be broken down as follows (Horie, 2001):

Cost of capital injection:	10 trillion yen
Cost of grant to buyers of failed institutions	13 trillion yen
Cost of purchasing bad loans	4 trillion yen.

The Evolving Japanese Deposit Insurance System

The Deposit Insurance Law established the DIC in 1971. Its initial role was to protect depositors of failed financial institutions up to 1 million yen per person by direct payout of insured deposits. The limits on coverage were gradually increased to 10 million yen in 1986 and the DIC obtained new powers to assist mergers of failed institutions with sound ones to help protect depositors. After few failures of small financial institutions in 1994 and 1995, the law was amended in 1996 to allow the DIC to protect depositors fully beyond the normal 10 million yen limit as a temporary emergency measure to last until March 2001. At the same time, the “general” deposit insurance premium was raised from 1.2 basis points to 4.8, covering the cost of protection up to the 10 million yen limit. In addition, a “special” deposit insurance premium of 3.6 basis points was introduced to cover the cost of protecting deposits beyond the 10 million yen limit. At the end of 1997, the DIC obtained the power to purchase bad loans from failing financial institutions when they collectively create a new bank.² The borrowing limit of the DIC from the BoJ and private financial institutions was also raised from 1 trillion to 10 trillion yen.

In spite of full protection for all the deposits beyond the limit of normal coverage, public concern about the soundness of the financial system became extremely intense after the successive failures of Sanyo Securities, Hokkaido Takushoku Bank, and Yamaichi Securities in late 1997. Depositors were unsure whether the DIC had enough money to honor the government’s commitment to protect all deposits.

² Since this measure was likely to preserve weak financial institutions as a new bank under largely unchanged management structure, this method of assistance was abolished in March 1999, following the assisted merger of Fukutoku Bank and Naniwa Bank in October 1998.

In October 1998, just before the LTCB went bankrupt and the Financial Revitalization and Bank Recapitalization Acts were enacted, amendments were made to the Deposit Insurance Law. As a result, the principle of the resolution of failed financial institutions was established and a new mechanism introduced for rehabilitating solvent but undercapitalized ones. The DIC was to fulfil the following temporary roles: to act as an administrator of failing institutions; to establish bridge banks to keep failed institutions running; to own stock in temporarily nationalized institutions and to choose directors for them; to purchase bad loans from financial institutions; and to purchase shares of undercapitalized institutions to bolster their capital position.

In May 2000, the Deposit Insurance Law was again amended so as to facilitate a scheme for permanent resolution for failing banks, in view of the fact that the Financial Revitalization Act and the Bank Recapitalization Act were due to expire at the end of March 2001. With this amendment, the bridge bank scheme and the procedure of systemic exception from the minimum cost principle became permanent features of the system. The termination of full protection of deposits was postponed for one year from the end of March 2001. In March 2002, the full protection of time deposits was removed, but the government postponed the removal of protection on transectional deposits. A further 10 trillion yen was added to the 17 trillion yen fund for the protection of depositors. The government has pledged to remove full protection for deposits in 2004, but it introduced the permanent protection for all zero-interest payment deposits at the end of 2002.

The Weak Japanese Banking System

Despite the fact that more than a decade has passed since the sharp decline of asset prices in 1990 and some years since the acute financial crisis of 1998, Japan still faces a problem of increasing bad loans within the context of a very fragile economy. It has yet to stabilize the weakened life insurance sector, which produced the recent failures of Chiyoda, Kyoei, and Tokyo Life Insurance. Life insurance policies are an important savings instrument and the sector controls assets worth more than 200 trillion yen. Life insurance companies promised high minimum returns on their long-lasting life insurance and annuity policies in the 1980s and early 1990s. Since the duration of their assets and liabilities did not match, they faced an enormous negative yield gap when Japan experienced very low nominal interest rates in the late 1990s. This problem is not addressed in detail here; to do so would require a book rather than the section of a chapter (Fukao and JCER, 2000b).

The Situation of Bad Loans in Japan

Table 6.1 shows the historical data of problem loans in Japanese banks. Since disclosure of bad loans improved gradually, the data are not consistent over the years. For example, the definition of bad loans outstanding has been expanded twice and, as a result, the disclosed figures jumped up because of this discontinuity. Until FY 1995, only major banks disclosed loan loss figures. Japanese banks lost 66 trillion yen due to bad loans between March 1992 and March 2000 (13 percent of GDP in 2000). Nevertheless, they still have more than 30 trillion yen in disclosed bad loans, about 6 percent of their loan portfolio. According to the FSA, classified bank loans (not disclosed on an individual basis) totaled some 63 trillion yen, slightly more than twice the disclosed bad loan figure.

Figure 6.7 shows that while the bad loan/total loan ratio has stabilized for city banks, the ratio for first-tier and second-tier regional banks has increased rapidly. This is partly due to the application of a tougher classification standard by FSA, but it also reflects deteriorating loan quality among smaller financial institutions.

Figure 6.8 compares the bad loan situations in Japan and the United States. While the U.S. bad loan/total loan ratio has declined from 3 percent in 1992 to 1 percent in 1999, the corresponding Japanese ratio has risen from 2 percent to 6 percent. The loan-loss reserve/bad loan ratio in the United States has been above 160 percent since 1994, while in Japan it has been in the 40–60 percent range. We can thus see that while the U.S. banking sector recovered quickly from its bad-loan problems in the early 1990s, the Japanese situation was deteriorating even after the capital injection by the government in 1998.

The reason for this increasing quantity of bad loans without loan-loss reserves has been the low profitability of Japanese banking sector. Since banks do not earn enough profit to write off all their bad loans, they try to postpone recognition of losses so as to show relatively positive capital positions. If they were to write off bad loans immediately, most banks would be unable to comply with the BIS capital requirements and might even reveal negative equity positions.

Bank Profitability

Table 6.2 shows the profit structure of the Japanese banking sector. The gross lending margin (A), the difference between interest and dividend income received and interest paid, was about 10 trillion yen in the 1990s. Other revenue (B), which includes fees, dealing profits from fixed income securities and foreign exchange operations, was about 3.5 trillion yen from 1995 until 1998. However, these figures exaggerate the underlying

Table 6.1. Problem Loans of Japanese Banks (All Commercial Banks)
(100 million yen)

Financial year	Mar 93	Mar 94	Mar 95	Mar 96	Mar 97	Mar 98	Mar 99	Mar 00	Mar 01	Mar 02
Loss from bad loans (A)	16,398	38,722	52,322	133,692	77,634	132,583	136,309	69,441	61,076	97,221
Specific reserves	9,449	11,461	14,021	70,873	34,473	84,025	81,181	25,313	27,319	51,959
Write-off and loan sales losses	4,235	20,900	28,085	59,802	43,158	39,927	47,093	38,646	30,717	39,745
Cumulative amount of (A)	16,398	55,120	107,442	241,134	318,768	451,351	587,660	657,101	718,177	815,398
Bad loans outstanding (B)	127,746	135,759	125,462	285,043	217,890	297,580	296,270	303,660	325,150	420,280
Definition of B	←	←	←	←	←	←	←	←	←	←
	Defaulted loans and arrears	Defaulted loans and loans with arrears	Defaulted loans and loans with arrears for more than 6 months and loans with concessional interest rates below the official discount rate of the Bank of Japan (ODR.)	Defaulted loans, loans with arrears for more than 6 months and loans with concessional interest rates below the official discount rate of the Bank of Japan (ODR.)	Defaulted loans, loans with arrears for more than 6 months and loans with concessional interest rates below the official discount rate of the Bank of Japan (ODR.)	Defaulted loans, loans with arrears for more than 6 months and loans with concessional interest rates below the official discount rate of the Bank of Japan (ODR.)	Defaulted loans, loans with arrears for more than 6 months and loans with concessional interest rates below the official discount rate of the Bank of Japan (ODR.)	Defaulted loans, loans with arrears for more than 6 months and loans with concessional interest rates below the official discount rate of the Bank of Japan (ODR.)	Defaulted loans, loans with arrears for more than 6 months and loans with concessional interest rates below the official discount rate of the Bank of Japan (ODR.)	Defaulted loans, loans with arrears for more than 6 months and loans with concessional interest rates below the official discount rate of the Bank of Japan (ODR.)
Normal loans					5,500,000	5,448,140	4,875,000	4,723,880	4,706,690	4,405,370
Classified loans					767,000	717,000	642,580	633,860	656,710	710,870
Substandard					653,000	655,000	610,240	605,390	631,180	677,870
Doubtful					87,000	61,000	31,600	28,350	25,530	33,000
Estimated Loss					27,000	1,000	740	120	0	0
Estimated required loan loss reserves (C)					273,500	229,181	193,658	188,282	191,174	202,728
Total loan loss reserves Outstanding (D)	36,983	45,468	55,364	132,940	123,340	178,150	147,970	122,300	115,550	133,530
Estimated under-reserving (C-D)					150,160	51,031	45,688	65,982	75,624	69,198
Total loans outstanding (all domestic banks)				4,827,009	4,823,121	4,779,785	4,726,096	4,634,849	4,569,652	4,406,096

Source: Financial Services Agency and the Bank of Japan.

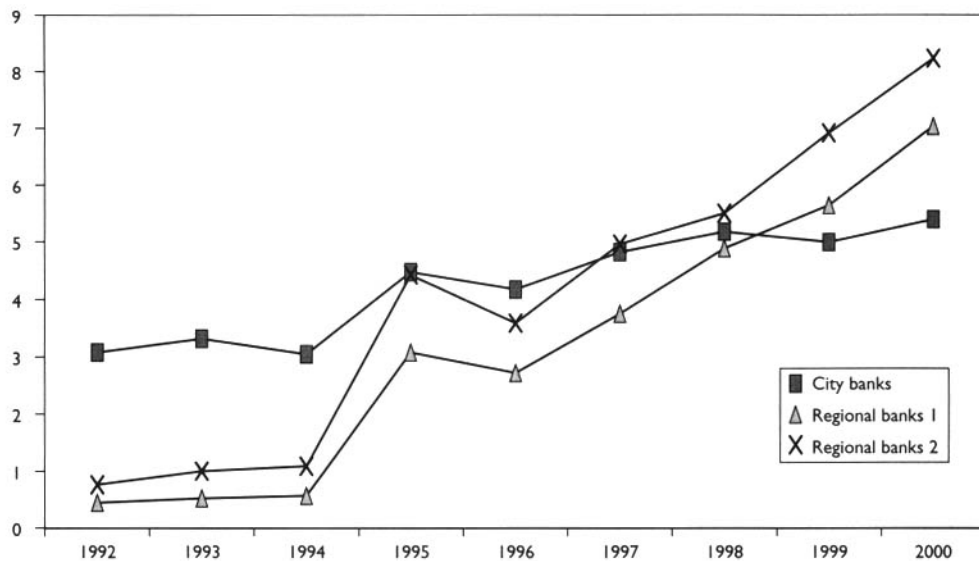
Notes: Classified loan figures for March 1997 are rough estimates by the author from the MoF announcements.

Estimated required loan loss reserves is defined as follows: 1% of normal loan + 20% of substandard loan + 70% of doubtful loan + 100% of estimated loss loan.

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Figure 6.7. Bad Loan/Total Loan Ratios
(In percent)



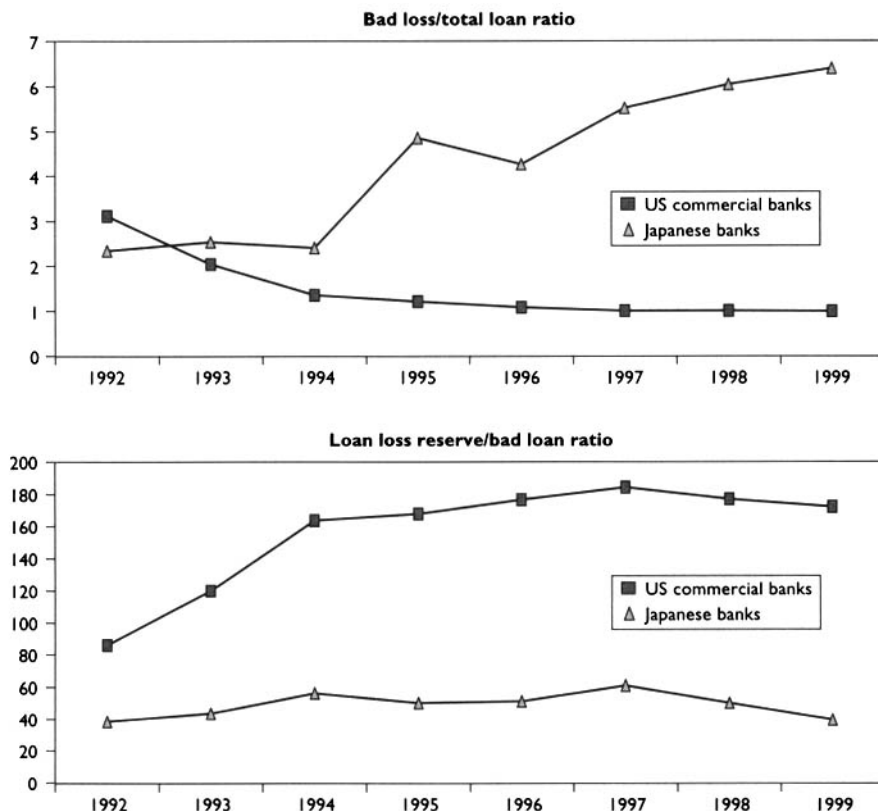
Source: Japan Center for Economic Research (March 2001).

profitability of such activities because bond prices rose sharply with falling interest rates. The underlying profitability of other revenue was probably about 2.5 trillion yen.

On the other hand, operating costs have been declining over the past two years because of the cost cutting measures taken by Japanese banks. Here again, it seems that the recent pace of cost cutting will be difficult to maintain. Certainly, Japanese banks may cut salaries and wages further by reducing employees and average compensation. However, the computer systems of Japanese banks are outdated. Banks have not been able to invest adequately in the system because they have been preoccupied with the bad loan problems since early 1990s. In the retail banking sector, banks have been unable to compete with national convenience store chains in payment services because they cannot rival the sophisticated POS (point of sales) terminals of convenience shops. Since banks will have to invest heavily in information technology in the future, it will be difficult for them to cut total operating costs further.

In light of these profit and cost figures, gross profits before loan losses are taken into account are about 5 trillion yen. However, loan losses have exceeded gross profits ever since FY 1993. Since FY 1994, loan losses have been 6 to 14 trillion yen.

Figure 6.8. Comparison of Bad Loan Situations in Japan and the United States
(In percent)



Source: Japan Center for Economic Research (March 2001).

Notes:

1. Japan: fiscal year, US: calendar year.
2. Figures after fiscal year 1997 do not include data of Hokkaido Takushoku Bank, Tokuyo City Bank, Kyoto Kyoei Bank, Naniwa Bank, Fukutoku Bank, and Midori Bank.
3. Japanese bad loan ratio = Risk control loans/total loans. US bad loan ratio = (loans in arrears for more than 90 days + loans that do not count accrued interest rates as asset + restructured loans)/total loans.

Compared with the outstanding loan portfolio of about 500 trillion yen during this period, the loan loss rate has been 1.2 to 2.8 percent. In other words, the Japanese banking sector has not been able to earn enough profit to cover its loan losses. When they reported profit at the bottom line, they realized capital gains on their stocks and real estate with low book values.

Table 6.2. Profitability of Japanese Banking Sector
(trillion yen)

Financial Year	89	90	91	92	93	94	95	96	97	98	99	00
Lending margin (A)	7.5	7.1	8.9	9.8	9.2	9.7	10.8	10.7	10.0	9.6	9.7	9.4
Other revenue (B)	2.5	2.6	2.2	2.5	2.8	2.1	3.3	3.7	3.6	3.1	2.5	3.0
Operating costs (C)	6.6	7.1	7.5	7.7	7.7	7.8	7.8	8.0	8.0	7.5	7.3	7.1
Salaries and wages	3.5	3.7	3.9	4.0	4.0	4.0	4.0	4.0	4.0	3.6	3.5	3.4
Gross profit (D) = (A) + (B) - (C)	3.3	2.6	3.5	4.5	4.3	4.0	6.3	6.4	5.6	5.2	4.9	5.3
Loan loss (E)	1.4	0.8	1.0	2.0	4.6	6.2	13.3	7.3	13.5	13.5	6.3	6.6
Net operating profit (F) = (D) - (E)	1.9	1.8	2.5	2.5	-0.4	-2.2	-7.0	-1.0	-7.9	-8.3	-1.4	-1.3
Realized capital gains (G)	2.8	2.0	0.7	0.0	2.0	3.2	4.4	1.2	3.6	1.4	3.8	1.4
Net profit = (F) + (G)	4.7	3.8	3.3	2.5	1.7	1.0	-2.6	0.2	-4.2	-6.9	2.3	0.1
Asset	944	928	914	859	850	845	848	856	848	760	737	804
Outstanding loans (domestic banks)		424	446	460	472	478	483	482	478	473	463	457

Source: Financial statements of all commercial banks.

Notes:

1. Other revenue (B) includes all the other profit such as dealing profits and fees, but excludes realized capital gains of stocks and real estate.
2. Realized capital gains include gains of stocks and real estate.

Weak Capital Position of Japanese Banks

These flow figures for profits show that the capital position of Japanese banks has been deteriorating. Because of Japanese accounting rules for banks and the leniency of the regulators, the BIS capital ratios have been manipulated in many ways. Banks have frequently used historical cost book keeping of equity portfolio, under-reserving against bad loans, and using subordinated debt from friendly life insurance companies to raise their BIS ratios. Consequently, most failed banks could maintain more than 8 percent of BIS capital ratios right up to the moment they went bankrupt. Therefore, we have tried to estimate simple leverage ratios of major banks and adjusted the simple core capital (tier 1 capital) by taking account of unrealized capital gains and losses.

Table 6.3 shows the adjusted core capital/total asset ratios for major Japanese banks since 1998. In estimating these, we added unrealized capital gains and loan-loss reserves and subtracted the standardized estimated loan losses from disclosed bad loan figures. This particular estimate of capital is used because this variable worked well in

Table 6.3. Distribution of Adjusted Capital / Asset Ratio of Major Japanese Banks

	Number of banks (%)					Weighted average (%)	Nikkei 225 index	
	Total	< -2	> -2 & < 0	> 0 & < 2	> 2 & < 4			> 4 & < 6
Mar 98	19	2	6	8	3	0	0.93	16,527
Mar 99	17	0	2	10	5	0	2.07	15,837
Mar 00	17	0	0	4	9	4	3.48	20,337
Sep 00	15	0	0	5	10	0	2.36	15,747
Mar 01	15	1	0	8	6	0	1.83	12,883
Sep 01	15	1	3	11	0	0	0.86	9,774

Source: Japan Center for Economic Research (March 2001).

Notes:

1. Adjusted capital = core capital + unrealized capital gains and losses + loan loss reserves – estimated loan losses – deferred tax asset.
2. Estimated loan losses = 100% of defaulted loans + 70% of risk loans + 20% of doubtful loans + 1% of normal loans.
3. Adjusted capital / asset ratio = adjusted capital / gross assets.

predicting bank failures over a one-year time horizon with a regression model of various financial indicators (Fukao and JCER, 2000a). According to this estimated distribution of core capital/asset ratios of banks, the leverage ratio fell to 0.93 percent in March 1998. According to this estimation, as many as eight banks had a negative equity position while only two banks were nationalized. The capital ratio recovered one year later with the 7.5 trillion yen capital injection by the government. It recovered further to 3.48 percent by March 2000 as stock prices recovered. However, it started to fall as banks continued to lose money through bad loans and stock prices dropped. By the end of February 2001, the capital ratio had fallen to 1.8 percent.

Table 6.3 shows that the capital position of banks is quite sensitive to variations in stock prices. Table 6.4 shows the capital structure of all the commercial banks. In this table, the core capital (based on traditional historical cost accounting) is adjusted for unrealized capital gains on stocks, deferred tax assets, and the public capital injection, but not adjusted for under-reserving from loan losses. Although banks show capital of 35.2 trillion yen on their balance sheets, this figure is inflated by 8.2 trillion yen in deferred tax assets (present value of future tax shelter) and the 7.5 trillion capital injection from the government. Since banks have committed themselves to repaying the injected capital, the remaining net capital is only 25.6 trillion yen, even taking into account the after-tax unrealized capital gains on their stock portfolio. This

Table 6.4. Stock Portfolios and Capital in the Banking Sector
(trillion yen)

Financial year	Market value of shares A	Book value of shares B	Capital account (Core capital) C	Deferred tax asset D	Estimated under-reserving E	Equity capital held by the government F	Net capital account $C + (A - B) \times 0.6 - D - E - F$	Nikkei 225 Index
Mar 86	46.9	11.9	12.3	0.0	NA	0.0	33.3	15,860
Mar 87	63.7	13.4	13.8	0.0	NA	0.0	44.0	21,567
Mar 88	77.6	17.6	17.2	0.0	NA	0.0	53.2	26,260
Mar 89	97.1	23.2	22.5	0.0	NA	0.0	66.8	32,839
Mar 90	88.6	29.7	28.6	0.0	NA	0.0	63.9	29,980
Mar 91	77.7	33.1	30.2	0.0	NA	0.0	57.0	26,292
Mar 92	56.4	34.5	31.3	0.0	NA	0.0	44.4	19,346
Mar 93	56.4	34.5	31.8	0.0	NA	0.0	44.9	18,591
Mar 94	61.9	36.5	32.3	0.0	NA	0.0	47.5	19,112
Mar 95	52.0	39.8	32.3	0.0	NA	0.0	39.6	15,140
Mar 96	64.3	43.0	27.9	0.0	NA	0.0	40.7	21,407
Mar 97	54.1	42.9	28.5	0.0	15.0	0.0	20.2	18,003
Mar 98	50.8	45.7	24.5	0.0	5.1	0.0	27.6	16,527
Mar 99	47.1	42.7	33.7	8.9	4.6	7.5	20.0	15,837
Mar 00	54.5	44.4	35.2	8.2	6.6	7.5	25.6	20,337
Mar 01	54.5	44.4	35.2	8.2	7.6	7.5	25.6	20,337

Source: Federation of Bankers Associations of Japan, Analysis of Bank Financial Statements (various issues). Securities reports for individual banks.

Notes:

1. Both market and book values represent listed shares only.
2. Tables represent amounts on the banking accounts of all banks in Japan.
3. The market value of stock portfolios was not published prior to March 1990, so we have estimated backwards using the Nikkei 225 share price index from the end of March 1991.
4. However, the tables for 1985-86 should be discounted, because bank stock portfolios have been gradually increasing, so that values estimated from the end of fiscal year 1990 will have an upwards bias the further back one goes.
5. Net capital is not adjusted for bad loans, 40% corporate tax rate is assumed.

permanent capital is small compared with their stock portfolio of 54.5 trillion yen and the 63.4 trillion yen in problem loans (see Table 6.4).

Because the market value of stocks held by banks is about twice their net capital account, a 10 percent fall in the stock price index wipes out 20 percent of their net capital. In the late 1980s and early 1990s, unrealized capital gains (the difference between column A and B) were very large and they could withstand fluctuations in stock prices. However, during the 1990s, banks increasingly realized these gains so as to show paper profits to cover up huge loan losses. As a result, the unrealized capital gains were already depleted when the Nikkei index fell below 15,000 in late 2000.

Causes of Unprofitable Banking Sector

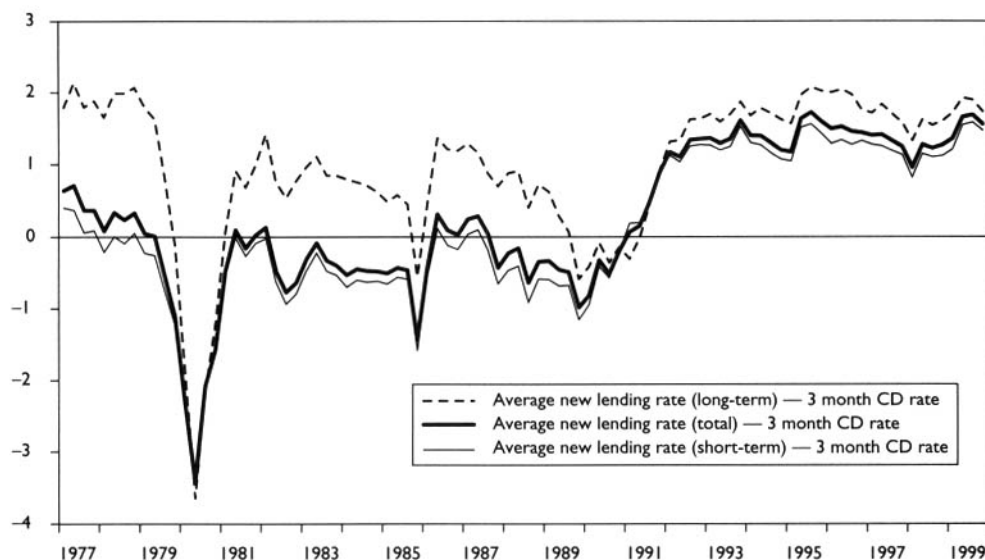
The profit margins of Japanese banks were too small to cover the increased default risk after the bursting of the bubble. Many firms have not overcome their debt overhang and are surviving with the help of their banks. Banks have not managed to increase their lending margins, faced by strong competition from government-backed financial institutions. Moreover, under the terms and conditions of the March 1999 government capital injection, banks were required to maintain and increase loans to small and medium-sized firms. Consequently, banks often disregard the internal, model-based required lending margin to make new loans to such companies. In the remainder of this section, we will look into the effects of financial deregulation and the presence of government-sponsored financial institutions on private banks' profit margins.

Effects of Deregulation

The average lending rate of Japanese banks was 2.1 percent in FY 1999. On the other hand, the average funding cost was 0.3 percent and the average intermediation cost 1.3 percent. As a result, the lending spread was around 50 basis points. Since the average credit rating of borrowers from banks is about BB level, the annual loan loss rate is well over 1 percent per year. Although part of this negative profit margin is offset by other revenues (such as dealing profit and fees from customers) banks were making losses from lending business (see Table 6.2).

One of the reasons for this low lending spread is the overhang of deposit interest rate control until early 1990s. When the government controlled deposit interest rates, banks could easily make money from deposit taking. On average, banks could get a 1.5 percent point margin between the average funding rate and the short-term money market rate. The average lending rate was almost equal to short-term market rates. This

Figure 6.9. New Lending Rate and Short-term Market Rate
(In percent)



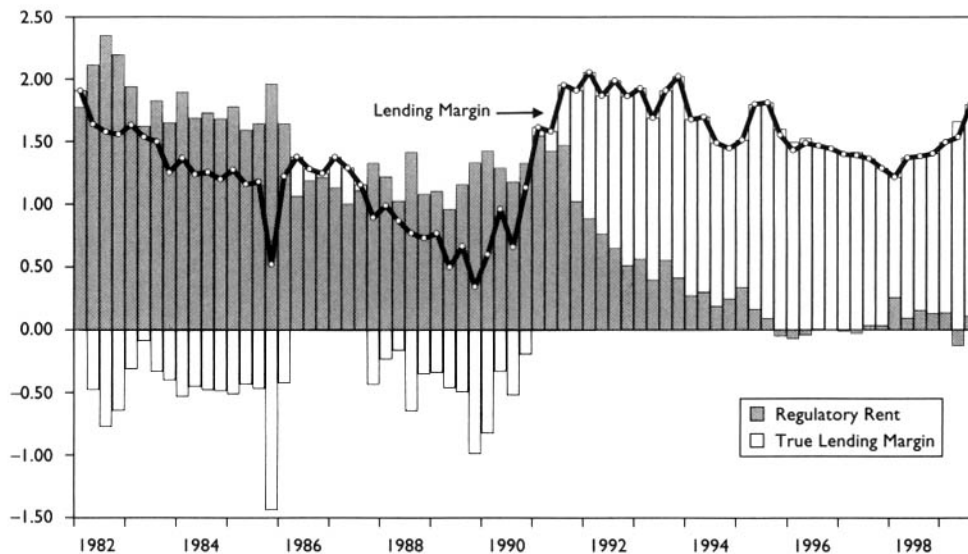
Source: Estimated by Ikuko Fueda of Japan Center for Economic Research.

fact probably indicates that banks passed a part of the regulatory rent of interest rate control on to borrowers. As the deposit rate control was phased out in the late 1980s and early 1990s, banks tried to maintain profit margins by increasing the lending rate relative to short-term market rates. Figure 6.9 shows that the average lending rate rose relative to 3-month CD rates at the turn of the decade.

Figure 6.10 shows the lending margin broken down into regulatory rent, which is the spread between the short-term market rate and the average funding cost, and the true profit margin, or the spread between the average lending rate and the market rate. This figure shows that banks only replaced their lost regulatory rent with the pure profit margin and have been unsuccessful in increasing their traditionally thin margins in a period of high growth with rising asset prices.

While banks have not raised their profit margins, borrowers are paying a higher interest rate vis-à-vis the money market rate. Figure 6.11 shows the movements in the average new lending rate, overnight call rate, and the GDP deflator inflation rate. The gap between interest rates and the inflation rate is the real interest rate. Reflecting the BoJ's loose monetary policy, the real interest rate of call fell between 1991 and 1998. On the other hand, the real interest rate of new lending did not fall much

Figure 6.10. Decomposition of Lending Margins
(In percent)



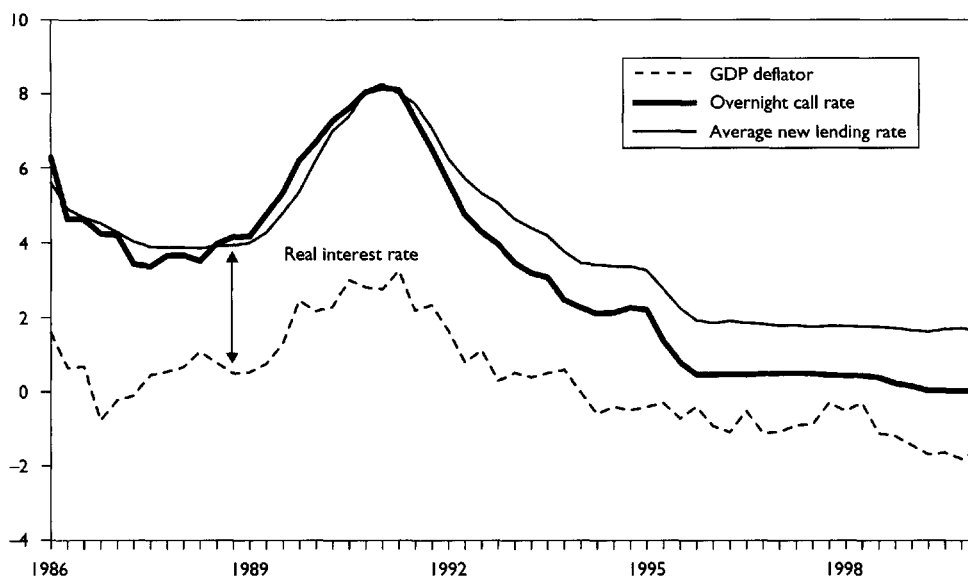
Source: Ikuko Fueda (2000). *Financial Liberalization, Asset Bubble and Bank Behavior*. In: M. Fukao and JICER (Ed). *Empirical Analysis of Financial Recession*. Japan Economic Journal

because of the increasing gap between the new lending rate and the call rate. While the opportunity cost of borrowing for large creditworthy companies is close to the call rate, the cost for small and medium-sized companies is close to the new lending rate. Therefore, smaller companies during the 1990s enjoyed less of the expansionary effects of loose monetary policy than larger ones. This fact may have contributed to the relatively weak recovery of the small business sector so far.

In Japanese financial markets, the scale of activity of government-sponsored financial institutions (GSFIs) is extremely large. Table 6.5 shows the market share of private banks and GSFIs at the end of year 2000. GSFIs have about one-quarter of the loan market, one-third of the deposit market, and 40 percent of the life insurance market.

In the loan market, GSFIs make very long-term loans at about 2 percent interest. They are especially dominant in the housing loan market, holding more than half of outstanding housing loans. Table 6.6 shows the lending rates of GSFIs on February 9, 2001. While their new lending rates were similar to short-term loans by private banks, the average term to maturity of GSFIs is much longer. Since government agencies usually accept prepayment on their loans without penalty, their loans are more attractive to borrowers. While the loan market share of GSFIs is smaller than in other

Figure 6.11. Interest Rates and Inflation Rates
(In percent)



Source: Japan Center for Economic Research (March 2001).

Note: GDP deflator inflation rate is adjusted for changes in consumption tax rate in 1989 and 1997.

Table 6.5. Relative Size of Government Sponsored Financial Institutions, at the End of 2000

	Assets (trillion yen)	Share (%)	GDP ratio (%)
Loans			
Government sponsored agencies	163	26	32
Private banks	464	74	90
Total	627	100	122
Deposits			
Postal saving system	255	34	50
Private banks	486	66	95
Total	741	100	144
Life Insurance (assets)			
Postal life insurance	119	40	23
Private life insurance companies	180	60	35
Total	299	100	58

Source: Prepared by the author from data of the Bank of Japan: Financial and Economic Statistics Monthly (March 2001).

Table 6.6. Lending Rates of Government Sponsored Agencies, Interest Rates on 9 Feb 2001

Government lending agencies	Basic loan rate (%)	Average terms (years)
Japan Development Bank	2.05	16.7
People's Finance Corporation	2.05	7.3
Japan Finance Corporation for Small Businesses	2.05	8.9
Japan Finance Corporation for Municipal Enterprises	1.90	NA
Housing Loan Corporation	2.70	25.4
Memorandum		
Average loan rate of all banks	2.12	Less than 1
Fixed rate housing loan of Fuji Bank	4.65	20

Source: JCER Monetary Policy under Deflation, Japan Center for Economic Research (March 2001).

Note: Loan rates are fixed. NA: data not available.

markets, they have 30–40 percent share in rural prefectures. As a result, banks cannot set significantly higher lending rates over those of government agencies. Since government agencies obtain subsidies of about 1 trillion yen per year in direct subsidy and the indirect subsidy of zero-cost capital, they can cover the losses from credit and other risks in making loans. Compared with the outstanding domestic loans of GSFI, this subsidy amounts to a 0.6 percent point of cost advantage relative to private financial institutions (Higo, 2001).

In the deposit market, the Postal Saving System (PSS) is a dominant player and deposits in the PSS are fully guaranteed by the government. Deposit interest rates are set competitively against those of private deposit taking institutions. PSS has more than 24,000 branches, the largest network of any financial institution in Japan. The largest private banking group, Mizuho, has only some 600 branches. Since the PSS does not charge an account-maintenance fee to its customers, it is difficult for private banks to charge such a fee without alienating theirs. Under the zero-interest rate policy of the BoJ, banks cannot earn any profit margin between zero-interest demand deposit and the market rate.

Weak Governance in the Banking Sector

In spite of these findings on the reasons for unprofitability in the banking sector, the important question remains as to why banks carry on with unprofitable lending activ-

ities. In what follows a few hypotheses are offered, such as the absence of shareholder control and the skewed incentive structure for the bank management caused by a negative equity position.

Absence of Control by Bank Shareholders

Although banks issued large quantities of preferred shares to the government in March 1999, diluting the ownership of existing shareholders, there was no public outcry from this. Despite the near collapse of major banks, all the shareholder meetings that approved the issue of preferred shares to the government were generally calm. No major shareholders objected to the deal. This is because the management of major banks is protected by friendly shareholders, such as life insurance and industrial companies. Table 6.7 lists the top five shareholders in the ten major Japanese banks. Out of 50 listed top shareholders, 25 are life insurance companies.

Since all major life insurance companies are mutual companies, there is no formal cross holding of shares. However, life insurance companies have often relied on banks to cultivate new corporate customers. Moreover, banks and life insurance companies have relied on one another to raise broadly defined capital. Table 6.8 shows how banks provided subordinated credit and surplus notes to life insurance companies amounting to 2.3 trillion yen at the end of March 2000. At the same time, life insurance companies provided 6.7 trillion yen of subordinated credit to banks and owned 7.7 trillion in bank stocks. Given this effective double gearing between the two, it is difficult to expect life insurance companies to exert strong governance pressure on the banks.

As mutual companies, the corporate governance structure of major Japanese life insurance companies is also weak. In Japanese mutual life companies, 'representative policyholder meetings' play the role of shareholders' meetings in joint stock companies. Each representative policyholder has one vote, and they are effectively selected by the management itself. Sometimes, they become policyholders at the request of the management. In other cases, the managers of a company to which the insurance company lends money are asked to become representative policyholders.

Interviews with top managers at major banks and large institutional investors helped us establish the following points:

- When banks reported a loss for the first time in decades to the shareholders' meeting, there was virtually no reaction from even the larger shareholders.
- Bank management generally secured a majority of votes through signed proxy cards distributed prior to shareholder meetings. In addition, management

Table 6.7. Top Five Shareholders of Major Japanese Banks, at the End of September 2000

	1 st	2 nd	3 rd	4 th	5 th
Mizuho Holdings	<i>Daiichi Life</i> : 4.1	<i>Nippon Life</i> : 2.7	Sumitomo Trust: 2.1	<i>Yasuda Life</i> : 2.0	<i>Asahi Life</i> : 1.9
Sakura Bank	<i>Mitsui Life</i> : 3.6	<i>Taiyo Life</i> : 3.6	<i>Nippon Life</i> : 3.6	State St.: 3.2	Chuo-Mitsui Trust: 3.0
Sumitomo Bank	<i>Sumitomo Life</i> : 4.5	<i>Nippon Life</i> : 4.0	Matsushita: 3.3	Sumitomo Trust: 2.4	Sanyo Electric: 2.0
Sumitomo Trust	<i>Sumitomo Life</i> : 2.5	State St.: 2.4	Sumitomo Bank: 2.2	Sumitomo Trust: 2.1	Mitsubishi Trust: 1.9
Bank of Tokyo Mitsubishi	<i>Meiji Life</i> : 5.0	<i>Nippon Life</i> : 3.6	Sumitomo Trust: 2.7	Tokyo Marine: 2.7	<i>Daiichi Life</i> : 2.5
Mitsubishi Trust	BoTM: 4.1	<i>Meiji Life</i> : 3.9	Mitsubishi Heavy: 2.7	Sumitomo Trust: 2.4	Asahi Glass: 2.2
Sanwa Bank	Toyo Trust: 4.1	<i>Nippon Life</i> : 4.0	Sumitomo Trust: 3.3	<i>Daido Life</i> : 3.0	<i>Meiji Life</i> : 2.7
Tokai Bank	Toyota: 5.0	<i>Chiyoda Life</i> : 3.7	<i>Nippon Life</i> : 3.0	Toyoshima: 2.4	<i>Daiichi Life</i> : 1.7
Asahi Bank	<i>Daiichi Life</i> : 4.1	<i>Chiyoda Life</i> : 3.2	<i>Yasuda Life</i> : 2.8	<i>Asahi Life</i> : 2.1	Sumitomo Trust: 2.0
Daiwa Bank	Nomura Sec: 3.2	<i>Tokyo Life</i> : 2.9	Fuji Fire Ins: 2.6	Osaka Gas 2.5	Nichido Fire Ins: 1.8

Source: Nikkei Kaisha Joho (Spring 2001).

Notes:

1. Italics are life insurance companies.
2. BoTM is the Bank of Tokyo Mitsubishi.
3. Chiyoda Life failed in October 2000 and Tokyo Life failed in March 2001.
4. Participations are expressed in percent.

made sure that friendly shareholders sent representatives to the meeting and that they constituted a two-thirds majority.

- A former senior director of a major life insurance company stated that his company had never voted against management in a shareholders' meetings. On rare occasions, however, his company abstained from voting to indicate dissatisfaction with the current management.
- MoF regulation and surveillance was strong, and this meant that there was scant incentive for shareholders to monitor bank management.

Table 6.8. Cross Holding Structure among Life Insurance Companies and Banks
(100 million yen)

	DKB	Sakura	Fuji	BTM	Asahi	Sanwa	Sumi-tomo	Daiwa	Tokai	IBJ	Other banks	Sub-total	Sub-debt of LIs	Sub-debt of banks	Total
Nippon	S notes Shares	235 1,115	235 632	235 2,804	NA 291	235 1,376	235 2,151	NA NA	235 470	NA 754	1,055 9,866	2,700 20,785	0 -	- 10,762	2,700 31,547
Daiichi	S notes Shares	88 1,077	88 899	88 2,197	88 666	88 699	88 685	NA NA	88 242	88 1,728	708 5,150	1,500 3,858	1,000 -	- 7,964	2,500 21,823
Sumitomo	S notes Shares	NA NA	100 121	100 325	NA NA	NA NA	600 2,281	NA NA	100 168	150 137	540 5,199	1,690 8,266	3,950 -	- 6,716	5,640 14,982
Meiji	S notes Shares	NA NA	NA NA	150 3,708	NA NA	90 884	NA NA	NA NA	60 204	90 941	210 7,153	600 12,890	0 -	- 8,496	600 21,386
Asahi	S notes Shares	300 1,387	NA NA	NA NA	80 350	NA NA	NA NA	NA NA	80 209	NA 257	30 1,931	490 4,189	2,730 -	- 6,632	3,220 10,820
Yasuda	S notes Shares	NA NA	NA NA	NA NA	NA NA	NA NA	NA NA	NA NA	NA NA	NA NA	300 2,755	300 5,014	1,113 -	- 5,148	1,413 10,162
Mitsui	S notes Shares	NA NA	100 1,154	NA NA	NA NA	NA NA	NA NA	NA NA	NA NA	30 70	210 1,378	340 2,602	1,450 -	- 4,177	1,790 6,779
Taiyo	S notes Shares	0 NA	250 1,154	0 924	0 NA	50 291	0 512	0 NA	0 NA	0 NA	0 400	300 3,282	850 -	- 3,423	1,150 6,705
Daido	S notes Shares	20 16	NA NA	20 32	NA NA	24 952	20 11	NA NA	NA NA	12 13	20 856	136 1,900	0 -	- 1,697	136 3,597
Fukoku	S notes Shares	0 430	0 NA	0 NA	0 NA	0 NA	0 NA	0 NA	0 NA	0 NA	0 820	0 1,251	325 -	- 1,710	325 2,961
Kyoei	S notes Shares	0 NA	0 NA	0 NA	0 NA	0 NA	0 NA	0 NA	0 NA	0 NA	0 391	0 391	455 -	- 3,514	455 3,905
Chiyoda	S notes Shares	NA NA	NA NA	NA NA	160 506	NA NA	NA NA	NA NA	460 503	NA NA	280 751	900 1,759	879 -	- 2,700	1,779 4,459
Nichidan	S notes Shares	0 NA	0 NA	0 NA	0 NA	0 NA	0 NA	0 NA	0 NA	0 NA	0 265	0 265	450 -	- 3,108	450 3,373
Tokyo	S notes Shares	NA NA	NA NA	NA NA	NA NA	NA NA	NA NA	120 181	NA NA	NA NA	170 250	290 431	400 -	- 850	690 1,281
Total	S notes Shares	643 4,024	773 4,271	593 9,990	328 2,268	487 4,202	943 5,640	120 237	1,023 1,796	370 3,900	3,523 37,165	9,246 76,883	13,602 -	- 66,896	22,848 143,779

Source: Fukao and Japan Center for Economic Research (2000b).

Notes: S notes: surplus notes, NA: data not available. Data are taken from disclosure materials of individual financial institutions.

- The industrial companies that entered into cross-shareholding relationships with banks raised their funds primarily through bank borrowings, thereby weakening their autonomy as shareholders.

Skewed Incentives for Bank Management

Another possible reason for the lack of profitability among Japanese banks is the skewed incentive structure among bank managers. In order to correct the incentive structure for corporate management and shareholders, it is important to maintain a positive capital position. When there is no capital or even negative capital, the incentive arises to invest in excessively risky projects, while management is inclined to conceal any negative equity to keep control of the company for as long as possible.

In the case of those financial institutions that failed, there were large differences in equity values before and after failure, as we saw above in the case of the Hokkaido Takushoku Bank and Yamaichi Securities. Similarly, the LTCB and Nippon Credit Bank finally revealed that they had 3 trillion yen negative equity after their failure.

The suspicion is that top management in most major banks knows that their banks are either insolvent or very marginally capitalized. Under such circumstances, the only safe exit from that position is to keep their banks running without disclosing the truth, in other words, postponing recognition of bad loans. In addition, they have to comply with any irrational FSA regulations, such as the requirement to make new loans to small and medium-sized companies on the basis of a very thin spread.

Some Further Problems in the Japanese Financial System

We have seen how the stock market is still highly skeptical about the soundness of the Japanese banking sector. Banks are regarded to be undercapitalized and the estimated average fair deposit insurance premium is almost three times the current premium. We believe that this market skepticism reflects a number of other problems in the Japanese financial system, from which important lessons are to be learnt:

- Disclosure and honesty about the scale of the problem is essential. By concealing the true picture, Japan lost a decade of growth and is still struggling to escape from the slowly accelerating rate of deflation.
- Regulators should not allow banks with negative equity to operate under the protection of the government. These “zombie” banks undercut the lending

rate and have a debilitating effect on healthy banks. Moreover, they can help firms with negative equity. Bank-supported firms under-price their products and create more “zombie” firms.

- Deflation is very dangerous. The financial system cannot function well under deflation. Even with a zero market interest rate in Japan, the real lending rate is too high for small firms to survive with a 2 percent deflation or more.

References

- Bank for International Settlements. 1993. *63rd Annual Report*, 1993.
- Fueda, I. 2000. Financial Liberalization, Asset Bubble, and Bank Behavior. In *Empirical Analysis of Financial Recession*, pp. 1–32. eds. M. Fukao and JCER.
- _____. 2000. Recapitalizing Japan’s Banks: the Functions and Problems of Financial Revitalization Act and Bank Recapitalization Act, *Keio Business Review*. 38.
- Fukao, M., and Japan Center for Economic Research, eds. 2000a. *Empirical Analysis of Financial Recession (Kinyu Fukyo no Jissho Bunseki)* (in Japanese). Tokyo: Nikkei Sinbun Sha.
- _____, eds. 2000b, *Examining Life Insurance Crisis (Kensho Seiho Kiki)* (in Japanese), Tokyo: Nikkei Sinbun Sha.
- Higo, M. 2001. *The Current State of FILP System: the Effects of 2001 Reform on the Functions of the FILP* (in Japanese). Bank of Japan Economic Research Department Working Paper 01-1, March 2001.
- Horie, Y. 2001. *Economic Analysis of Lending Behavior* (in Japanese). Tokyo: Tokyo University Press.
- Shigemi, Y. 1995. Asset Inflation in Selected Countries. *Bank of Japan Monetary and Economic Studies*. pp. 89–130. 13(2).

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CHAPTER 7

Do Depositors Punish Banks for Bad Behavior? Market Discipline, Deposit Insurance and Banking Crises

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Over the last two decades, both developed and developing countries have endured severe banking crises. The U.S. savings and loans (S&Ls) debacle in the 1980s, the Chilean banking crisis in the 1980s, the Argentine and Mexican crises in the mid-1980s and 1990s, as well as the recent financial turmoil in Asia and Russia are only a few examples. At all times and, particularly, to avoid banking crises, regulators need to find ways to promote prudent behavior by banks. The standard recommendation is for countries to tighten supervision and prudential regulation. Alternatively, rather than depending exclusively on regulatory action, banking authorities can also increase their reliance on market discipline to oversee banks.

Market discipline in the banking sector can be described as a situation in which private sector agents (stockholders, depositors, or creditors at large) face costs that increase as banks undertake risks, and take action on the basis of these costs (Berger, 1991). For example, uninsured depositors, who are exposed to bank risk taking, may penalize riskier banks by requiring higher interest rates or by withdrawing their deposits.

Market discipline can be beneficial in several ways. This type of discipline may reduce the moral hazard incentives, which government guarantees create for banks to undertake excessive risks. Also, market discipline may improve the efficiency of banks by pressuring some of the relatively inefficient banks to become more efficient or to exit the industry. Moreover, the social cost of supervising banks may be lowered if regulators cede greater control to market forces that can distinguish between good and bad banks.

The existing literature on market discipline primarily focuses on whether market discipline exists in a particular country during a given period. Most of the papers focus on the U.S. commercial banking industry, supporting the hypothesis that market disci-

pline is at work.¹ Baer and Brewer (1986), Hannan and Hanweck (1988), Ellis and Flannery (1992), and Cook and Spellman (1994), among others, analyze how yields on deposits respond to bank risk taking, as captured by balance sheets and by market measures of risk. Goldberg and Hudgins (1996) and Calomiris and Wilson (1998) examine this question by concentrating on the level or change of deposits. Park (1995) and Park and Peristiani (1998) combine both approaches mentioned above.² Calomiris and Mason (1997) study whether bank failures are related to bank risk characteristics. Whereas the literature on market discipline is quite vast for the United States, there are only a few papers on this subject regarding developing countries. Valdés and Lomakin (1988) examine interest rate changes associated with bank riskiness in Chile in the mid-1980s. Schumacher (1996), D'Amato, Grubisic, and Powell (1997), and Calomiris and Powell (2000) analyze whether market discipline exists in the case of Argentina during the 1990s.

The present chapter empirically examines two issues largely unexplored by the literature on market discipline. First, it studies the interaction between deposit insurance and market discipline.³ Second, the paper investigates the impact of banking crises on market discipline. To study these two issues, we focus on the experiences of the Argentine, Chilean, and Mexican banking sectors over the last two decades. The developments in these countries and the unique bank level data we put together enable us to shed new light on the links between market discipline, deposit insurance, and banking crises.

The deposit insurance scheme in place in a country may affect the extent of market discipline. Deposit insurance systems are designed to protect small depositors and to avoid systemic crises. If depositors know that their funds are safe and liquid, they will not have an incentive to withdraw their deposits from their bank when they see other banks fail. Consequently, deposit insurance can lower the probability of systemic bank runs. At the same time, a credible deposit insurance system reduces the incentives of depositors to monitor banks, diminishing the degree of market discipline. However, if the deposit guarantee is not credible or if there are costs associated with the recovery of deposits following a bank failure, insured depositors will be compelled to monitor banks.

Since our data set discriminates between insured and uninsured depositors, we are able to examine the link between market discipline and deposit insurance. In particular, we can test whether both insured and uninsured depositors discipline banks.

¹ Flannery (1998) provides an excellent survey of this literature.

² Other studies, like Avery, Belton, and Goldberg (1988), Gorton and Santomero (1990), and Flannery and Sorescu (1996), look at the existence of risk premia on subordinated notes and debentures, rather than deposits.

³ Demirguc-Kunt and Huizinga (2000) analyze how different design features of deposit insurance schemes affect deposit interest rates and market discipline.

Furthermore, since in some cases the deposit insurance scheme was introduced or modified during our sample of study, we can examine the extent of market discipline before and after a change in the deposit insurance coverage. Comparing the response of insured and uninsured depositors to changes in bank risk taking is interesting because we are dealing with three countries, each with different deposit insurance schemes.

Banking crises are a unique time to study market discipline. First, during crises, banks tend to be weak and the probability of bank failures rises. Thus, to avoid losing their funds, depositors might increase market discipline during these periods. On the other hand, banking crises tend to be associated with large macroeconomic effects and bank runs (which affect all banks regardless of their fundamentals) and with bank interventions (which, in many cases, temporarily freeze deposits and interest rates). Consequently, during crises, we might observe an increase in the relative importance of the aggregate factors. Second, traumatic episodes may act as wake-up calls for depositors, increasing depositors' awareness of the risk of their deposits. Also, deposit insurance funds might be depleted during a crisis, diminishing the ability of insurance schemes to guarantee deposits. As a consequence, after crises, we might see a rise in market discipline. In this chapter, we assess the link between crises and market discipline by studying banking crises in three countries. In particular, we compare the responsiveness of depositors to bank risk taking before, during, and after crises.

The remainder of this chapter is organized as follows. The first section describes the empirical methodology, the second discusses the data and variables, the third presents the empirical results, and the fourth concludes.

Methodology

We estimate two sets of models to study market discipline, one for deposits and one for interest rates. In each model, we test whether bank risk characteristics significantly explain the behavior of deposits and interest rates. We measure the reaction of deposits to bank risk taking with the following reduced form equation for each country:

$$\Delta Deposits_{i,t} = \mu_i + d_t + \beta' Bank\ Fundamental_{i,t-1} + \varepsilon_{i,t} \quad (1)$$

such that $i=1, \dots, N$ and $t=1, \dots, T$. N is the number of banks in each country. The panel is unbalanced, so T , the number of observations per bank, varies across institutions.

The left-hand side variable, $\Delta Deposits_{i,t}$, represents the first difference of the log of time deposits held by bank i at time t . The vector of bank risk characteristics,

Bank Fundamentals $_{i,t-1}$, is described in the next section. This vector is included with a lag, to account for the fact that balance sheet information is available to the public with a certain delay. The time specific effect is represented by d_t , included to control for macroeconomic and banking sector developments, common across banks; while μ_i stands for bank specific or fixed effects

A common test of market discipline is whether the estimates of β are individually or jointly different from zero. If there is no market discipline, deposit growth should be uncorrelated with bank risk characteristics, and we should fail to reject $\beta = 0$. However, the finding that deposits respond to bank risk is not enough to conclude that market discipline is at work. Depositors can discipline banks by withdrawing their funds or by requiring higher interest rates on their deposits. If market discipline is present, we should observe that risky banks are forced to pay high interest rates or, at least, that those risky banks do not pay lower interest rates (when, at the same time, they face deposit withdrawals).

Even though most of the literature studies market discipline by analyzing either deposits or interest rates, an examination of both variables provides a more complete test of market discipline. The analysis of interest rates can help distinguish between market discipline and other alternative hypotheses, such as regulatory discipline. For example, banks may respond to regulatory pressure to comply with capital standards by reducing their assets, and consequently their liabilities. Thus, risky banks might lower their interest rate to decrease deposits. As a result, under regulatory discipline, interest rates should be negatively correlated with bank risk. On the other hand, a positive correlation between interest rates and risk is a sign of market discipline.

To analyze whether depositors discipline bank risk taking by requiring higher interest rates, we estimate the following equation for each country:

$$\text{Interest Rates}_{i,t} = \mu_i + d_t + \beta' \text{Bank Fundamentals}_{i,t-1} + \omega_{i,t} \quad (2)$$

The left-hand side variable, *Interest Rates* $_{i,t}$, is the implicit interest rate paid by bank i on its deposits at time t . We assume that the error terms $\varepsilon_{i,t}$ and $\omega_{i,t}$ are independently distributed with mean zero and variance $\sigma_{i,t}^2$.

We report between and within or pooled estimators of equations (1) and (2). Between estimators are obtained by regressing the mean of deposits of each bank on mean values of the explanatory variables, excluding time effects. Within or fixed effects estimators highlight the variation of deposits over time, using deviations from each bank's mean. Based on specification tests, we report pooled estimations, which exclude banks' fixed effects, when these effects are jointly insignificant. We only calculate be-

tween estimators for the case of Argentina, for which there is a large number of banks.⁴ In all the estimations, we conduct and report two additional diagnosis tests. First, we present F-tests to evaluate the joint significance of bank fundamentals. Second, we test the joint significance of time effects to determine whether systemic shocks—common across banks—are important in explaining the behavior of deposits and interest rates.

We estimate various versions of equations (1) and (2) for each country. First, we distinguish between insured and uninsured deposits. As discussed before, this distinction is important because, *a priori*, we expect to find differences in the degree of market discipline across these two types of depositors. Among uninsured deposits, we distinguish between medium and large time deposits, to study whether there are different patterns of behavior across deposit size.

Second, using equations (1) and (2), we divide the sample period to test for the presence of market discipline before, during, and after banking crises. As an additional way to evaluate the effects of deposit insurance and banking crises on market discipline, we study the relative importance of bank fundamentals before, during, and after crises, and among insured and uninsured deposits. We calculate the proportion of the variance explained by these variables by estimating equations (1) and (2) with time specific effects, after removing bank specific effects. Then, we re-estimate these equations, including bank fundamentals. We assign any correlation among the independent variables to the time specific effects. Namely, to be on the safe side, we potentially bias the results against the bank risk characteristics. For each estimated equation, we report the proportion of the adjusted R-squared captured by bank risk characteristics.

Data and Variables

One important contribution of this paper is the novel data set we put together and analyze. In particular, we work with bank level data for Argentina, Chile and Mexico to examine different aspects of market discipline. Some bank level data have become more easily available in the last few years and a number of financial services have started to report cross-country data. However, detailed, comprehensive, and reliable panel data sets are still not available. Moreover, existing data do not contain the level of disaggre-

⁴ Alternative specifications are displayed in the full working paper version of this chapter available at <http://www.world-bank.org/research>. The paper displays estimates that use the level of deposits, as other papers have computed. To check whether the results are robust to potential endogeneity, we use generalized method of moments (GMM) estimates, combining variables in levels and first differences. The lessons from the alternative estimates are the same as the ones put forth in this chapter.

gation necessary to evaluate the behavior of insured and uninsured deposits separately. Also, available data sets do not account for the large number of bank mergers, acquisitions, and privatizations, which took place in the second half of the 1990s. If not handled appropriately, bank panels would distort the evolution of balance sheet information over time.

We collected bank specific data in close consultation with the financial supervisors and regulators in the countries in our sample. In particular, we put together our data set with the help of the Central Bank of Argentina, the Superintendency of Banking (Argentina), the Central Bank of Chile, the Superintendency of Banking and Financial Institutions (Chile), and the National Banking and Securities Commission (Mexico). These agencies oversee banks in each country. All banks are required to disclose their financial statements to the banking authorities on a regular basis. Bank specific balance sheet information is collected periodically, but published and available to the public with a lag of around two months. Most bank specific data are available at a quarterly frequency, although some variables exist on a monthly basis.

For each country, we gathered historical data. We constructed consistent variables over time and we built panels for each country. We also controlled for those cases when banks merged, were acquired, or were privatized. Typically, these processes cause a sudden change in the bank accounts. For those cases when a bank merged or was acquired or privatized, we treat the resulting larger bank as a new bank in the sample. For Argentina, the data set covers the period 1993 to 1997. In the case of Chile, we use monthly data for the period 1981 to 1986, which includes the banking crisis that occurred during the 1980s. For the period 1991 to 1996, we work with quarterly data. Finally, in the case of Mexico, the data are quarterly and cover the sample 1991 to 1996.⁵

Bank level variables used in this paper include individual bank time deposits, interest rates paid on deposits, and a group of bank risk characteristics. For Argentina and Chile in the 1990s, we have data on time deposits by size. Consequently, we can study the behavior of insured, uninsured, medium, and large time deposits. In the case of Argentina, we use data on both peso and U.S. dollar deposits, given that around half of the deposits are in dollars. Also, comparing the behavior of deposits denominated in different currencies is interesting since, in addition to the bank default risk and aggregate factors that affect dollar deposits, peso deposits are also subject to currency risk. For Chile in the 1980s and for Mexico, we only have information on total time deposits. Local currency deposits are expressed in real terms (adjusted by the consumer price index), to control for the potential growth in nominal figures that can be due to inflation. With respect to the interest rates paid on deposits, we use an implicit measure,

⁵ In March 1997, the accounting system changed, making it difficult to consolidate data from before and after that date.

since marginal rates are not available. This implicit rate is calculated by dividing the total interest rate expenses by the total interest bearing deposits. Contrary to the data on deposit flows, we have no information on interest rate expenses by amount of deposits. Therefore, we can only examine the behavior of the interest paid on all deposits.

The measures of risk we calculate are akin to those used in the CAMEL rating system of banks. CAMEL stands for capital adequacy, asset quality, management, earnings, and liquidity. Deteriorating CAMEL indicators would signal an increase in the risk profile of banks.

Capital adequacy is measured by the capital to assets ratio. We expect the capital adequacy variable to have a positive effect on bank deposits. On the other hand, higher capitalization ratios should, in principle, allow banks to pay lower interest rates on their deposits.

A number of indicators are used as measures of asset quality. A clear signal of asset quality is the ratio of non-performing to total loans. This ratio measures the percentage of loans a bank might have to write off as losses. We expect this variable to have a negative impact on deposits and a positive effect on interest rates.

The concentration of loan portfolios also captures the quality of the assets held by banks. In general, a large exposure to a vulnerable sector, like real estate, raises bank risk. On the other hand, because most real estate loans are mortgage loans (loans for which the assets in question serve as collateral) it is possible that these loans can be considered relatively safe. Thus, it is a priori unclear what impact the proportion of real estate loans should have on deposits and interest rates. We face a similar uncertainty when analyzing personal or consumption loans, which are typically granted without collateral. However, personal loans may be easier to recall than other loans (like mortgage loans), given that they are usually smaller and have a shorter maturity. Consequently, one can expect a rise in this type of lending to indicate either an increase or a decrease in the risk exposure of banks.

We measure bank profitability by the return on assets ratio. Assuming we are adequately controlling for risk, we expect this variable to have a positive effect on deposits. On the other hand, we expect higher profitability to enable banks to offer lower interest rates.

The efficiency of banks is measured by the ratio of non-interest expenditures to total assets. Less efficient banks are expected to have higher expenditures. However, it is also the case that banks that offer better services to customers might have higher expenditures to total assets. If we could control for the quality of service, we would expect an increase in non-interest expenditures to have a negative effect on deposits and a positive impact on interest rates. In our case, given that we cannot control for the quality of bank services, the effect of this variable is indeterminate.

The cash to assets ratio is included as an indicator of banks' liquidity and risk. In general, banks with a large volume of liquid assets are perceived to be safer, since these assets would allow a bank to meet unexpected withdrawals. In this sense, controlling for other factors, we expect more liquid banks to suffer fewer deposit withdrawals and to be able to pay lower interest rates. To the extent that the ratios of bonds to assets and (financial) investments to assets can be considered as measures of liquidity, we would expect them to have a positive effect on bank deposits and a negative impact on interest rates. However, the recent history in emerging markets shows that bonds can sometimes become illiquid, while their prices suffer large fluctuations. Thus, a priori, it is difficult to predict the effect of this variable.

Results

We report the results under three headings. First, to assess the impact of deposit insurance and banking crises on market discipline, we examine whether deposits and interest rates are indeed affected by bank risk characteristics. Second, we study the link between market discipline and deposit insurance. To do so, we compare the extent of market discipline among insured and uninsured deposits, and among deposits in periods with and without deposit insurance. Finally, we evaluate the relation between market discipline and banking crises. In particular, we contrast the response of deposits and interest rates before, during, and after episodes of stress in the banking sector. To minimize the number of tables and to avoid referring to different specifications throughout the paper, we work with a particular partition of the data that enables us to jointly shed light on the three questions of interest. Thus, the next three sections refer to the same tables, although particular specifications may sometimes provide more detail than needed.

Responsiveness of Deposits and Interest Rates to Bank Risk Taking

This section evaluates whether there is evidence of market discipline, that is, whether depositors respond to bank risk taking by withdrawing their deposits and/or by requiring higher interest rates on deposits. Here, we do not focus our analysis on particular specifications, but we do so in the following sections. The estimations of equations (1) and (2) are displayed in Tables 7.1 to 7.5. Fixed effects and time effects are not reported to save space.

(Text continues on page 176)

Table 7.1. Argentina: Response of Growth of Peso Deposits to Bank Risk Characteristics

Explanatory variables	Jun 95–Mar 97, by size of deposits, Post-crisis period											
	Jun 93–Sep 94 Pre-crisis period		Jun 93–Mar 95 Crisis period		<\$10,000 Insured deposits		>\$20,000 Uninsured deposits		>\$20,000 & <\$100,000 Medium deposits		>\$100,000 Large deposits	
	1	2	1	2	1	2	1	2	1	2	1	2
Lag (capital/assets)	-0.067 (-0.470)	-0.018 (-0.098)	0.218* (1.679)	0.243 (1.493)	-0.284 (-1.060)	2.749** (2.384)	-0.410 (-1.325)	6.376*** (4.061)	-0.261 (-0.943)	3.216*** (2.714)	-0.411 (-0.892)	5.348** (2.378)
Lag (non-performing loans/total loans)	-0.101 (-1.188)	-0.131 (-1.212)	0.104 (1.295)	0.115 (1.263)	0.070 (0.429)	-0.642** (-2.003)	-0.039 (-0.217)	-0.502 (-0.807)	0.208 (1.353)	-0.721 (-1.413)	-0.084 (-0.251)	-3.521** (-2.212)
Lag (real estate loans/ total loans)	-0.005 (-0.043)	0.006 (0.034)	0.272*** (2.685)	0.236* (1.885)	0.062 (0.362)	-0.614 (-1.370)	-0.280 (-1.555)	-0.101 (-0.150)	0.023 (0.148)	-0.287 (-0.580)	-0.262 (-0.941)	-0.455 (-0.699)
Lag (personal loans/ total loans)	0.044 (2.734)	0.013 (0.174)	0.043 (0.796)	0.039 (0.717)	0.098 (0.782)	-0.328 (-0.948)	-0.036 (-0.277)	-0.781* (-1.826)	-0.024 (0.111)	-0.265 (-0.595)	0.092 (0.484)	-0.800 (-0.921)
Lag (return/assets)	1.839** (2.179)	0.404 (0.838)	1.154 (1.419)	0.584 (1.419)	6.100** (2.082)	6.160 (1.374)	17.799*** (5.104)	7.944 (1.457)	9.228*** (3.149)	4.623 (1.127)	15.005** (2.35)	-7.268 (-1.585)
Lag (cash/assets)	-0.259 (-1.413)	-0.251 (-1.114)	0.165 (0.910)	0.078 (0.451)	0.612 (0.989)	0.473 (0.700)	-0.440 (-0.587)	0.201 (0.228)	0.357 (0.523)	0.711 (1.032)	0.196 (0.212)	-1.230 (-1.055)
Lag (bonds/assets)	0.581* (1.959)	-0.161 (-0.493)	0.419 (1.467)	0.479* (1.610)	-0.020 (-0.042)	0.189 (0.38)	0.109 (0.228)	0.538 (0.786)	-0.128 (-0.301)	-0.425 (-0.842)	-0.070 (-0.100)	2.338** (2.410)
Lag (expenditure/assets)	0.032 (0.031)	-0.715 (-0.576)	-0.852 (-0.857)	-0.249 (-0.253)	-4.628 (-1.511)	-7.287* (-1.952)	-1.266 (-0.378)	-6.720** (-1.788)	-1.575 (-0.551)	-6.934* (-1.702)	-2.528 (-0.477)	-3.560 (-0.305)
Adjusted R-squared	0.047	0.009	0.053	0.320	0.054	0.264	0.272	0.262	0.073	0.244	0.166	0.166
F-test fixed effects		0.467		0.618		1.771***		1.522***		1.455**		1.441*
F-test time effects		2.975**		66.424***		8.248***		5.887***		12.060***		4.562***
F-test bank fundamentals		0.679		1.681*		12.000***		11.458***		8.692***		5.777***
Number of banks	152	152	155	155	83	462	75	377	82	82	57	293

Notes: 1: Between estimates. 2: Within estimates. *, 10% level of significance. **, 5% level of significance. ***, 1% level of significance.

The table reports regression results of the growth of peso deposits on bank risk characteristics. Between and within (fixed effects) or pooled results are reported. When the fixed effects are not jointly significant at 10 percent, pooled OLS results are reported. Estimators for time dummies, fixed effects, and the constant term are not reported in the table, even though they are included in the regressions. T-statistics are in brackets. Robust standard errors with the White correction for heteroskedasticity are obtained. The sign \$ denotes both Argentine pesos and U.S. dollars. F-tests for fixed effects, time effects, and bank fundamentals (risk characteristics) test the null hypothesis that the corresponding group of variables is equal to zero.

Table 7.2. Argentina: Response of Growth of Dollar Deposits to Bank Risk Characteristics

Explanatory variables	Jun 95–Mar 97, by size of deposits, Post-crisis period											
	Jun 93–Sep 94 Pre-crisis period		Jun 93–Mar 95 Crisis period		<\$10,000 Insured deposits		>\$20,000 Uninsured deposits		>\$20,000 & <\$100,000 Medium deposits		>\$100,000 Large deposits	
	1	2	1	2	1	2	1	2	1	2	1	2
Lag (capital/assets)	0.021 (0.201)	0.102 (0.760)	0.046 (0.563)	0.155 (1.523)	-0.287 (1.223)	1.866* (1.857)	-0.177 (1.094)	1.709 (1.094)	-0.141 (0.494)	2.622*** (2.955)	-0.023 (-0.072)	-0.101 (-0.247)
Lag (non-performing loans/total loans)	-0.197*** (-3.161)	-0.232 (-1.029)	-0.114** (-2.238)	-0.139* (-1.710)	-0.087 (-0.612)	-0.736** (-2.191)	-0.101 (-0.641)	-0.465* (-1.659)	-0.020 (-0.127)	-0.328 (-0.926)	-0.180 (-0.795)	-0.319 (-0.870)
Lag (real estate loans/total loans)	0.026 (0.306)	0.034 (0.421)	0.055 (0.863)	0.031 (0.485)	0.034 (0.229)	-0.075 (-0.224)	0.059 (0.374)	0.673 (1.155)	0.040 (0.248)	0.124 (0.378)	0.102 (0.537)	0.187 (0.931)
Lag (personal loans/total loans)	0.054 (1.245)	0.033 (0.866)	0.060* (1.739)	0.052 (1.509)	0.039 (0.358)	0.458 (1.097)	-0.092 (-0.812)	-0.801 (-1.101)	-0.073 (-0.619)	0.099 (0.22)	-0.075 (-0.584)	-0.124 (-1.021)
Lag (return/assets)	0.105 (0.171)	-0.042 (-0.075)	-0.145 (-0.283)	-0.528 (-1.399)	5.254** (2.052)	4.894 (1.257)	7.249** (2.383)	8.333* (1.817)	6.602** (2.195)	4.247 (1.115)	2.537 (0.583)	4.094** (1.978)
Lag (cash/assets)	-0.036 (-0.272)	0.116 (0.796)	0.025 (0.215)	0.164 (1.410)	0.096 (0.178)	0.436 (0.900)	-0.144 (-0.220)	-0.749 (-0.566)	-0.107 (-0.153)	0.987** (2.044)	-0.320 (-0.506)	0.031 (0.054)
Lag (bonds /assets)	-0.349 (-1.614)	-0.367 (-0.660)	-0.078 (-0.435)	0.070 (0.411)	0.269 (0.645)	0.238 (0.682)	0.411 (0.981)	-1.683** (-2.191)	0.444 (1.014)	-0.279 (-0.774)	0.127 (0.267)	-0.987* (-1.890)
Lag (expenditure/assets)	0.466 (0.623)	0.692 (0.859)	0.216 (0.344)	0.693 (1.247)	-0.231 (-0.086)	-7.422* (-1.785)	2.994 (1.025)	-9.270*** (-3.263)	2.697 (0.919)	-13.761*** (-3.926)	4.219 (1.167)	4.614 (1.283)
Adjusted R-squared	0.079	0.028	0.024	0.289	0.114	0.285	0.040	0.155	0.108	0.317	0.001	0.006
F-test fixed effects		0.721		0.914		2.185***		1.358**		2.577***		0.855
F-test time effects		2.669**		53.561***		4.380***		1.900*		6.045***		1.084
F-test bank fundamentals		2.539***		2.899***		14.507***		9.006***		12.623***		1.416
Number of banks	152	152	155	155	83	83	75	75	82	82	57	57
Number of observations	152	747	155	1,045	83	462	75	377	82	453	57	293

Notes: 1: Between estimates, 2: Within estimates. *, 10% level of significance. **, 5% level of significance. ***, 1% level of significance.

The table reports regression results of the growth of U.S. dollar deposits on bank risk characteristics. Between and within (fixed effects) or pooled results are reported. When the fixed effects are not jointly significant at 10 percent, pooled OLS results are reported. Estimators for time dummies, fixed effects, and the constant term are not reported in the table, even though they are included in the regressions. T-statistics are in brackets. Robust standard errors with the White correction for heteroskedasticity are obtained. The sign \$ denotes both Argentine pesos and U.S. dollars. F-tests for fixed effects, time effects, and bank fundamentals (risk characteristics) test the null hypothesis that the corresponding group of variables is equal to zero.

Table 7.3. Argentina: Response of Interest Rates Paid on Deposits to Bank Risk Characteristics

Explanatory variables	Jun 93 – Sep 94 Pre-crisis period		Jun 93 – Mar 95 Crisis period		Jun 95 – Mar 97 Post-crisis period	
	1	2	1	2	1	2
Lag (capital/assets)	-0.008 (-0.607)	-0.090*** (-3.214)	0.003 (0.281)	-0.048*** (-2.575)	0.017 (1.093)	0.019 (1.344)
Lag (non-performing loans/total loans)	0.052*** (5.343)	-0.004 (-0.362)	0.019*** (2.638)	-0.012* (-1.659)	-0.009 (-0.970)	-0.008 (-1.028)
Lag (real estate loans/ total loans)	-0.001 (-0.112)	-0.009 (-0.899)	-0.012 (-1.572)	-0.007 (-0.793)	0.000 (-0.045)	-0.017 (-1.268)
Lag (personal loans/ total loans)	0.019** (2.458)	0.014 (1.456)	0.007 (1.235)	0.005 (0.610)	0.005 (0.545)	-0.043** (-2.479)
Lag (return/assets)	-0.020 (-0.803)	-0.001 (-0.242)	-0.024 (-0.897)	0.000 (0.114)	-0.178 (-1.207)	-0.002 (-0.091)
Lag (cash/assets)	-0.085*** (-4.873)	-0.003 (-0.224)	-0.110*** (-7.673)	-0.009 (-1.297)	-0.134*** (-3.208)	-0.064*** (-3.735)
Lag (bonds/assets)	-0.002 (-0.073)	0.011 (1.161)	-0.033 (-1.550)	-0.011 (-1.130)	-0.116*** (-3.654)	-0.005 (-0.560)
Lag (expenditure/assets)	0.007 (0.068)	0.026 (0.288)	0.086 (1.042)	-0.131 (-1.572)	-0.117 (-0.745)	0.013 (0.153)
Adjusted R-squared	0.334	0.822	0.368	0.745	0.332	0.728
F-test fixed effects		16.073***		11.857***		10.727***
F-test time effects		9.554***		32.310***		28.413***
F-test bank fundamentals		8.190***		6.621***		6.603***
Number of banks		102		114		79
Number of observations	102	501	114	750	79	570

Notes: 1: Between estimates, 2: Within estimates. *: 10% level of significance. **: 5% level of significance. ***: 1% level of significance.

The table reports regression results of the growth of the interest rates paid on deposits on bank risk characteristics. Between and within (fixed effects) or pooled results are reported. When the fixed effects are not jointly significant at 10 percent, pooled OLS results are reported. Estimators for time dummies, fixed effects, and the constant term are not reported in the table, even though they are included in the regressions. T-statistics are in brackets. Robust standard errors with the White correction for hetero-skedasticity are obtained. F-tests for fixed effects, time effects, and bank fundamentals (risk characteristics) test the null hypothesis that the corresponding group of variables is equal to zero.

Table 7.4. Chile: Response of Growth of Peso Deposits and Interest Rates Paid on Deposits to Bank Risk Characteristics

Explanatory variables	Jun 81 – Nov 86				Feb 91 – Nov 96			
	Growth of deposits				Growth of deposits, by size of deposits			
	81 – 82 Crisis period First phase	83 – 84 Crisis period Second phase	85 – 86 Post-crisis period	< 120 UF Insured deposits	> 120 UF Uninsured deposits	> 120 UF & < 1,500 UF Medium deposits	> 1,500 UF Large deposits	Interest rates
Lag (capital/assets)	0.199 (1.004)	0.117 (0.868)	0.272* (1.796)	-0.011 (-0.059)	-0.070 (-0.450)	-0.178 (-1.350)	-0.123 (-0.590)	-0.047* (-1.953)
Lag (non-performing loans/total loans)	-0.004 (-0.060)	-0.039 (-0.378)	-0.647*** (-2.583)	-1.375*** (-2.619)	-0.572 (-0.695)	-0.206 (-0.513)	-0.802 (-0.839)	0.037 (0.476)
Lag (return/assets)	2.467 (1.194)	0.539 (0.457)	0.149 (0.045)	-0.056 (-0.034)	4.920** (2.175)	3.365* (1.797)	5.182** (1.947)	-0.558** (-2.320)
Lag (cash/assets)	-0.439 (-1.433)	-0.383 (-1.556)	-0.058 (-0.338)	-0.091 (-0.660)	0.323* (1.927)	0.190** (2.340)	0.370* (1.850)	0.014 (1.251)
Lag (investments/assets)	0.093 (0.609)	0.017 (0.235)	0.067 (0.424)	-0.159 (-1.566)	-0.121 (-1.195)	-0.001 (-0.011)	-0.186 (-1.381)	0.012 (1.296)
Lag (expenditure/assets)	-1.987* (-1.833)	1.400 (1.305)	1.347 (1.021)	0.557 (1.441)	-0.399 (-1.061)	-0.345 (-1.182)	-0.229 (-0.513)	-0.046 (-0.725)
Adjusted R-squared	0.054	0.049	0.064	0.357	0.023	0.226	0.018	0.625
F-test fixed effects	1.310	0.692	1.637**	1.987***	0.659	0.976	0.498	12.643***
F-test time effects	1.763**	2.690***	1.419	14.571***	1.513*	7.764***	1.401	21.2344***
F-test bank fundamentals	1.667	1.122	4.017***	2.977***	2.883***	2.842***	2.598**	4.264***
Number of banks	21	37	37	34	37	37	37	30
Number of observations	304	1 808	721	547	619	527	619	506

Notes: *. 10% level of significance. **. 5% level of significance. ***. 1% level of significance.

The table reports regression results of the growth of peso deposits and of interest rates paid on bank risk characteristics. Between and within (fixed effects) or pooled results are reported. When the fixed effects are not jointly significant at 10 percent, pooled OLS results are reported. Estimators for time dummies, fixed effects, and the constant term are not reported in the table, even though they are included in the regressions. T-statistics are in brackets. Robust standard errors with the White correction for hetero-skedasticity are obtained. The label UF stands for Unidades de Fomento, a Chilean unit of account. F-tests for fixed effects, time effects, and bank fundamentals (risk characteristics) test the null hypothesis that the corresponding group of variables is equal to zero. The crisis period is divided into two sub-periods, which include separately the first and second round of bank interventions.

Table 7.5. Mexico: Response of Growth of Peso Deposits and Interest Rates Paid on Deposits to Bank Risk Characteristics

Explanatory variables	Mar 91 - Sep 94 Pre-crisis period			Mar 91 - Sep 95 Crisis period			Dec 95 - Dec 96 Post-crisis period					
	12 Banks			12 Banks			12 Banks			All Banks		
	Growth of deposits	Interest rates		Growth of deposits	Interest rates		Growth of deposits	Interest rates		Growth of deposits	Interest rates	
Lag (capital/assets)	-0.843 (-1.351)	0.166 (0.762)		-0.756 (-1.500)	0.068 (0.428)		0.015 (0.019)	-0.597*** (-3.028)		3.171*** (3.358)	-0.384** (-2.270)	
Lag (non-performing loans/total loans)	0.117 (0.182)	0.319* (1.864)		-0.190 (-0.495)	0.257** (1.973)		-0.229 (-0.367)	0.082 (0.508)		0.507 (0.351)	-0.104 (-0.470)	
Lag (real estate loans/total loans)	0.368 (1.250)	-0.156** (-2.404)		0.166 (0.941)	-0.195*** (-3.004)		-0.108 (-0.427)	-0.242*** (-3.870)		0.985 (1.465)	-0.126* (-1.807)	
Lag (personal loans/total loans)	-0.813* (-1.687)	0.083 (0.542)		-0.257 (-0.812)	0.014 (0.114)		2.476* (1.865)	-0.064 (-0.216)		0.357 (0.113)	-0.823*** (-3.739)	
Lag (return over assets)	6.892 (1.540)	-0.046 (-0.032)		4.088 (1.274)	-1.776** (-2.106)		4.277* (1.805)	0.265 (0.431)		3.435 (0.855)	0.959 (1.332)	
Lag (cash/assets)	0.510 (0.673)	-0.371*** (-3.023)		-0.137 (-0.249)	-0.187 (-1.304)		0.595 (0.884)	-0.193* (-1.785)		-1.799 (-1.331)	0.123 (0.628)	
Lag (expenditure/assets)	6.145 (1.393)	1.874 (1.313)		6.714* (1.891)	1.364 (1.442)		-4.917 (-1.108)	-0.556 (-0.648)		-2.841 (-0.314)	3.049** (2.065)	
Adjusted R-squared	0.072	0.644		0.073	0.808		0.1994	0.816		0.398	0.176	
F-fixed effects	0.705	10.664***		1.319	6.801***		1.301	2.258*		2.096***	8.150***	
F-time effects	1.773*	6.619***		1.727**	38.088***		1.872	21.454***		2.867**	1.853	
F-bank fundamentals	1.539	4.782***		1.213	3.464***		2.227**	13.302***		4.388***	1.959*	
Number of banks	12	10		12	10		12	10		34	31	
Number of observations	158	99		195	139		55	44		111	103	

Notes: *, 10% level of significance. **, 5% level of significance. ***, 1% level of significance.

The table reports regression results of the growth of peso deposits and of interest rates paid on bank risk characteristics. Between and within (fixed effects) or pooled results are reported. When the fixed effects are not jointly significant at 10 percent, pooled OLS results are reported. Estimators for time dummies, fixed effects, and the constant term are not reported in the table, even though they are included in the regressions. T-statistics are in brackets. Robust standard errors with the White correction for heteroskedasticity are obtained. F-tests for fixed effects, time effects, and bank fundamentals (risk characteristics) test the null hypothesis that the corresponding group of variables is equal to zero. The last two columns display pooled estimates due to the small number of observations per bank, because many institutions enter the sample during this period. Data for up to 12 banks are available before 1996. For comparison, the same banks are used in one of the estimations for the period December 1995 to December 1996.

Tables 7.1 to 7.3 present the results for Argentina. These tables show estimations for peso and dollar deposits and for interest rates over the following periods: June 1993 to September 1994, June 1993 to March 1995, and June 1995 to March 1997. Our data set begins in June 1993, when bank level data were made available systematically to the public on a quarterly basis. The Mexican crisis, which triggered a banking crisis in Argentina, started in December 1994. Therefore, our first estimation covers the pre-crisis period, June 1993 to September 1994. Our second estimation, for the period June 1993 to March 1995, includes the so-called tequila crisis. For the period starting in June 1995, our data set enables us to analyze the behavior of time deposits by size. We conduct separate estimations for insured (those below 10,000 pesos or dollars) and uninsured deposits (those above 20,000 pesos or dollars). To analyze the degree of market discipline exercised by medium size and large depositors, we distinguish between deposits in the 20,000–100,000 peso/dollar range and those larger than 100,000 pesos or dollars.

The results in Tables 7.1 and 7.2 support the finding that deposits respond to bank risk taking. In particular, the ratio of non-performing loans has a significant negative effect on both peso and dollar deposits. Also, in several specifications, we find that a rise in the capital to assets ratio fosters deposit growth. An increase in the expenditures to asset ratio is associated with a fall in deposits. Meanwhile, profitable banks attract more deposits. Medium size dollar deposits increase as banks' cash to assets ratio rises. The ratio of real estate loans to total loans has a positive effect during the crisis period.

Table 7.3 presents between and within estimates of the interest rate paid by Argentine banks on deposits. We find that across sample periods there is evidence of market discipline. As expected, the significant coefficients take the opposite sign to the ones in the regressions using deposits. We find that banks with higher capital to assets and cash to assets ratios pay lower interest rates. Also banks with a larger share of non-performing loans pay higher interest rates. Finally, Tables 7.1 to 7.3 show that bank risk characteristics are jointly significant, even after controlling for fixed effects and time effects.

The results for Chile, including those for deposits during the 1980s, for peso (or UF) time deposits during the 1990s, and for interest rates, are displayed in Table 7.4.⁶ There is no information on deposits by size in the 1980s and for interest rates. Since Chile suffered a banking crisis in the 1980s, we divide the sample into three periods, to capture the different phases of the crisis. For the period 1991 to 1996, we estimate a number of specifications. Given that we have information on the size of de-

⁶ UFs are unidades de fomento or units of account, equal to around \$4,000 in 1997.

posits, we present estimates for small, medium, and large time deposits. Small or insured deposits are those smaller than 120 UFs. Medium deposits are defined as those between 120 and 1,500 UFs. Large deposits are those above 1,500 UFs. We also estimate an equation for uninsured deposits, namely, all deposits above 120 UFs.⁷

Overall, we find that deposits respond to bank risk taking in the period following the 1980s banking crisis. We find that a rise in bank capitalization and in the cash to assets ratio lead to an increase in the growth rate of deposits. On the other hand, a surge in the ratio of non-performing loans to assets has a negative impact on deposits. Return over assets has a positive effect in the growth rate of deposits during the 1990s. In the case of interest rates, the results indicate that Chilean depositors require higher interest rates as bank risk taking increases. In particular, as the bank capitalization ratio and the return over assets increase, interest rates drop. These signs, as expected, are opposite to the ones obtained in the regressions in which deposit growth is the dependent variable. The F-tests show that risk characteristics are jointly significant in most equations for peso deposits and interest rates.

Table 7.5 displays estimates of the percent change of peso time deposits and interest rates in Mexico. We estimate four sets of regressions. For the period March 1991 through September 1995, we only have information for the 12 most important Mexican banks, which held 80 to 90 percent of total deposits. Approximately 18 banks were in business at the beginning of the sample period. We study the behavior of deposits during the pre-crisis period, March 1991 through September 1994. To test for the effect of the Mexican crisis, we expand the sample to include data through September 1995. For the post-crisis period, December 1995 to December 1996, we estimate two sets of regressions. First, we use the 12 banks for which we have data for the whole sample, to compare pre-crisis, crisis, and post-crisis results. The other set of regressions includes all banks in the sample. The greater number of banks in the post-crisis period is largely the outcome of the deregulation of the Mexican banking sector and the lifting of restrictions on foreign entry after 1995.

The regressions for Mexico provide some evidence that deposits respond to bank risk, particularly in the post-crisis period. During this period, banks with higher returns on assets, higher capital over assets, and a higher proportion of personal loans, attract more deposits. Bank risk characteristics are not significant in the pre-crisis and crisis periods. On the other hand, the evidence suggests that interest rates do respond to bank risk taking throughout the three periods. A higher proportion of non-performing

⁷ Dollar deposits in Chile account for only a small fraction of total deposits in Chile (around two to three percent). So, those results are only reported in the working paper version of this paper.

loans raises the interest rates paid by banks. A rise in the cash to assets ratio and the capital to assets ratio reduce the interest rates charged to banks. Banks that increase the return on assets and the proportion of personal loans and real estate loans pay lower interest rates. The F-tests indicate that bank fundamentals are generally jointly significant.

In the three countries, the F-tests for bank fundamentals show that bank risk characteristics jointly affect the behavior of deposits and interest rates in most specifications; this is a sign of market discipline. However, the coefficients on various bank risk characteristics are individually not different from zero. This can be due to two factors. Since bank risk characteristics are highly collinear, the individual significance of certain indicators is not captured in the estimations. Alternatively, the results could suggest that depositors only monitor banks by following a few variables. Future research might help to disentangle the relative importance of individual bank risk indicators.

Summarizing, the results discussed in this section indicate that there is evidence of market discipline across the three countries. We find support for the notion that deposit growth falls as bank risk taking increases. Moreover, the evidence suggests that depositors require higher interest rates when banks undertake more risk. The finding that depositors charge higher interest rates to riskier banks suggests that the behavior of deposits is not just the consequence of regulatory pressures on risky banks. We proceed, in the next two sections, to investigate whether the differences across specifications are related to the existence of deposit insurance and to the occurrence of banking crises.

Market Discipline and Deposit Insurance

Having found evidence of market discipline, we now concentrate on the effects of deposit insurance on market discipline by comparing the behavior of insured and uninsured deposits. To study the relationship between market discipline and deposit insurance, we refer again to Tables 7.1 to 7.5, but we complement those results by calculating the proportion of the variance explained by bank fundamentals across different periods and types of deposits.

As mentioned before, all three countries in our sample have different insurance schemes, which varied over time. Argentina had no deposit insurance whatsoever before the Mexican crisis of 1994 to 1995. Then, for the estimations using data up to March 1995, we concentrate on total time deposits, which is equivalent to studying the behavior of uninsured deposits. After that, we separate insured from uninsured deposits. In April 1995, following the tequila crisis, Argentina introduced a partial deposit insurance scheme that covers deposits up to 20,000 pesos or dollars, depending

on their maturity.⁸ Deposits with a maturity of more than 90 days are protected up to 20,000 pesos or dollars. For deposits with a shorter maturity, the guarantee covers them up to 10,000 pesos or dollars. Since we do not have data on the maturity of deposits, there is no clear way to separate insured from uninsured deposits with full certainty. To reduce the probability of including uninsured deposits in the insured group, we work with a conservative cut-off point of 10,000 pesos or dollars.

In the case of Chile, in the 1980s, a limited insurance scheme was in place, however most deposits were de facto protected. Thus, the distinction between insured and uninsured deposits in the 1980s is not very clear. Prior to November 1986, Chile had, in principle, a limited deposit insurance scheme. This deposit insurance, first introduced in January 1977 and expanded in December 1981, protected deposits up to 3,500 dollars. However, throughout this period, several banks were taken over and most deposits were de facto fully insured. In 1986, a new banking law redefined the deposit insurance scheme. According to the current legislation, only deposits of up to 120 UFs are covered in the Chilean system. In the 1990s, the clear rule about the insurance coverage permits us to study the behavior of insured and uninsured deposits separately.

During the period under study, Mexico had no formal system of deposit insurance. The Credit Institutions Law of 1990 established FOBAPROA, a trust administered by the central bank, created for preventive support to commercial banks and to protect savings. The law did not obligate FOBAPROA to explicitly guarantee or insure any obligations of commercial banks. Nevertheless, each December, FOBAPROA used to announce the maximum amount of the obligations it intended to protect. In general, FOBAPROA expressed an intention to protect all deposits, even though FOBAPROA was not an explicit deposit insurance scheme and was not liable in the event of an uncovered default. For the period we analyze, FOBAPROA implicitly protected 100 percent of deposits. The data set for Mexico does not provide information regarding the size or the currency denomination of deposits, but the legislation on deposit insurance does not distinguish between small and large deposits. Due to legal restrictions, almost 100 percent of deposits are held in local currency.

The results from Tables 7.1 to 7.5 yield some lessons regarding the effects of deposit insurance on market discipline. Insured and uninsured depositors discipline banks in Argentina and Chile. There are no significant differences in the response of deposits to bank risk characteristics across type of deposits. In the case of Mexico, we find evidence of market discipline, despite the government's promise to protect all de-

⁸ In September 1998, the insurance coverage was extended to deposits up to 30,000 pesos or dollars.

posits. Therefore, the results suggest that the deposit insurance is not fully credible in any of the three countries, since even insured depositors exercise market discipline.

Another way of studying the effect of deposit insurance on market discipline is to consider the results displayed in Table 7.6. The table shows the proportion of the R-squared explained by bank risk characteristics and an adjusted R-squared (in brackets) of the regression, which reflects the proportion of the total variance only explained by the time varying variables. The variance explained by bank fundamentals, relative to the variance explained by all time varying dummies, is the product of these two numbers. The results for Argentina indicate that the proportion of the variance of deposits explained by bank fundamentals increases substantially after the deposit insurance system is established. This increase occurs even for insured deposits. The proportion of the variance explained by bank fundamentals in the estimations for insured deposits is at least as large as the one obtained using the equations for uninsured deposits. The evidence for Chile is more mixed. We find that the proportion of the variance explained by bank fundamentals among uninsured deposits is larger than the one explained by these variables in the regression for insured deposits. However, the adjusted R-squared values tend to be lower for uninsured deposits than for insured deposits.

The finding that even insured depositors discipline banks may be due to a number of reasons. Previous confiscation of deposits (as in Argentina during the 1980s) or instances when the government did not keep its promise could be fresh in depositors' minds. Deposit protection can be uncertain when the insurance schemes are under-funded and the fiscal costs of repaying deposits are large. Finally, it is possible that we observe discipline by insured depositors because, even if the insurance is credible, depositors may want to avoid any costs they might face (typically in the form of delays) when banks fail. Repayments through the insurance fund usually take time, imposing liquidity costs on depositors. Moreover, when a bank fails, there are efforts to sell the failing bank to other institutions, to minimize the cost for the insurance fund. One of the major incentives for a healthy bank to buy a failing bank is to acquire the failed bank's deposits. Therefore, if deposits are returned through the deposit insurance, the value of the failing bank decreases. As a consequence, both insured and uninsured deposits are typically paid once the acquisition process is completed.

Market Discipline and Banking Crises

As mentioned in the introduction, banking crises are unique episodes to examine market discipline. First, during crises, there are large aggregate shocks to the economy and to the banking sector. Also, bank interventions, typical of crises, temporarily immobilize

Table 7.6. Percentage of Variance Explained by Bank Risk Characteristics

		Argentina						
		Jun 95 – Mar 97, by size of deposits						
		Post-crisis period						
Specification		Jun 93 – Sep 94	Jun 93 – Mar 95	< \$10,000	> \$20,000	> \$20,000 & < \$100,000	> \$100,000	
		Pre-crisis period	Crisis period	Insured deposits	Uninsured deposits	Medium deposits	Large deposits	
Growth of peso deposits		35% [0.02]	2% [0.33]	63% [0.23]	72% [0.24]	41% [0.25]	58% [0.19]	
Growth of dollar deposits		68% [0.05]	9% [0.33]	84% [0.22]	93% [0.16]	74% [0.22]	100% [0.06]	
All Deposits								
Interest rates		80% [0.12]	10% [0.38]	10% [0.44]				
		Chile						
		Total deposits						
Specification		1981–82	1983–84	1985–86	Feb 91 – Nov 96			
		Crisis period	Crisis period	Post-crisis period	Peso deposits (UF), by size of deposits			
		First phase	Second phase	period	< 120	> 120	> 120 & < 1,500	> 1,500
Growth of deposits		24% [0.05]	2% [0.05]	70% [0.04]	Insured deposits 3% [0.32]	Uninsured deposits 82% [0.02]	Medium deposits 8% [0.23]	Large deposits 100% [0.02]

(Table continues on next page)

Table 7.6. Percentage of Variance Explained by Bank Risk Characteristics (continued)

Specification	Mexico			
	12 Banks		All Banks	
	Mar 91 – Sep 94 Pre-crisis period	Mar 91 – Sep 95 Crisis period	Dec 95 – Dec 96 Post-crisis period	Dec 95 – Dec 96 Post-crisis period
Growth of deposits	34% [0.07]	11% [0.07]	69% [0.20]	77% [0.18]
Interest rates	36% [0.27]	5% [0.72]	50% [0.82]	83% [0.08]

Notes: The figures indicate the percentage of the adjusted R-squared explained by bank risk characteristics, as a proportion of all the time varying variables. Adjusted R-squared are given in brackets. To make the results comparable, the figures are reported from the same type of estimates for each country. We choose the most frequently used estimator. For Argentina, the results correspond to the within estimates, while in Chile and Mexico the results correspond to the pooled estimates. The breakdown corresponds to the estimations displayed in the previous tables. The sign \$ denotes both Argentine pesos and U.S. dollars. The label UF stands for Unidades de Fomento, a Chilean unit of account. In the case of Chile during the 1980s, the crisis period is divided into two sub-periods, which include separately the first and second round of bank interventions. In Mexico, data for up to 12 banks are available before 1996. For comparison, the same banks are used in one of the estimations for the period December 1995 to December 1996.

deposits and interest rates. Second, the risks of bank failures and of losing deposits, temporarily or permanently, become more evident and are magnified during these events. Moreover, the ability of the deposit insurance system to continue guaranteeing deposits can be questioned and jeopardized. We refer once more to Tables 7.1 to 7.6 to analyze whether the responsiveness of depositors to bank risk taking is affected by banking crises.

The results for Argentina suggest that the extent of market discipline diminishes during the crisis and increases sharply afterwards. The within estimates show that bank fundamentals are mostly nonsignificant up to March 1995, but become significant after June 1995 (after the tequila crisis). Moreover, Table 7.6 illustrates that the proportion of the variance explained by bank fundamentals increases substantially in the post-crisis period. This occurs for the models estimated with equations (1) and (2), for peso and dollar deposits. During the crisis, the proportion explained by bank fundamentals decreases notably, probably due to large systemic shocks. Time effects become particularly relevant during this period. The estimations regarding the behavior of interest rates do not signal such large differences between the period covering the crisis and the following period.

Table 7.6 shows that time effects explain a higher proportion of the variance for peso deposits than for dollar deposits. This result is interesting since peso and dollar deposits are affected by different risks. Both peso and dollar deposits are subject to banks' default risk. However, peso deposits are also affected by currency risk. For a given level of bank fundamentals, aggregate shocks that only increase currency risk should prompt depositors to withdraw their peso deposits, but not their dollar deposits. Thus, changes in currency risk, partially captured by aggregate effects, might explain why time effects are relatively more important among peso deposits than among dollar deposits for all specifications.

For Chile, it is more difficult to compare the crisis and non-crisis periods. The 1980s crisis was less defined in time. However, there were two rounds of bank interventions. In 1981 and 1982, the central bank took over and liquidated a series of financial institutions. By 1983, the crisis had expanded, which prompted the government to take further action. The central bank liquidated a new set of institutions and took over weak banks, including the two largest private banks. These interventions revealed the government's concern with the health of the banking system. The crisis was over in 1985.

The results for Chile suggest that deposits become more responsive to bank fundamentals after bank interventions. No variable is statistically significant in the first two sub-periods of the 1980s, while capital over assets and the proportion of non-

performing loans become significant afterwards. Other variables are significant in the 1990s. As in the case of Argentina, Table 7.6 shows that the variance explained by bank fundamentals decreases in the midst of the crisis and increases afterwards.

The case of Mexico also offers very similar evidence. Bank fundamentals only become significant in the regressions using deposits in the aftermath of the crisis. As in the previous cases, the proportion of the variance explained by bank risk characteristics decreases substantially during the crisis and increases afterwards to levels above the pre-crisis ones. In the case of Mexico, this effect can be observed both in the models using deposits and interest rates.

In sum, the results suggest two conclusions. First, bank fundamentals explain relatively less before and during crises. In crisis times, systemic effects tend to become more relevant, implying that deposits and interest rates are correlated across banks, regardless of their fundamentals. Second, the extent to which depositors shift their funds in and out of banks becomes more evident following banking crises, when the intensity of aggregate shocks diminishes and bank interventions cease. The evidence for Argentina and Mexico, where the crisis was clearly defined in time, is very suggestive. The degree of market discipline via deposit withdrawals rises substantially. Following crises, high interest might not fully compensate depositors for the risks they undertake. Depositors realize that their funds can be lost, so the degree to which they discipline banks via deposit withdrawals increases relative to pre-crisis periods.

Conclusions

This chapter concentrates on two issues largely unexplored by the existing literature on market discipline. In the first place, we empirically analyze the relationship between market discipline and deposit insurance. Second, we investigate the impact of banking crises on market discipline. The developments in Argentina, Chile and Mexico, together with the detailed bank level data set we gather, provide a unique opportunity to study these issues.

The results presented in this chapter show that depositors in Argentina, Chile, and Mexico punish banks for risky behavior, both by withdrawing their deposits and by requiring higher interest rates. The use of deposits and interest rate data enable us to distinguish market discipline from alternative hypotheses, like regulatory discipline. Also, we compare the behavior of large and small deposits. *Ex ante*, one could argue that large depositors, with a significant value at risk, would be the primary monitors of banks. However, deposits tend to represent a larger proportion of a small depositor's

wealth, so even this type of depositor might discipline banks. The evidence shows no significant difference across depositors: both large and small depositors discipline banks.

Regarding the relationship between market discipline and deposit insurance, we find that deposit insurance does not necessarily decrease market discipline. We could reject the null hypothesis that insured and uninsured depositors do not respond to bank risk taking. This result suggests that none of the deposit insurance schemes is fully credible. Insured depositors would not need to respond to bank risk taking if they perceived that their deposits were safe and liquid. Nevertheless, depositors are prompted to exercise market discipline when there is uncertainty about the future availability of their deposits, insured or uninsured.

With respect to market discipline and banking crises, the results show that large systemic effects take place during crises, affecting deposits and interest rates across banks, regardless of bank fundamentals. Also, the relative importance of market discipline rises after banking crises for all types of deposits. Before and during crises, the extent of market discipline tends to be more limited, particularly when compared with aggregate effects. These results suggest that, following bank interventions and failures, depositors become more aware of the risk of losing deposits; thus, they start exercising a stricter market discipline. In sum, crises seem to be wake-up calls for depositors.

There exists another potential rationale for the increase in market discipline after crises. If the deposit insurance funds were depleted during a crisis, insured depositors would have an incentive to start monitoring banks more closely. Although this might be the case in some crises, the insurance funds were not depleted in the episodes we analyze. Whenever a bank was in difficulties, governments tried to find buyers or took over the failing bank. Even though the deposit insurance funds were not exhausted, it became obvious during these events that the existing schemes were underfunded, indicating the limits of the deposit insurance coverage.

The cases analyzed suggest that traumatic events teach depositors that they should be concerned about the safety of their deposits at all times. The case of Argentina shows that the responsiveness of depositors to bank risk characteristics increased after the crisis, although at that time the authorities introduced an insurance to guarantee deposits. This implies that the crisis had a greater impact on depositors than the introduction of the deposit insurance system. In the case of Chile and Mexico, depositors were de facto covered during crises, yet their responsiveness increased following central bank interventions.

To conclude, the literature has argued that the existence of deposit insurance might diminish the extent of market discipline. However, the fact that we find market discipline among insured depositors suggests that deposit insurance schemes are not al-

ways fully credible. There are important reasons for this lack of credibility. Many governments have reneged on their promises in the past, the deposit insurance schemes tend to be under-capitalized, and depositors are concerned about the cost of repayment (typically in the form of delays) through the deposit insurance fund. As an example, following the tequila crisis, while the Argentine central bank and the deposit insurance administrators tried to find a buyer for every failing bank, deposits were indefinitely frozen to conserve the bank's franchise value. This type of experience seems to remind depositors that, despite the presence of deposit insurance, it might still be justified to monitor banks for bad behavior.

References

- Avery, R., T. Belton, and M. Goldberg. 1988. Market Discipline in Regulating Bank Risk: New Evidence from the Capital Markets. *Journal of Money, Credit, and Banking* 20(4): 597–610.
- Baer, H., and E. Brewer. 1986. Uninsured Deposits as a Source of Market Discipline: Some New Evidence. *Economic Perspectives*. Federal Reserve Bank of Chicago 23–31.
- Berger, A. 1991. Market Discipline in Banking. Proceedings of a Conference on Bank Structure and Competition, Federal Reserve Bank of Chicago: 419–437.
- Calomiris, C., and J. Mason. 1997. Contagion and Bank Failures during the Great Depression: The June 1932 Chicago Banking Panic, *American Economic Review* 87(5): 863–83.
- Calomiris, C., and A. Powell. 2000. Can Emerging Market Bank Regulators Establish Credible Discipline? The Case of Argentina. Banco Central de la República Argentina. Mimeo.
- Calomiris, C., and B. Wilson. 1998. Bank Capital and Portfolio Management: The 1930s Capital Crunch and Scramble to Shed Risk. NBER Working Paper No. 6649.
- Cook, D., and L. Spellman. 1994. Repudiation Risk and Restitution Costs: Toward Understanding Premiums on Insured Deposits, *Journal of Money, Credit, and Banking* 26(3): 439–59.
- D'Amato, L., E. Grubisic and A. Powell. 1997. Contagion, Bank Fundamentals or Macroeconomic Shock? An Empirical Analysis of the Argentine 1995 Banking Problems. Banco Central de la República Argentina. Mimeo.

- Demirgüç-Kunt, A., and H. Huizinga. 2000. Market Discipline and Financial Safety Net Design. World Bank. Mimeo.
- Ellis, D. and M. Flannery. 1992. Does the Debt Market Assess Large Banks' Risk?: Time Series Evidence from Money Center CDS. *Journal of Monetary Economics* 30(3): 481–502.
- Flannery, M. 1998. Using Market Information in Prudential Bank Supervision: A Review of the U.S. Empirical Evidence. *Journal of Money, Credit, and Banking* 30(3): 273–305.
- Flannery, M., and S. Sorescu. 1996. Evidence of Bank Market Discipline in Subordinated Debenture Yields: 1983–1991. *The Journal of Finance* 4(4): 1347–1377.
- Goldberg, L., and S. Hudgins. 1986. Response of Uninsured Depositors to Impeding S&L Failures: Evidence of Depositor Discipline. *The Quarterly Review of Economic and Finance* 36(3): 311–325.
- Gorton, G., and A. Santomero. 1990. Market Discipline and Bank Subordinated Debt. *Journal of Money, Credit, and Banking* 22(1): 119–128.
- Hannan, T., and G. Hanweck. 1988. Bank Insolvency Risk and the Market for Large Certificates of Deposit. *Journal of Money, Credit, and Banking* 20(2): 203–11.
- Park, S., 1995. Market Discipline by Depositors: Evidence from Reduced Form Equations. *Quarterly Review of Economics and Finance* 35(0): 497–514.
- Park, S., and S. Peristiani. 1998. Market Discipline by Thrift Depositors. *Journal of Money, Credit, and Banking* 30(1): 347–64.
- Schumacher, L. 1996. Bubble or Depositor's Discipline? A study of the Argentine Banking Panic (December 1994/May 1995). Ph.D. Dissertation. University of Chicago.
- Valdés, S., and A. Lomakin. 1988. Percepción sobre la garantía estatal a los depósitos durante 1987 en Chile. *Cuadernos de Economía* 75: 229–45.

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CHAPTER 8

Market Discipline and Stock Prices in Japan, Argentina, Chile and Mexico

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Many countries, both developed and emerging, have experienced banking and currency crises in recent years. Such episodes have been extremely costly, posing substantial burdens on both individual countries and the global economy. Given their detrimental effects, considerable research has been devoted to learning more about the causes of such crises, their channels of contagion and the development of early warning indicators. Research has also sought to identify the role that supervision—or the lack of it—plays in banking crises. A topic that has remained relatively unexplored, however, is the empirical test of the role that market discipline plays in a banking crisis, particularly whether or not such discipline exists and how it affects the behavior of market participants before, during, and after a crisis.

Most of the studies that address this issue examine the behavior of depositors in banking systems under distress. This chapter, alternatively, analyzes the behavior of stockholders rather than that of depositors. Furthermore, it undertakes an empirical comparison between the behavior of Japanese and Latin American investors in connection with banking crises, and evaluates the measures implemented in each to gauge the influence of market discipline and its level of development. Finally, to gain a better understanding of the factors that affect market discipline, this chapter makes an initial attempt to examine the effect of financial indicators on stockholders' behavior.

Empirical tests are carried out in order to explore if market discipline and disclosure requirements are being met and, if so, whether monitoring mechanisms are sufficient for market discipline to operate. In addition, empirical tests intend to establish what was the impact of market discipline over time and among different countries. The

countries included in our analysis are Japan, Argentina, Chile, and Mexico. The periods of analysis pertain to times of financial distress and are region specific.

The rest of the paper is organized as follows. The first section summarizes recent work on market discipline. The second section defines market discipline and describes the evolution, influence and monitoring mechanisms in place in Japan, Argentina, Chile and Mexico to comply with its requirements. The third section describes the methodology and data used, while the fourth presents the empirical results. The last section draws some conclusions.

Literature Review

Most studies that discuss the role of market discipline have focused on depositors, the role of deposit insurance, bond prices (bonds issued by banks) or the behavior of bondholders. This research work has demonstrated that the combination of loose bank supervision, lack of regulatory framework and limited market discipline may have been contributory factors to recent crises. However, little work has been done regarding the behavior of banks at times of crisis, the relationship between stock prices and market discipline, and the behavior of stockholders during periods of turmoil. Thus, more research on market discipline is needed in these areas and this chapter attempts to fill this gap by analyzing the existence of market discipline using financial institutions' stock prices to gauge the behavior of stockholders during times of financial turmoil.

For the purpose of this chapter, market discipline, which will be defined more rigorously in the section that follows, can be characterized as the process by which market investors—such as bondholders, depositors or stockholders—evaluate changes in bank risk and undertake actions that lead bank management, shareholders or other players to take corrective measures in order to control that level of risk.

The literature argues that market discipline can be enhanced by the attitude of depositors because when financial institutions increase their level of risk, i.e., depositors may withdraw funds or demand larger returns. For example, Calomiris and Powell (2000) explain that increases in default risk—caused by adverse shocks to bank-asset risk and capital—should be mean-reverting. What this implies is that banks that suffer from these types of shocks face a strong incentive to either reduce asset risk or leverage, or to increase capital to avoid disciplinary withdrawals of funds by depositors. Empirical findings show that deposit rates and deposit growth during the banking crises in Argentina were significantly linked to bank fundamentals. Along the same lines, Barajas and Steiner (2000) analyze how depositors in Colombia choose among different banks over time, indirectly affecting and disciplining bank behavior. The study shows

that depositors prefer banks with stronger fundamentals. Investors seem to favor banks whose fundamentals tend to improve after being penalized or disciplined by the market (in other words by depositors).

Analytical work has also focused on the relationship between deposit insurance and market discipline. It is argued that deposit insurance and blanket guarantees have a direct impact on market discipline.¹ Demirgüç-Kunt and Huizinga (1999) show empirically that explicit deposit insurance reduces market discipline by lowering the sensitivity of liability interest rates to bank risk factors. Furthermore, they claim that higher explicit coverage and funding from government sources also tends to reduce market discipline, while joint or private management of funds improves it. As additional evidence, Demirgüç-Kunt and Detragiache (1999) find that moral hazard is stronger when the scheme is funded by the government and milder when it is privately funded. Moreover, they find that the negative impact of deposit insurance is greater in economies with institutions of poor quality. Notwithstanding these findings, Martinez Peria and Schmukler (2000) indicate that, after the tequila crisis, depositors in Argentina exercised a monitoring function on banks despite the existence of a deposit insurance system (see Chapter 7 of this volume).

An additional strand of research has focused on the behavior of bondholders.² For example, Morgan and Stiroh (2001) provide evidence of market discipline for bondholders in the United States. Their research investigates how the spreads of banking holding companies and bank bonds reflect differences in asset portfolios across banks as well as within a given bank (otherwise known as the “asset test”). Findings demonstrate that the spreads increase significantly as banks shift out of cash and into commercial and industrial loans. Moreover, Flannery (1998) affirms that bond investors in the United States seem to act as supervisors, since they are concerned primarily with the bank’s probability of failure. In the same vein, comparing the use of bonds and stock prices for the purpose of market discipline, Laurence H. Meyer, of the Board of Governors of the Federal Reserve System states that “. . . subordinated debt holders do not partake in the upside gains associated with risk-taking. Hence, at least in principle, the issuance and secondary market spreads on subordinated debt should be particularly sensitive to banking organization risk. In contrast, since equity holders

¹ High coverage, unlimited deposit insurance and total blanket guarantees may create a moral hazard problem because depositors may expect that the government will cover their funds in the case of bank failure.

² According to the literature, market discipline can be enhanced by imposing a mandatory uninsured debt requirement on banks (or in other words, by requiring banks to issue unsecured bonds.) These unsecured bonds enhance market discipline. If a bank’s asset value falls or faces an increase in asset risk or has excessive leverage, uninsured debt holders will discipline the bank by raising the spreads and forcing the bank to act to reduce risk or leverage. The reasoning behind the mandatory issuance of bonds by banks is that unsecured bondholders would partly offset the moral hazard invited by insured depositors’ indifference to risk and would push bankers toward more efficient and competitive behavior.

may also benefit from the upside gains associated with risk-taking, equity issuance may provide inadequate direct market discipline, and the signals of bank risk derived from secondary market prices may be blurred and difficult to interpret.”³

Some work has focused on the effect of foreign bank entrance on market discipline. Mishkin (2001), for example, argues that the entry of foreign banks should be seen as an opportunity to strengthen the domestic banking system. The presence of foreign banks with expertise in risk management, for example, can encourage the adoption of best practices. Claessens, Demirgüç-Kunt and Huizinga (1998) corroborate this view by showing that in developing countries the entry of foreign banks reduces the profitability and overhead expenses of domestically owned banks. Thus implying that the overall welfare implications of foreign-bank-entry tend to be positive. Most authors however, tend to believe that market discipline complements financial supervision and, more importantly, that it depends on the development of financial markets. This is necessary to sustain bank safety in a rapidly changing environment and to reinforce the positive effects of bank supervision and regulation.

Studying the evolution of market discipline during financial crisis episodes as well as the reaction of investors could reveal two important factors. First, whether market discipline exists and second, whether investors have the capacity to influence management and policymakers to bring down risk levels.

The analysis that follows seeks to shed some light in this direction by evaluating the behavior of bank stock prices’ during the financial crises of the 1990s and early 2000 in Japan and selected Latin American countries.

Market Discipline in Japan, Argentina, Chile, and Mexico

Berger (1991) describes market discipline in the banking sector as a situation in which private sector agents i.e., stockholders, depositors or creditors at large, face costs that are proportional to the risks taken by banks and take action on the basis of those costs. Flannery and Sorescu (1996) define market discipline as the process by which informed market investors anticipate changes in bank risk and penalize those banks that increase their level of risk or leverage. Bliss and Flannery (2001) clarify the two distinct functions of market discipline, that is, monitoring and influence. *Monitoring* refers to actions that investors take to understand the financial situation of firms in order to assess the price of their securities (stocks and bonds). *Influence* refers to the process by which changes that result in the price of a security, because of investor monitoring, make a

³ See: <http://www.federalreserve.gov/boarddocs/speeches/1999/19990614.htm>

firm's management respond in such a way that counteracts the adverse changes in the firm's condition.

The New Basel Capital Accord proposed by the Basel Committee on Banking Supervision (2001a and 2001b) in January 2001 introduces important recommendations concerning market discipline. According to the new proposed framework, market discipline is intended to complement the minimum capital requirements and the supervisory review process. In particular, the Committee aims to encourage market discipline by developing a set of disclosure recommendations and requirements, which would allow market participants to assess information⁴ of financial institutions in an easier and more transparent manner.

Some of the recommendations state that banks and other financial institutions should have a formal disclosure policy to assure that they publish regular financial statements that reflect their true financial condition. In case of lack of compliance with the disclosure recommendations, it is specified that supervisors should take actions to remedy the situation. Table 8.1 describes the importance of disclosure and transparency for banking supervision.

The characteristics of disclosure and transparency include: comprehensiveness, relevance, timeliness, reliability, comparability, and materiality. It is important to understand the characteristics of disclosure and transparency, because they provide valuable information to market participants and prompt stockholders, depositors and creditors to exercise market discipline.

After discussing on the definition and importance of market discipline, we can turn to an issue that has been intriguing policymakers and academics alike, namely determining if market discipline is present and how it works.

To determine the existence of market discipline, it is necessary to focus on the legal, judicial, regulatory and administrative instruments in place in a country. These factors constitute necessary—but not sufficient—conditions to inform market participants that market discipline operates and that they could potentially monitor and/or influence the decisions of banks and other financial institutions.

What follows is a list of the factors that are deemed crucial for the existence of market discipline and what they entail. They fall under five broad categories:

1. *The legal and regulatory framework.* This is essential since it establishes property rights and a culture of credit. The regulatory framework should include measures to ensure transparency and disclosure, banking regulatory

⁴ This refers to information describing the scope of application, composition of capital, risk-exposure-assessment and management processes, and capital adequacy.

Table 8.1. Disclosures Under the New Basel Capital Accord

Subject	Type of recommendation	Scope
Scope of application	Strong	Consolidated and sub consolidated basis
Capital	Strong	Components and features of capital to provide market participants with information about the bank ability to absorb financial losses
Credit risk - General	Strong	Risk to which the banks are exposed and the measures and techniques used to measure and control those risks to allow market participants to assess the institution
Credit risk - Standardized approach	Requirement and strong recommendations	
Credit risk - Mitigation techniques	Requirement and strong recommendations	
Credit risk - IRB approaches	Requirement	
Market risk	Strong	
Operational risk	Strong and in the future, requirement	
Interest rate risk in the banking book	Strong	
Capital adequacy	Strong	Actual capital ratio and other relevant information on the institution's capital adequacy on a consolidated basis
Asset securitization	Requirement	
*ECAI recognition	Requirement	
Supervisory transparency	Strong	

*External Credit Assessment Institution

Note: The characteristics of disclosure are comprehensiveness, relevance, timeliness, reliability, comparability and materiality.

Source: Elaborated by the authors on the basis of supporting document of the Basel Committee on Banking Supervision (2001b).

regime and supervision, the application of accounting and auditing principles and practices, and corporate governance.

2. *The judicial system.* It should guarantee the enforcement of law and contracts, the effective enforcement of bankruptcy provisions, and the protection of minority shareholders.
3. *Capital market infrastructure.* This category includes correct pricing and yield curves; the adequate fulfillment of the functions of stock exchanges, brokers, traders, research analysts, and institutional investors; bond mar-

kets, including banks and financial institutions that issue bonds and stocks; and rating institutions.

4. *The role of the state.* This category identifies various forms of government intervention such as credit allocation, the setting of special interest rates and/or granting foreign financial institutions authorization to operate in the country. The government is also responsible for the regulation and supervision of the functioning of private sector institutions.
5. *Deposit insurance.* Deposit insurance schemes should not favor moral hazard behavior.

A review of elements of market discipline in the countries under analysis during the last 10 years can be found in Table 8.2. This information⁵ gauges the degree of commitment of governments to market discipline and the development of an efficient capital market. And it shows that Japan, Argentina, Chile, and Mexico have introduced, albeit at different speeds, instruments that favor the existence of market discipline. Given the existence of those instruments, one wonders if market discipline is, in fact, being exercised efficiently and whether or not it actually has an effect on the actions of bank managers and policymakers.

For this to be determined, a rigorous analysis would be needed that evaluates first, the efficiency of the disclosure rules and, second, the corrective actions that financial institutions could and do take when confronted with market pressures. Such an analysis should be based on a number of indicators. Indicators will be needed to first, allow stockholders, depositors and creditors at large to gauge the health of financial institutions and if necessary, exert pressure for change and, second to measure the responses of financial institutions. Table 8.3 could be considered a starting point as it lists a number of well-known indicators⁶ that are commonly used to evaluate financial institutions in mature and emerging markets. Table 8.4 illustrates how the market could influence financial institutions through market discipline and pinpoints their expected reaction such as an improved risk profile and/or lower leverage.

The remainder of the analysis tries to identify whether the market has disciplined financial institutions and exercised influence before, during and after periods of turmoil based on data for Japan, Argentina, Chile, and Mexico.

⁵ It should be kept in mind that this framework only highlights important factors and is not intended to provide an exhaustive assessment of prerequisites for a market to function effectively.

⁶ Some of these indicators are stock prices, bond prices, inter-bank rates, interest rates paid on deposits, the spread between deposit and lending rates, the share of government assets, and the share of foreign banks.

Table 8.2. Summary of Factors that Favor the Existence of Market Discipline—Situation in Japan and Selected Latin American Countries

Factor	Japan	Argentina	Mexico	Chile
Legal and regulatory framework	Public disclosure by financial institutions required (1996).	Central bank periodically releases information about banks.	N/A	Central bank and supervisory periodically release information about banks.
Banking regulatory regime	High and credible minimum-risk-based capital requirement in line with Basel Accord. Liquidity requirements.	High and credible minimum-risk based capital requirement to ensure that stockholders rather than taxpayers bear the risk of bank default [introduced in 1992–94]. Corrective and prompt actions undertaken in case an institution fails to meet minimum capital requirements (1995). Liquidity requirements in 1994. Market risk (1996) and interest rate risk (1999).	Capital requirement in accordance with the Basel Capital Accord (Basel I) and corrective and prompt actions undertaken in case an institution fails to meet minimum capital requirements (1999). Loan loss provision requirements in accordance with international standards. Adequate regulation to limit market risks.	Capital requirement in accordance with the Basel Capital Accord (1997).
Accounting practices	Local General Accepted Accounting Practices (GAAP) followed (1990s). New standards will follow IAS (International Accounting Standards).	Local GAAP followed (1990s). New standards will follow IAS.	Local GAAP followed (1990s). New standards will follow IAS.	Local GAAP followed (1990s). New standards will follow IAS.
Corporate governance	First sell-off of cross-shares (LTCB, 1996).	Reform under way.	Reform under way.	The Corporate governance legislation was completed in the year 2000.

Judicial system	Protection of minority shareholders	Limited	Limited	Limited	Yes
Bankruptcy legislation		N/A	Limited protection and enforcement (e.g., lengthy process).	Limited protection and enforcement (e.g., lengthy process).	Yes
Capital Market Infrastructure	Players and Instruments	Banks can participate in the provision of securities, (1995, 1999) and pensions products (1990). Big Bang (1996). Liberalization of commissions and activities between banks, securities, trust banks (1999). Introduction of medium term notes (1998).	Banks can participate in the provision of securities, pension and insurance products. Liberalization of commissions and activities between banks, securities, trust banks.	Banks can participate in the provision of securities pension and insurance products. Liberalization of commissions and activities between banks, securities, trust banks.	Banks can participate in the provision of securities markets (1986).
	Authorization to banks to issue bonds	Restrictions to banks' debentures partially removed (1996). Full removal (1999).	Mandatory subordinated debt requirement (each bank has to issue subordinated debentures equivalent to 2% of deposits).	N/A	Banks can freely issue subordinated debentures (1997).
	Rating institutions	Introduced in 1986.	Credit rating scheme whereby banks have to request a credit rating from an agency of high reputation.	N/A	Banks and financial institutions have to request a credit rating from two international rating agencies (1998).

Table 8.2. Summary of Factors that Favor the Existence of Market Discipline—Situation in Japan and Selected Latin American Countries (continued)

Factor	Characteristics	Japan	Argentina	Mexico	Chile
Role of the state	Government intervention in financial markets	Interest rate de-regulation began in 1979. Freely determined interest rates (1986). Removal of deposit rate ceilings (1990–94). Lending rate determined by the market in the 1990s. Special treatment for priority industries terminated in the 1990s.	Credit controls removed in 1977 and then re-instated in 1982 and removed again.	Government intervention ends gradually after the <i>tequila crisis</i> (appointments of managers, credit ceilings, determination of lending and deposit rates, recipients of banks' loans, government interference in lending decisions, private sector main recipient of banks' loans). Interest rates determined by the market.	Direct credit eliminated in the mid-1970s. Commercial banks interest rates liberalized in 1974.
	State-owned banks	Advocated privatization of postal savings (1997), which is still controlled by the government (15% of total assets).	Privatization of provincial government-owned banks.	Privatized (late 1980s, early 1990s)	Banks are privatized in the early 1980s.
	Authorization to foreign financial institutions	Bank specialization significantly reduced in the 1990s. Foreign trust banking and securities entities allowed (1985).	Free entry and competition between foreign and domestic banks.	Free entry and competition between foreign and domestic banks.	New foreign banks allowed after 1976. Free entry and competition between foreign and domestic banks.
Deposit insurance system	Schemes	Goj announced the termination of the current blanket guarantee and established a limited coverage scheme with a cap of 10 million yen (approx. US\$80,000) per depositor in March 2002.	Strictly privately funded and limited deposit insurance scheme.	Initially (<i>tequila crisis</i>) the scheme protected all banks' liabilities. After the <i>tequila crisis</i> , limited deposit insurance is being introduced.	Blanket guarantee

Table 8.3. Indicators for Monitoring Market Discipline

Type	Indicator
Pricing	Market efficiency: Stock market index Financial institutions: Stock prices Financial institutions: Bond prices
Bank Liabilities	Inter-bank rates Deposit runs Deposit-lending rate spreads Deposit rates Evolution of deposits
Bank Assets	Asset concentration and quality Stock prices of corporations to whom financial institutions lend largely Corporate bond prices of corporations to whom financial institutions lend largely Ratings of corporations to whom financial institutions lend largely
Market Structure	Number of foreign financial institutions Percentage of market share belonging to foreign financial institutions Participation of State-owned banks Cross ownership

Methodology and Data

In order to analyze market discipline, we focus on the behavior and reactions of investors in the banking sector of Japan, Argentina, Chile and Mexico during periods of financial turmoil. We base this analysis on stock returns data⁷ from the countries' major stock indices and from a sample of banking institutions.⁸

The periods of financial crisis selected are region and country specific. For the Latin American countries, the two turmoil episodes considered are the Mexican crisis of 1994–95 and the Brazilian devaluation in 1999.⁹ The Japanese crisis episode extends for most of the sample period. We identified the beginning of the Japanese banking

⁷ The analysis is based on daily Bloomberg stock price data for Argentina, Chile, Japan and Mexico for the period January 1994 to April 2001. Returns are calculated as the log first difference of stock prices and dividends are excluded because the information was missing or unavailable for most of the emerging market stocks.

⁸ A list of the financial institutions included in the sample can be found in the appendix.

⁹ The Chilean data set starts in January 1998. Given the sample limitations, only the effects of the Brazilian financial turmoil are used for the regressions.

Table 8.4. Influence of Market Discipline

Areas of Influence	Characteristics	Possible outcome
Actions of management to reduce risk	Sale of assets and reduction of leverage.	The market risk or premium and the spreads of the securities of the institutions may change, i.e. get lower.
Actions of shareholders	Changes in management. Mergers and acquisition of banks.	The market risk or premium and the spreads of the securities of the new institutions emerging from the restructuring may improve.
Actions of policy makers	Closure or intervention of financial institutions. Financial sector restructuring. Intervention and financial support for ailing banks. Declaration to improve confidence.	The market risk or premium and the spreads of the securities of the new institutions emerging from the restructuring may improve.

crisis to be December 1996, which corresponds to Prime Minister Hashimoto's announcement of the "Big Bang" reform of the financial system and the end to be around November 1999, corresponding to the Japanese government's announcement of an economic revival package.¹⁰

The empirical analysis concentrates first on determining the efficiency of stock prices and then on evaluating, through regression analysis, the behavior of returns in order to find evidence of the existence of market discipline before, during, and after periods of financial turmoil.

It is important to determine the efficiency of stock returns because when markets provide information efficiently they tend to allocate resources efficiently as well. Black (1971) sustains that a perfect market for a stock is one in which there are no profits to be made by people who have no special information. Furthermore, he claims that ideally "we would like to see randomness in the prices of successive transactions, rather than great continuity."

Consequently, a test of efficiency¹¹ would analyze if a series suffers from positive auto correlation or not. However, efficiency tests require that series be normally

¹⁰ In the case of Japan, we identified the pre-crisis period to extend from January 1994 to November 1996 and the post-crisis period from November 1999 to the end of the sample.

¹¹ To be more precise, the test refers to "weak form of efficiency," since our information set includes only the history of prices or returns.

distributed. Since preliminary analysis of the data reveals lack of normality in the series,¹² an alternative method of estimation of efficiency is needed. When returns are not normal, the theory of runs¹³ provides a test for weak form of market efficiency or randomness that does not require normality.

The aim of the regression analysis is to evaluate the behavior of stock returns, to quantify the trade-off between risk and expected returns, and to test if the market has exerted some discipline on the sampled institutions.

The market model to be analyzed is of the form:

$$R_{it} = \alpha_i + B_i R_{m_t} + e_{it}$$

$$E[e_t] = 0 \text{ and } \text{Var}[e_t] = \sigma^2$$

Where R is a vector of stock returns from financial institutions, R_m is the market return and e is the zero mean disturbance term; i denotes the different financial institutions and t denotes time. The regression is estimated, using ordinary least squares,¹⁴ for each country financial institutions' stock return and corresponding market index in order to analyze their behavior during both pre-crisis and post-crisis periods.

This allows us to test whether the beta coefficient changes significantly during the pre-post crisis episodes considered. For example, a significant decline in the beta coefficient after a crisis episode would potentially suggest that investors have exerted discipline on the market i.e., that investors recognized the increased risk in a particular security and forced actions to be undertaken to reduce risk levels.

Empirical Results

In general, graphical and econometric analysis indicates that periods of financial turmoil are associated with reductions in the average value of bank stock prices in the three Latin American countries and in Japan.¹⁵ This is intuitive and reflects the fact

¹² Tests for skewness and kurtosis are used to determine the normality of the distribution of stock returns for the market indices and financial institution stocks. In addition, the Jarque-Bera test of normality was used for verification purposes. Test results indicate that stock returns, for the time period and sample of countries selected, were not normally distributed.

¹³ The run test is a non-parametric test of randomness in a series. A series is considered non-random (random) if there are (aren't) either too many or too few runs—a run is defined as a change in the sign of the stock return.

¹⁴ Given the error structure of the data, ordinary least squares is a consistent estimation procedure for the market model parameters.

¹⁵ Appendix Figures 8.1–8.5 graph the evolution of stock prices.

that market participants tend to sell risky stocks and opt for safer alternatives during turmoil episodes. Furthermore, as expected, periods of larger variance in bank stock returns coincide with identified crisis episodes across all markets in the sample. The highest variance episodes are found in Mexico and the lowest ones in Chile. This is possibly explained by the fact that Mexico is a crisis country—the tequila crisis during 1994–1995—while Chile is not. It is interesting to note, in addition, that the variance of bank stock returns is consistently larger than that of stock market indices, thus revealing higher volatility at the institution than at the market level.

Interestingly enough, none of the markets analyzed show signs of randomness or weak form efficiency of the series, which would imply that markets are not necessarily functioning in an efficient manner in the countries sampled. There are however, signs of improvement in efficiency toward the end of the sample period.

Econometric results are mixed, but in general show some degree of market discipline exercising influence on the banks sampled. Country specific results are detailed below.

Japan

We find that the Japanese banking sector was engulfed in a long crisis that lasted for most of the nineties. The early part of the decade, however, was exceptional. Graphical analysis reveals stable stock price behavior across all sectors. This surprising stability could be interpreted as lack of monitoring and disclosure mechanisms, because by 1995 signs of turmoil become apparent. It was at this time that a few institutions failed and the government established a deposit insurance scheme.

Graphical analysis shows that large negative returns in stocks are associated with periods of turmoil, which in turn were preceded by a fall in bank stock prices (Appendix Figures 8.1 and 8.2). In addition, our non-parametric tests suggest a banking sector that behaved more efficiently than the overall market, i.e., the Nikkei Index. Econometric analysis corroborates this finding, as results tend to indicate that investors perceived the banking sector to be somewhat safer than the market¹⁶ (See Table 8.5). It seems that there is no clear perception of additional risk for those institutions that suffered substantially during the crisis and were forced to merge or reorganize. This finding is consistent with a market that did not fully discipline the risky banks or bring about changes. One plausible explanation is that government intervention packages lowered the perception of risk, generating among investors a sense of calm and complacency.

¹⁶ The beta coefficient in this case is significantly lower than 1.

Table 8.5. | Japan

Bank	Test	Pre-crisis Jan 94 – May 96	Crisis Jun 96 – Sep 98	Post-crisis Oct 98 – Mar 01
NIKKEI	Normality	No	No	No
	Efficiency	Rejects 308 runs	Rejects 305 runs	Cannot reject 292 runs
FUJI	Normality	No	No	No
	Efficiency	Cannot reject 269 runs	Rejects 250 runs	Rejects 212 runs
	Betas	-0.07		
ASAHI	Normality	No	No	No
	Efficiency	Rejects 298 runs	Cannot reject 269 runs	Cannot reject 273 runs
	Betas	0.91***		0.91*** + 0.02
BANK77	Normality	No	No	No
	Efficiency	Cannot reject 298 runs	Cannot reject 272 runs	Cannot reject 292 runs
	Betas	0.52***		0.52*** + (-0.17**)
DAI ICHI	Normality	No	No	No
	Efficiency	Cannot reject 288 runs	Cannot reject 248 runs	Rejects 211 runs
	Betas	-0.05		
HOKKAIDO	Normality	No	No	No
	Efficiency	Rejects 306 runs	Rejects 272 runs	Rejects 299 runs
	Betas	0.05		
SANWA	Normality	No	No	No
	Efficiency	Cannot Reject 271 runs	Cannot Reject 265 runs	Cannot Reject 272 runs
	Betas	0.07		
SUMITOMO	Normality	No	No	No
	Efficiency	Cannot Reject 30 runs	Cannot Reject 216 runs	Rejects 300 runs
	Betas	-0.014		
NIKKEI BANKS	Normality	No	No	No
	Efficiency	Cannot Reject 299 runs	Cannot Reject 254 banks	Cannot Reject 243 runs
	Betas	0.222***		0.222*** + (-0.01)
SHIZUOKA	Normality	No	No	No
	Efficiency	Cannot Reject 301 runs	Cannot Reject 261 runs	Rejects 269 runs
	Betas	0.221***		0.221*** + (-0.29***)

Notes:

Normality test: Sktest (Skewness & Kurtosis) and Shapiro-Wilk Tests.

Run test: H_0 variable serially independent. If serial correlation is present, a small number of runs indicates a positive serial correlation while a large number of runs indicates a negative serial correlation.

Mexico

Analysis of data of the Mexican market seems to be consistent with a lowering of price efficiency after the tequila crisis episode. Bank stock prices follow a similar pattern. Just like in Japan, Mexican stocks are associated with large and negative returns during crisis episodes, which in addition, coincide with lower bank stock prices (Appendix Figure 8.3).

The econometric analysis indicates a sharp increase in the level of risk perceived by investors during and after the tequila crisis (Table 8.6). The level of risk increased continuously¹⁷ until 1999 and only then started to ebb. This decline in the perception of risk could be associated with managerial actions taken to reduce the level of risk of particular banking institutions. Also, these actions may have been prompted by the intervention of regulators asking for an increase in bank capitalization levels.

Argentina

The data describing the behavior of the Argentine stock market uncovers the apparent existence of a surprisingly efficient stock market, substantially more efficient than the banking sector's stocks. The banking institutions in the sample showed no clear signs of efficiency improvement by the end of the sample period.

Graphical analysis shows that low stock returns are associated with periods of turmoil and that market stock returns fluctuated just as much as those of the financial institutions sampled (Appendix Figure 8.4).

Econometric evidence, as in Mexico, reveals an increased perception of risk during the tequila crisis episode and beyond. This assessment of increased risk in the banking sector only starts to decline in the case of the banks being perceived as strongest in the year 2000 (Table 8.7). The change might be an indication that the banking sector had successfully overcome the Brazilian crisis or at least, to the eyes of investors, that the strongest banks had (Calomiris and Powell, 2000).

Chile

Between 1998 and 2001 stocks of Chilean banks behaved efficiently and did not seem to be overly influenced by the Brazilian crisis episode (see Appendix Figure 8.5). The

¹⁷The values of the beta coefficient become increasingly higher during the period.

Table 8.6. Mexico

Bank	Test	Tequila										Brazil		
		Pre-crisis		Crisis		Post-crisis		Pre-crisis		Crisis		Post-crisis		
		Jan 94 – Sep 94	Oct 94 – Nov 94	Dec 94	Jan 95 – Mar 95	Jan 98 – Sep 98	Oct 98 – Dec 98	Jan 99 – Mar 99	Jan 98 – Sep 98	Oct 98 – Dec 98	Jan 99 – Mar 99			
MEXBOL	Normality	No	No	No	No	No	No	No	No	No	No	No		
	Efficiency	Cannot Reject 97 runs	Cannot Reject 131 runs	Cannot Reject 141 runs	Cannot Reject 80 runs	Cannot Reject 145 runs	Cannot Reject 134 runs	Cannot Reject 84 runs	Cannot Reject 127 runs	Cannot Reject 149 runs	Cannot Reject 144 runs	Cannot Reject 144 runs		
	Betas	0.47***	0.47***	0.47*** + 0.15	1.16***	1.16***	1.16*** + (-0.19*)							
Banorte	Normality	No	No	No	No	No	No	No	No	No	No	No		
	Efficiency	Cannot Reject 41 runs	Cannot Reject 45 runs	Cannot Reject 122 runs	Cannot Reject 84 runs	Cannot Reject 127 runs	Cannot Reject 144 runs	Cannot Reject 84 runs	Cannot Reject 127 runs	Cannot Reject 149 runs	Cannot Reject 144 runs	Cannot Reject 144 runs		
	Betas	0.47***	0.47***	0.47*** + 0.15	1.16***	1.16***	1.16*** + (-0.19*)							
Banamex	Normality	No	No	No	No	No	No	No	Yes	No	No	No		
	Efficiency	Rejects 49 runs	Rejects 106 runs	Rejects 138 runs	Cannot Reject 85 runs	Cannot Reject 147 runs	Cannot Reject 149 runs	Cannot Reject 85 runs	Cannot Reject 147 runs	Cannot Reject 149 runs	Cannot Reject 149 runs	Cannot Reject 149 runs		
	Betas	0.95***	0.95***	0.95*** + 0.187	1.57***	1.57***	1.57*** + (-0.53***)							
Bancomer	Normality	No	No	No	No	No	No	No	No	No	No	No		
	Efficiency	Rejects 51 runs	Rejects 117 runs	Cannot Reject 149 runs	Cannot Reject 82 runs	Rejects 130 runs	Cannot Reject 144 runs	Cannot Reject 82 runs	Rejects 130 runs	Cannot Reject 144 runs	Cannot Reject 144 runs	Cannot Reject 144 runs		
	Betas	0.92***	0.92***	0.92*** + 0.54***	1.85***	1.85***	1.85*** + (-0.83***)							

Notes:

Normality test: Skitest (Skewness & Kurtosis) and Shapiro-Wilk Tests.

Run test: H_0 variable serially independent. If serial correlation is present, a small number of runs indicates a positive serial correlation while a large number of runs indicates a negative serial correlation.

Table 8.7. Argentina

		Tequila						Brazil					
Bank	Test	Pre-crisis		Crisis		Post-crisis		Pre-crisis		Crisis		Post-crisis	
		Jan 94 – Sep 94	Oct 94 – Nov 94	Dec 94 – Mar 97	Jan 98 – Sep 98	Oct 98 – Dec 99	Jan 00 – Mar 01	Jan 94 – Sep 94	Oct 98 – Dec 99	Jan 00 – Mar 01			
MERVAL	Normality	No	No	No	No	No	No	No	No	No	No	No	
	Efficiency	Cannot Reject 94 runs	Cannot Reject 142 runs	Cannot Reject 159 runs	Cannot Reject 81 runs	Cannot Reject 144 runs	Cannot Reject 81 runs	Cannot Reject 144 runs	Cannot Reject 144 runs	Cannot Reject 144 runs	Cannot Reject 144 runs	Cannot Reject 144 runs	
Banco Frances	Normality	Yes	No	No	No	No	No	No	No	No	No	No	
	Efficiency	Rejects 67 runs	Cannot Reject 133 runs	Cannot Reject 145 runs	Rejects 78 runs	Cannot Reject 146 runs	Rejects 78 runs	Cannot Reject 146 runs	Cannot Reject 146 runs	Cannot Reject 140 runs	Cannot Reject 140 runs	Cannot Reject 140 runs	
	Betas	0.966***		0.966*** + 0.072	1.03***		1.03***			1.03*** + (-0.13**)			
Bansud	Normality	No	No	No	No	No	No	No	No	No	No	No	
	Efficiency	Cannot Reject 39 runs	Rejects 90 runs	Rejects 141 runs	Rejects 44 runs	Rejects 130 runs	Rejects 44 runs	Rejects 130 runs	Rejects 130 runs	Cannot Reject 133 runs	Cannot Reject 133 runs	Cannot Reject 133 runs	
	Betas	0.89***		0.89*** + (-0.012)	0.59***		0.59***			0.59*** + 0.08			
Banco de Galicia	Normality	No	No	No	No	No	No	No	No	No	No	No	
	Efficiency	Rejects 67 runs	Cannot Reject 127 runs	Cannot Reject 146 runs	Cannot Reject 86 runs	Rejects 134 runs	Cannot Reject 86 runs	Rejects 134 runs	Rejects 134 runs	Cannot Reject 120 runs	Cannot Reject 120 runs	Cannot Reject 120 runs	
	Betas	0.957***		0.957*** + 0.0427	1.16***		1.16***			1.16*** + (-0.45***)			

Notes:

Normality test: Sktest (Skewness & Kurtosis) and Shapiro-Wilk Tests.

Run test: H_0 variable serially independent. If serial correlation is present, a small number of runs indicates a positive serial correlation while a large number of runs indicates a negative serial correlation.

same cannot be said of the Chilean stock market index (IPSA), which according to the statistical analysis seems to have behaved less efficiently than actual bank stocks during the same period. In addition, regression results demonstrate that during the last three years of the analysis there was no change in investor's perception of risk (Table 8.8). Beta coefficients for banks in Chile were relatively lower than in other countries in the sample, which is consistent with an overall lower level of risk.

Additional Results: Consideration of Financial Indicators

As an extension of the econometric analysis, we tested for the effect that additional information may have in influencing the behavior of investors. As added information to investors, we introduced in the regressions some of the most frequently used financial indicators published by supervisory agencies on the basis of information provided by the actual banks.¹⁸

The results obtained from the econometric analysis revealed that stock returns were not significantly influenced by the additional information provided by financial indicators.¹⁹ A potential explanation for the lack of relevance of the financial indicators may be the lack of trust in the information published by supervisory agencies or their timing. Delays in the publication of financial indicators, on average of 20 days, may have reduced their added value when it comes to being indicators of information regarding the financial health of an institution.²⁰

¹⁸ The equation estimated is of the form $R_{it} = \alpha_i + B_{or}R_{mr} + B_{1i}I_{1it} + B_{2i}I_{2it} + \dots + B_{ni}I_{nit} + e_i$, where I_1 to I_n stand for the new indicators introduced. Due to data availability problems, Japan was not included in this exercise. For the Latin American countries the data used varied depending on the type of data provided by each supervisory agency. In the case of Mexico, indicators for capitalization, profitability and asset quality (net capital over risk assets, return over equity, and non-performing loans over total loans) were used. For Chile, we additionally included an indicator of efficiency (effective equity over weighted assets, return on equity, non-performing loans over total loans, and administrative expenses over operational gross result). For Argentina, both efficiency and liquidity indicators were used (integrated capital over weighted assets, return over equity, non-performing loans over total loans, administrative expenses over assets, and liquid assets over liquid liabilities). It is important to note that for Argentina, indicators were not available during the tequila crisis episode and consequently the analysis only covered the Brazilian crisis episode.

¹⁹ In almost all cases, the coefficients of these indicators were not significant and in most cases the changes in the beta were also not significant.

²⁰ We tried to account for potential data problems by introducing lags corresponding to delays in the publication of figures (usually 20 business days), however that did not change the significance of results. In addition, we acknowledge that there could be a number of factors affecting results such as: omitted variables, particularly deposit and lending interest rates, and differences between the frequency of the published stock market prices (daily) and financial indicators (generally monthly or quarterly).

Table 8.8. Chile

		Tequila						Brazil			
Bank	Test	Pre-crisis		Post-crisis		Crisis	Pre-crisis		Crisis	Post-crisis	
		Jan 94 – Sep 94	Oct 94 – Nov 94	Dec 94 – Mar 97	Jan 98 – Sep 98		Oct 98 – Dec 99	Jan 00 – Mar 01			
IPSA	Normality Efficiency			No Cannot reject 87 runs	No Rejects 133 runs	No Rejects 134 runs			No Rejects 133 runs	No Rejects 134 runs	
Banco Edwards	Normality Efficiency			No Cannot reject 74 runs 0.522***	No Cannot reject 128 runs	No Cannot reject 121 runs 0.522*** + (-0.116)			No Cannot reject 128 runs	No Cannot reject 121 runs 0.522*** + (-0.116)	
Banco Santander de Chile	Betas			No Cannot reject	No Cannot reject	No Cannot reject			No Cannot reject	No Cannot reject	
				0.568***		0.568*** + (-0.199)					
Banco de Chile	Normality Efficiency			No Cannot reject 55 runs 0.323**	No Cannot reject 125 runs	No Cannot reject 115 runs 0.323** + (-0.080)			No Cannot reject 125 runs	No Cannot reject 115 runs 0.323** + (-0.080)	
				0.323**		0.323** + (-0.080)					
Banco Santiago	Normality Efficiency			No Cannot reject 77 runs 0.453***	No rejects 116 runs	No Cannot reject 133 runs 0.453*** + (-0.045)			No rejects 116 runs	No Cannot reject 133 runs 0.453*** + (-0.045)	
				0.453***		0.453*** + (-0.045)					

Notes:

Normality test: Sktest (Skewness & Kurtosis) and Shapiro-Wilk Tests.

Run test: H_0 variable serially independent. If serial correlation is present, a small number of runs indicates a positive serial correlation while a large number of runs indicates a negative serial correlation.

Conclusions

This chapter set out to study the existence and evolution of market discipline in Japan, Mexico, Chile and Argentina in times of financial turmoil by analyzing the behavior of investors in the banking sector.

Empirical results demonstrated an apparent faster reaction of investors to risk perceptions in Latin American countries than in Japan. In Japan, apparently, it might be that the government rather than the market reacted, albeit slowly, to the signals of market discipline by trying to guide the banks out of the crisis.

We complemented the empirical results by providing evidence of the existence of different phases of market discipline (existence, monitoring, and influence) in the countries sampled. Furthermore, there is also evidence that shows that governments in both Latin America and Japan have undertaken strategies directed toward the development of capital markets and the implementation of market discipline.

Surprisingly, we found that investors make apparently not enough use of the information provided by the supervisory agencies to encourage market discipline. This may indicate the limited value of the information that the supervisors provide or a timing problem. Further research should explore why this is the case since market discipline should function as a complement to the work of the supervisors.

There is much still to be done regarding ways to improve these results. Additional indicators of market discipline could be identified and tested such as: bonds issued by banks, stock and bond prices of corporations in distress, and deposit and lending rates of particular banks. Other important areas for research could include the study of the behavior of foreign banks during times of crisis.

Appendix 8.1

Data:

Daily from January 1994 to March 2001.

Stock price index

Banking index

Nominal Exchange Rates (national currency per US\$)

3 month U.S. Treasury bill (returns)

Stock prices (returns) of individual banks affected by the crises

Returns are the log first difference of prices. Dividends not included.

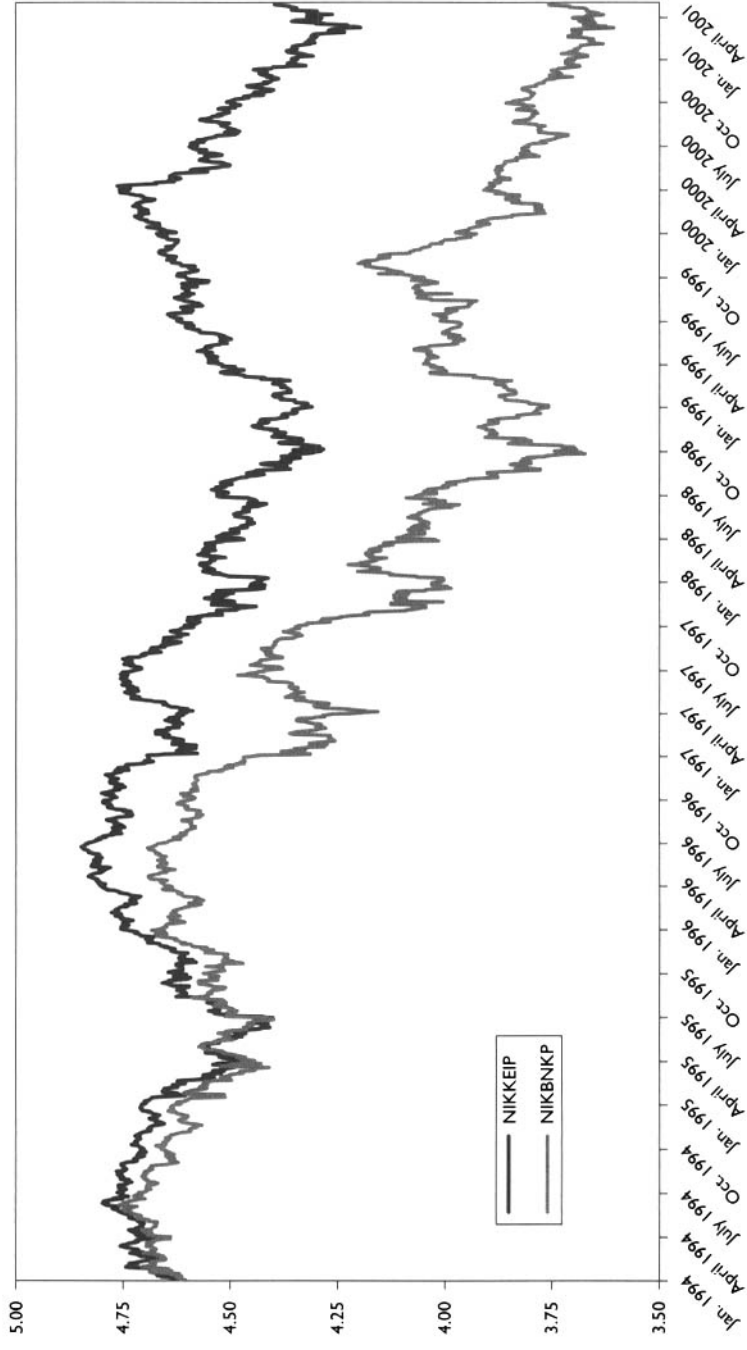
Japanese Banks: Bank77, Fuji, Sanwa, Shizuoka, Sumitomo

Mexican Banks: Banamex, Bancomer, Banorte

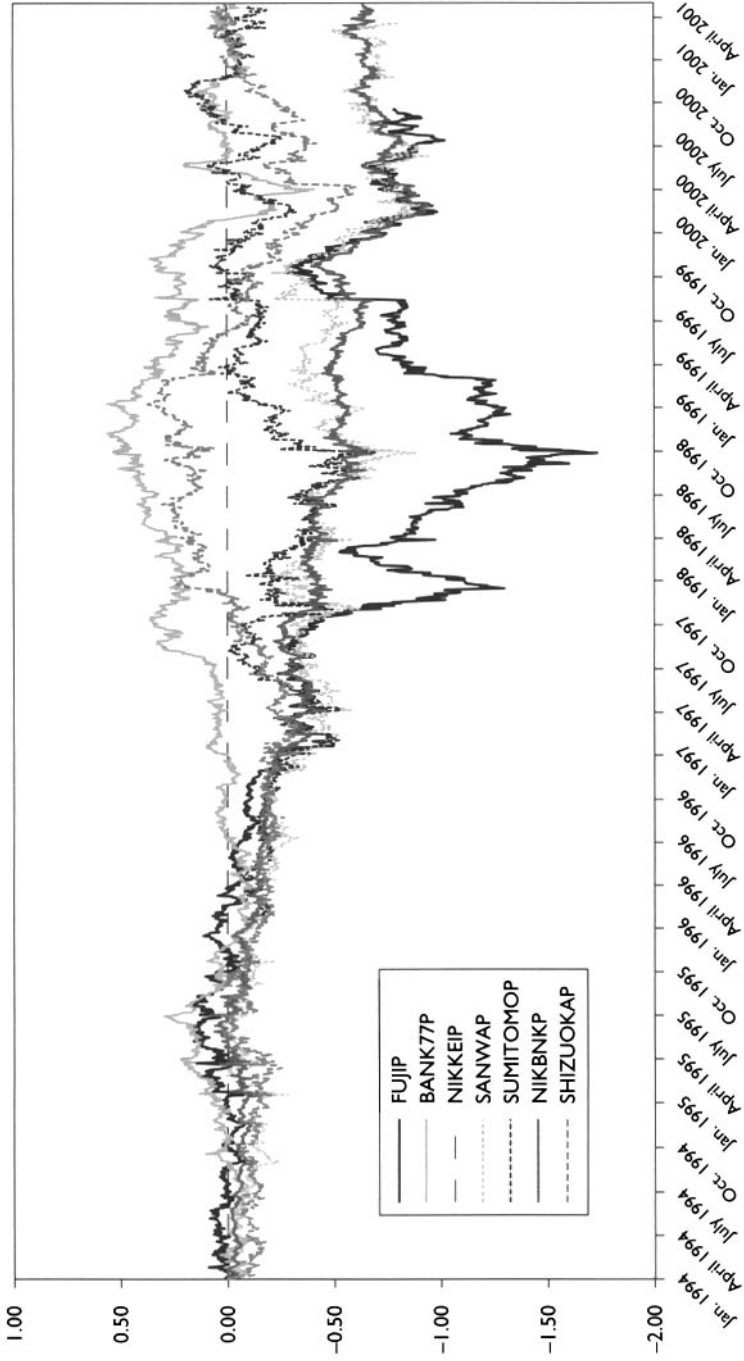
Argentine Banks: Bansud, Frances, Galicia

Chilean Banks: De Chile, Edwards, Santander, Santiago

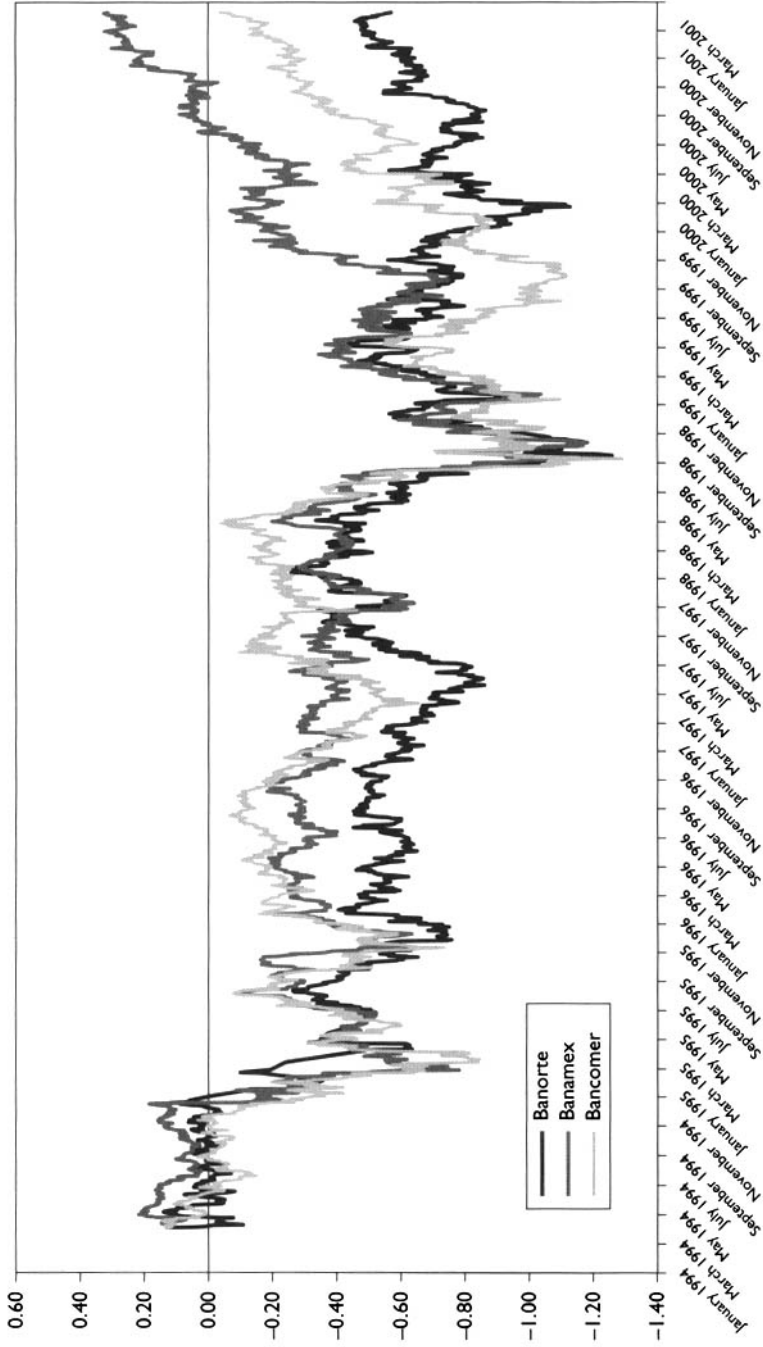
Appendix Figure 8.1. Nikkei and NikkeiBank (Japan)



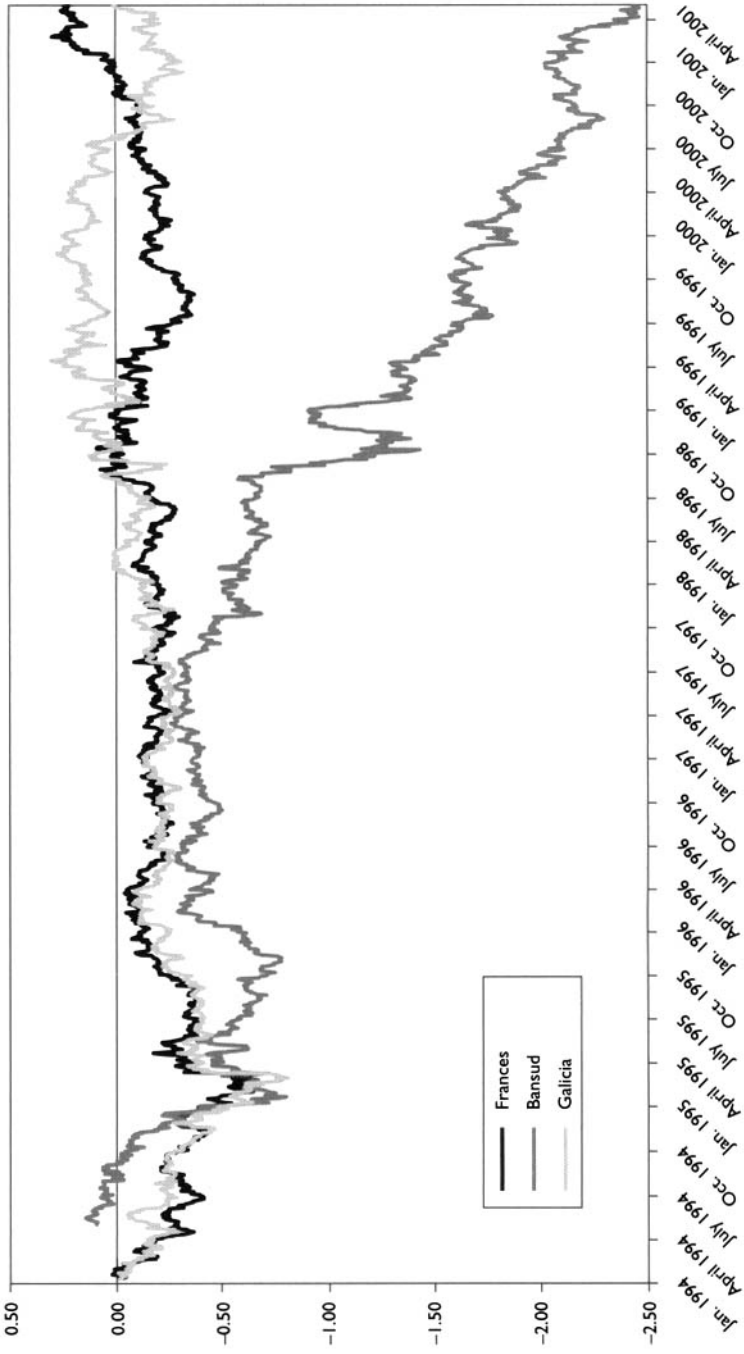
Appendix Figure 8.2. Log Price of Banks Stocks — Log Price NIKKEI (Japan)



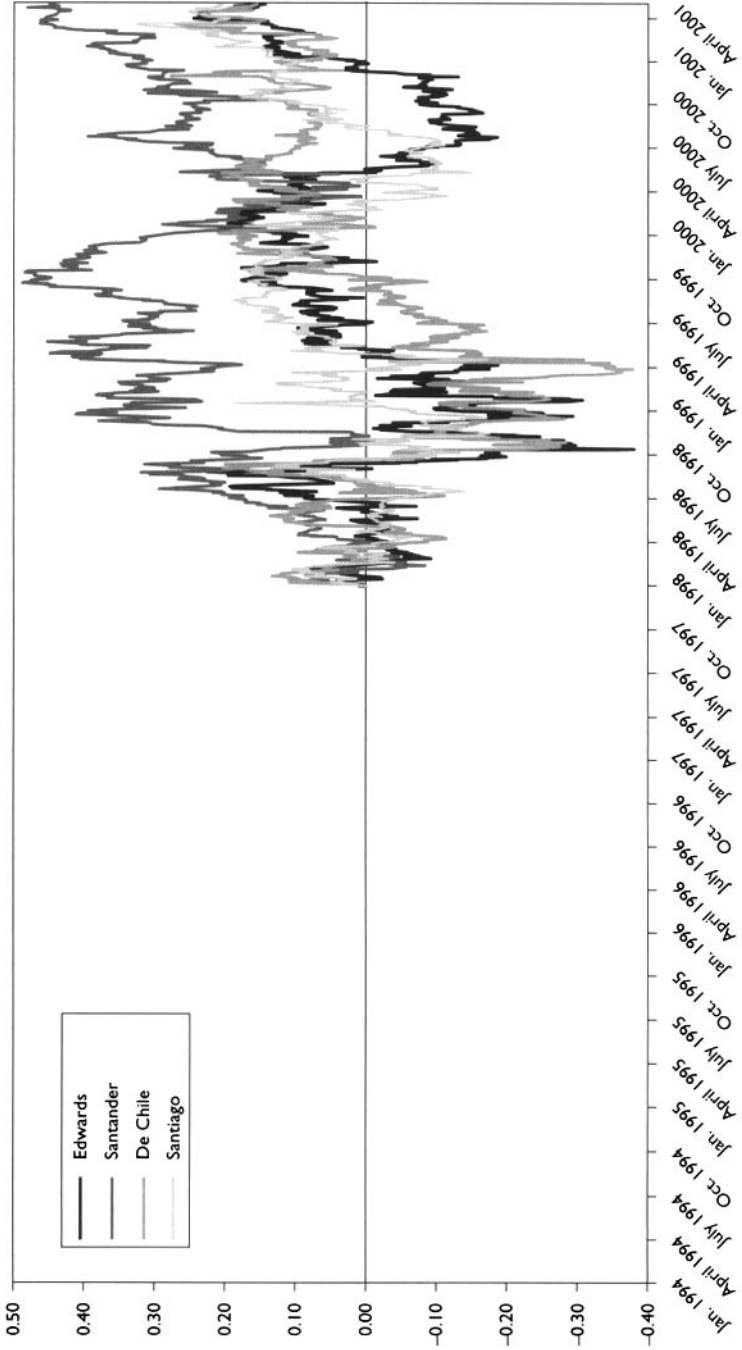
Appendix Figure 8.3. Log Price of Banks Stocks—Log Price MEXBOL



Appendix Figure 8.4. Log Price of Banks Stocks — Log Price Merval (Argentina)



Appendix Figure 8.5. Log Price of Banks Stocks — Log Price IPSA (Chile)



References

- Barajas, A., and R. Steiner. 2000. Behavior and Market Discipline in Colombia. IMF Working Paper WP/00/214 Washington D.C.
- Basel Committee on Banking Supervision (2001a). Consultative Document. Overview of the New Basel Capital Accord. Bank for International Settlements. January 2001.
- Basel Committee on Banking Supervision (2001b). Consultative Document—Pillar 3 (Market Discipline). Bank for International Settlements. January 2001.
- Berger, A. 1991. Market Discipline in Banking. Proceedings of a Conference on Bank Structure and Competition, Federal Reserve Bank of Chicago, Chicago, 419–37.
- Black, F. 1971. Toward a Fully Automated Exchange. Vol 27, No 4 (July/August 1971): 28–35, 44
- Bliss, R.R., and M. J. Flannery. 2001. Market Discipline in the Governance of US Bank Holding Companies: Monitoring vs. Influencing. In *Prudential Supervision. What Works and What Doesn't*, ed. F. Mishkin. Chicago: National Bureau of Economic Research.
- Calomiris, C. W., and A. Powell. 2000. Can Emerging Market Bank Regulators Establish Credible Discipline? The Case of Argentina 1992–1999. National Bureau of Economic Research (NBER) (<http://www.nber.org>) Working Paper No. W7715.
- Claessens, S, A. Demirgüç-Kunt, H. Huizinga. 1998. How Does Foreign Entry Affect the Domestic Banking Market? Policy Research Working Papers 1918, World Bank, Washington, D.C.
- Demirgüç-Kunt, A., and E. Detragiache. 1999. Does Deposit Insurance Increase Banking System Stability? Policy Research Working Paper 2247, World Bank, Washington, D.C.
- Demirgüç-Kunt, A., and H. Huizinga. 1999. Determinants of Commercial Bank Interest Margins and Profitability. Some International Evidence. *World Bank Economic Review*, 5(13).
- Flannery, M. J. 1998. Using Market Information in Prudential Bank Supervision: A Review of the US Empirical Evidence. *Journal of Money, Credit and Banking*. 30(3): 273–305.

- Flannery, M. J. and S. M. Sorescu. 1996. Evidence of Bank Market Discipline In Subordinated Debenture Yields: 1983–1991. *Journal of Finance*. 51(4) 1347–77.
- Jagtiani, Julapa, George Kaufman and Catherine Lemieux. 2000. Do Markets Discipline Banks and Bank Holding Companies. Evidence for Debt Pricing. Emerging Issues Series. Federal Reserve Bank of Chicago.
- Martinez Peria, M. S. and S. L. Schmukler. 2000. Do Depositors Punish Banks for Bad Behavior? Market Discipline, Deposit Insurance and Banking Crises. *Journal of Finance* 56(3) 1029–51.
- Mishkin, F. S. 2001. Financial Policies and the Prevention of Financial Crises in Emerging Market Countries, National Bureau of Economic Research (NBER). <http://www.nber.org>
- Morgan, D. P., and K. J. Stiroh. 2001. Market Discipline of Banks: The Asset Test. National Bureau of Economic Research (NBER). Mimeo.

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PART IV

PREEMPTIVE STRATEGIES

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CHAPTER 9

Preemptive Strategies for Assessing and Managing Financial System Risk in Japan: Implications for Latin America

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Panagiotis Papapanagiotou
Marcos Rietti Souto

Many studies have been undertaken on the causes of the prolonged economic slowdown and the related banking crisis in Japan.¹ The experience in Japan as well as a large number of other banking crises in recent years emphasizes the need to model the connections between volatility in the financial environment and the potential losses faced by financial institutions due to correlated market and credit risks. We present here a numerical solution based on a simulation model that explicitly links changes in the relevant variables that characterize the financial environment and the distribution of possible future bank capital ratios. This forward-looking quantitative risk assessment methodology allows banks, regulators, and economic policy makers to identify potential risks before they materialize and make appropriate adjustments to economic and monetary policy, bank portfolio credit qualities, sector and region concentrations, and bank capital ratios.

The problems of the Japanese banking sector are traced to accelerated deregulation of capital markets, weak corporate governance, and regulatory forbearance² (Hoshi and Kashyap, 1999, Kanaya and Woo, 2000, and Shimizu, 2000). Capital market liberalization created opportunities for large creditworthy companies to reduce their fi-

¹ See Bayoumi (1998), Choy (1999), Corbett (1999), Hoshi and Kashyap (1999), Kanaya and Woo (1999), Packer (1998), Peek, and Rosengren (1997), Shimizu (1997, 2000) and (Woo 1998).

² As part of the regulatory standards, we firmly believe that setting accounting standards under which banks disclose information to the public and to the central bank is of crucial importance. But perhaps of more importance is for banks to compile and disclose information on their portfolio for an integrated credit and market risk assessment that will be further used as a basis to set capital requirements. See Barnhill and Gleason (2002).

nancing cost by selling securities in the money and capital markets. Banks on the other hand continued to receive massive inflows of deposits from the Japanese public that had to be invested somewhere. The choice made for many banks was to increase lending to the real estate sector and small and medium-sized companies, both of which had experienced major credit problems.

This large inflow of funds is thought to have contributed significantly to the real estate price bubble, which saw Japanese real estate prices accelerate sharply in the mid to late 1980s. As the Japanese economic growth rate decelerated in the 1990s, the real estate price bubble burst, with big city commercial real estate prices dropping over 80 percent. Not surprisingly, many of the real estate loans defaulted or were in very serious trouble. At the same time the value of equity securities declined sharply, and credit problems for small and medium-sized companies accelerated as well. These correlated events caused serious problems for Japanese banks because of their significant holdings of equity securities (for city banks in amounts as large as the entire capital of the bank), and the above-mentioned build-up in loans to small and medium-sized companies.

Shockingly, the recovery rate on defaulted commercial mortgage and business loans appears to be in the range of 20 to 30 percent. This very low recovery suggests a serious failure to take timely action to protect the interests of the banks. Likewise, the public's interests may not have been well served by propping up weak credits, since large amounts of additional public funding was likely be required to protect bank depositors.

A number of attempts have been made to address these interrelated economic and financial problems. To stimulate the economy, the Japanese government has run large budget deficits. Nominal short-term risk-free interest rates have been reduced essentially to zero. The government has periodically injected large amounts of public funds into the banking sector. Nevertheless pessimism about growth opportunities continues to depress investment levels, the inflation rate remains at zero or below, real estate prices continue to decline, and the banking crisis continues. More recently, some economists recommended the adoption of a deliberate policy of reinflating the Japanese economy (Krugman, 2001).

It is generally accepted that Japanese banks are burdened with very large amounts of problem loans. However, estimates of the actual amount of such loans vary widely. Depending on the assumed historical lending standards loans (in other words, assumed initial loan-to-value ratios of either 0.7 or 0.8) for non-recourse mortgage loans and the amount of other bad business loans, we estimate the cost of all of these weak credits failing at the present time to range from 30 trillion to 45 trillion yen or

even more. This would deplete between 13 and 140 percent of the book value capital of the various types of banks studied and require large capital infusions.

This chapter uses publicly available data to undertake an integrated market and credit risk simulation analysis on the aggregate balance sheets of four major types of Japanese banks (city, regional, regional tier-II, and trust/long-term credit or LTC). The purpose of the analysis is to illustrate a forward looking methodology for assessing bank risk levels and evaluating potential preemptive strategies for managing such risks. No comment or input has been received from either Japanese banks or Japanese financial regulators. While substantial effort has been put forth to complete the analysis as realistically as possible, data limitations and consequently the necessity to make a number of assumptions suggest that the conclusions should be taken as illustrative rather than definitive.

Forward-looking risk analyses for the four types of aggregate hypothetical banks are also undertaken utilizing two assumed credit risk levels (lower and higher), two potential future financial environments (negative and positive), and two estimation periods (one- and three-years). Using a simulation methodology we are able to assess the correlated impacts of interest rate, foreign exchange, equity price, real estate price, and credit risk on the value of a bank's assets and liabilities. Without such an integrated risk assessment approach, important correlations are not accounted for properly, and overall risk levels are misestimated. Given the levels of direct equity investments by Japanese banks, capturing correlated equity price, real estate price, and credit risk is particularly important.

The assumed levels of credit risk, equity investment, bank operating expenses, bank net interest margin, and the assumed future financial environments are found to interact to determine bank risk levels. If the negative financial and real estate market conditions of the recent past persist over the next three years it is very likely that the major Japanese banks will suffer further large losses and exhaust their current already low levels of capital. Such an event would require large capital infusions to avoid depositor losses and a financial market crisis affecting Japan and perhaps the rest of the world. Alternatively, a return to more positive economic and financial market conditions with moderately increasing (as opposed to sharply decreasing) real estate and equity prices, would increase the chances of avoiding a major crisis and reduce the ultimate cost of resolving current problems. Nevertheless under both financial market scenarios the risk of further bank failures appears to be substantial.

There are no easy or cheap answers to resolving the Japanese financial crisis. The collapse of the real estate and equity price bubble of the late 1980s has simply left Japanese banks with too many bad loans secured by collateral of low value. It would

seem that a moderately inflationary monetary policy could help minimize the direct cost of dealing with this problem of bank fragility. Propping up particularly weak credits with additional loans is throwing good money after bad. Allowing such credits to fail and moving to protect any remaining value for loan collateral will likely reduce the long-term costs of resolving the crisis. However, the risk of applying this strategy on a massive scale is that real estate and other asset values could be pushed even lower in the short-to-medium term. In any event, additional large capital infusions from the government will likely be required to avoid depositor losses. Key questions include how many, what types, and what size of banks does Japan really need?

The implications of this analysis for Latin American and Caribbean countries, as emerging economies, center on the management and regulation of financial institutions in countries where regulatory environments are in a state of change and asset price bubbles also occur. It seems clear that banks and regulators must keep in mind that asset prices that go up rapidly can also come down rapidly, thereby creating bad loans. Actions which may be taken to protect banks, depositors, governments, and economies from such bubbles include adoption of economic policies that encourage sustainable long-term economic growth rates, raising required loan-to-value ratios, and increasing bank capital requirements during boom times. Efficient bank management (control of operating costs) and loan pricing (maintaining adequate net interest margins to more than cover credit costs) are of course always crucial to maintaining bank profitability and ultimately solvency.

It is also important to be mindful that portfolio theory applies to banks. Other things being equal, overall portfolio risk levels decrease (increase) as banks diversify (concentrate) their lending across various regions and sectors of the economy. Further, when assessing bank portfolio risk levels it is important to model the correlations among interest rate, foreign exchange, equity price, real estate price, and credit risk to obtain realistic overall risk assessments. Finally, it is important to understand that financial market liberalization offers both significant long-term benefits and, in some cases (as in Japan), major risks as institutions are required to adapt to a new competitive environment. We provide a more detailed discussion on the implications for Latin America at the end of this chapter.

We recognize the importance of assessing the incentives of banks and firms approaching insolvency to adopt high-risk investment strategies in the hope of achieving higher returns that would help cover their troubled positions.³ This is one of the reasons that firms with lower credit ratings fail at a higher rate than other firms. While

³ Megginson (1997) provides nice examples of how and why otherwise-trustworthy managers would have incentives to play a variety of financial and operating "games" when the firm is in financial distress.

our model estimates a higher default rate for such firms, we do not explicitly model the incentive structure of a firm's management.

Another extension of the current study would be to model specific individual banks. This would require more detailed information on the credit quality of bank loans. It is feasible and useful to model multiple banks simultaneously to assess the risk of correlated and perhaps cascading bank failures. Barnhill et al. (2003) assess the systemic risk of Brazilian banks using the same methodology. Finally, the recent experience of Argentina has demonstrated the importance of assessing the risk of government default and its impact on the banking industry and vice versa. Barnhill and Kopitz (2003) model government balance sheets in an effort to evaluate fiscal sustainability under uncertainty.

The remainder of this chapter is organized in the following manner. First, an abbreviated discussion is given of the theoretical models used in the value-at-risk simulations. Next, discussion is directed towards calibrating the model for the Japanese financial environment. Third, we present our approach to modeling Japanese bank asset and liability portfolios. Fourth, we provide the results of our simulation analysis of Japanese banks. Fifth, we summarize our conclusions.

Theoretical Models

Risk assessment methodologies seek to assess the maximum potential change in the value of a portfolio with a given probability over a pre-set horizon resulting from changes in market factors, credit risk and liquidity risk. The current practice is to undertake market and credit risk assessments separately. Combining such separate risk measures into one overall portfolio risk measure is not easily accomplished. The absence of reliable overall portfolio risk measures creates problems determining capital adequacy requirements, capital-at-risk measures, hedging strategies, and so on.

Given the correlated nature of credit and market risk (Fridson, Garman and Wu, 1997), the importance of an integrated risk assessment methodology seems clear. To address the above risk measurement problem, Barnhill and Maxwell (2002) developed a diffusion-based methodology for assessing the value-at-risk of a portfolio of fixed income securities with correlated interest rate, interest rate spread, exchange rate, and credit risk. Barnhill, Papapanagiotou and Schumacher (2002) extended the model to undertake financial institution asset and liability risk assessments for South African banks.

As an overview, both the future financial environment in which the assets will be valued and the credit rating of specific loans are simulated. The financial environment can be represented by any number of correlated random variables. The correlated

evolution of the market value of a business firm's equity, its debt ratio and credit rating are then simulated in the context of the simulated financial environment. For non-recourse real estate loans a similar approach is used where the market value of the real estate property, its loan-to-value ratio and credit rating are simulated. The structure of the methodology is to select a time step over which the stochastic variables are allowed to fluctuate in a correlated random process. The firm-specific and property-specific returns (as distinct from economic sector index and real estate index returns) and security specific default recovery rates are assumed to be uncorrelated with each other and the other stochastic variables. For each simulation run, a new financial environment (correlated interest rate term structures, foreign exchange rate, market equity returns, and regional real estate index returns) as well as firm specific and property specific debt ratios, credit rating, and default recovery rates are created. This information allows the correlated values of financial assets (including direct equity and real estate investments) to be estimated, and after a large number of simulations, a distribution of portfolio values is generated and analyzed.

Simulating Interest Rates

The Hull and White extended Vasicek model (Hull and White, 1990, 1993, 1994) is used to model stochastic risk-free (Japanese treasury) interest rates. In this model, interest rates are assumed to follow a mean-reversion process with a time dependent reversion level. The simulation model is robust to the use of other interest rate models.

The model for r is:

$$\Delta r = a \left(\frac{\theta(t)}{a} - r \right) \Delta t + \sigma \Delta z, \quad (1)$$

where:

Δr = the risk-neutral process by which r changes,

a = the rate at which r reverts to its long term mean,

r = the instantaneous continuously compounded short-term risk-free interest rate,

$\theta(t)$ = theta is an unknown function of time that is chosen so that the model is consistent with the initial term structure and is calculated from the initial term structure,

Δt = a small increment to time,

σ = sigma the instantaneous standard deviation of r , which is assumed to be constant, and

Δz = a Wiener process driving term structure movements with Δr being related to Δt by the function $\Delta z = \varepsilon \sqrt{\Delta t}$.

The above mean reversion and volatility rates can be estimated from a time series of short-term interest rates or implied from cap and floor prices. Given the very low risk-free Japanese rates, in this study the short rate r is constrained to have positive values. Further, given the lack of a time series of credit spreads such spreads are assumed to be constant.

Simulating Asset Returns and Prices

We employ the same model to simulate the value of the equity market indices and the foreign exchange rate, assuming that they follow a geometric Brownian motion, with constant expected growth rate and volatility (Hull, 2000, p. 225). The expected growth rate is estimated as the expected return on the asset minus its dividend yield.⁴ For a discrete time step, Δt , it can be shown that

$$S + \Delta S = S \exp \left[\left(m - \frac{\sigma^2}{2} \right) \Delta t + \sigma \varepsilon \sqrt{\Delta t} \right], \quad (2)$$

where:

S = equity market index (or foreign exchange rate),

m = expected growth rate ($m = \mu - q$),

μ = expected return on equity market indices (or on foreign exchange rate),

q = dividend yield,

σ = volatility,

ε = a random sample from a standardized normal distribution, and

Δt = a small increment to time.

⁴ We are using the very simple model of a dividend-paying stock, as described in Hull (2000) to deal with stochastic prices and foreign exchange rates. Changes in the dividend yields during the time periods analyzed would surely affect the outcomes of this analysis. However, as a simplifying assumption, we take the dividend yield as a constant factor.

The return on the market index (or foreign exchange rate) is estimated as

$$K_m = ((S + \Delta S)/S) + q, \quad (3)$$

where:

- K_m = return on the market index (or foreign exchange rate),
- S = equity market index (or foreign exchange rate), and
- q = dividend yield.

The return on equity for individual firms and individual real estate properties is simulated using a one-factor model.⁵

$$K_i = R_F + \text{Beta}_i (K_m - R_F) + \sigma_i \Delta z, \quad (4)$$

Where:

- K_i = the return for the asset_{*i*}
- R_F = the risk-free interest rate,
- Beta_i = the systematic risk of asset_{*i*},
- K_m = the simulated return on the equity or real estate index from equation 3,
- σ_i = the asset specific return volatility, and
- Δz = a Wiener process with Δz being related to Δt by the function $\Delta z = \varepsilon \sqrt{\Delta t}$.

As discussed in the next section the parameters needed to implement the above model for the positive and negative financial environment cases were estimated from historical data.

⁵ It is fairly known the inaccuracy of the single-factor Capital Asset Pricing Model (CAPM) in relating risk and return of an asset. See Fama and Macbeth (1973), Black, Jensen and Scholes (1972), Black (1972), Black and Scholes (1974), Roll (1977, 1979, 1988), to cite quite a few. Fama and French (1992) propose a three-factor model where size and book-to-market ratio captured most of the risk/return relationship. One of the drawbacks of the CAPM is related to the fact that it is a single period model, which needs time series on expected returns (or realized returns as unbiased estimators for expected returns) over some period of time in order to estimate both the systematic risk (beta) and the firm-specific risk. As a consequence, beta might be quite sensitive depending upon the time period chosen. Several researchers have attempted to include time-varying betas in the model (Gibbons and Ferson, 1985; Bollerslev, Engle and Wooldridge, 1988; Harvey, 1989; and Ferson and Foerster, 1994). The perverse consequence of such approach is that the asset pricing model loses a significant fraction of its predictive ability. We made the simplifying assumption of using the CAPM single factor model, because of its simplicity of being implemented, although given appropriate data it is quite possible to include a more sophisticated asset pricing model in our simulation methodology.

Simulating an n-variate Normal Distribution

Many authors have reported positive correlations between default rates and financial environment variables such as interest rates (Fridson, Garman and Woo, 1997), and negative correlations with variables such as GNP growth rates. This is consistent with negative correlations between interest rate changes and equity returns.

In the proposed portfolio risk assessment model, the equity indices and foreign exchange rate returns are simulated as stochastic variables correlated with the simulated future risk-free interest rate and interest rate spreads. Hull (2000) describes a procedure for working with an n -variate normal distribution. This procedure requires the specification of correlations between each of the n stochastic variables. Subsequently, n independent random samples ε are drawn from standardized normal distributions. With this information, the set of correlated random error terms for the n stochastic variables can be calculated. For example, for a bivariate normal distribution,

$$\varepsilon_1 = x_1, \quad (5)$$

$$\varepsilon_2 = \rho x_1 + x_2 \sqrt{1 - \rho^2}, \quad (6)$$

where:

- x_1, x_2 = independent random samples from standardized normal distributions,
- ρ = the correlation between the two stochastic variables, and
- $\varepsilon_1, \varepsilon_2$ = the required samples from a standardized bivariate normal distribution.

It can be shown that the simulated volatilities and correlations for all of the stochastic variables match closely the assumed values that are typically estimated from historical time series data.

Mapping Debt Ratios into Credit Ratings

The above discussed simulated equity and real estate returns are used to estimate a distribution of possible future equity and real estate market values and debt ratios. The simulated debt ratios are then mapped into credit ratings. This methodology assumes a deterministic relation between a firm's or property's debt ratio and its credit

rating.⁶ In a contingent claims framework this is equivalent to assuming a constant volatility for the value of the firm.

After simulating the bond's future credit rating, its value is calculated using the simulated term structure of interest rates appropriate for that risk class. If the bond or loan is simulated to default, the recovery rate on the bond is simulated as a beta distribution⁷ with a specified mean value and standard deviation.

Modeling Japan's Financial Environment

For the current study on Japan, the simulated financial environment includes approximately fifty correlated random variables. This set includes eight domestic correlated arbitrage-free term structures (Japanese government, AAA...CCC⁸); three foreign interest rate arbitrage-free term structures (U.S. Treasury bill, U.K. Treasury bill and euro-mark rate); three foreign exchange rates (yen per US\$, British pound per US\$, and mark per US\$); twenty domestic equity market indices corresponding to different economic sectors;⁹ a set of ten regional commercial real estate price indices and ten residential real estate price indices; the S&P 500 stock price index; the gold price; and the Japanese inflation rate.¹⁰ In the simulation context, the evolution of the financial environment has a major impact on the valuation of the banks' assets and liabilities.

As indicated, we simulate two alternative future financial environments. We label one positive and one negative. Our positive financial environment should have positive returns on real estate and equity assets, and most likely a positive inflation rate as well. The negative financial environment should have continued negative returns on real estate and equities and most likely continued zero to negative inflation rates. To estimate the volatilities, correlations, and mean returns for these two future financial environment cases we study two distinct historical periods. The first positive period spans

⁶ Blume, Lim, and MacKinlay (1998) suggest that leverage ratios and credit ratings are not constant over time. However, their results are over a longer timeframe than simulated in this framework.

⁷ Utilizing a beta distribution allows the recovery rate to fall within 0 and 100 percent while maintaining the same mean and standard deviation.

⁸ In the absence of Japanese historical data on corporate bond yields for various credit qualities, we assumed zero volatility in credit spreads.

⁹ The choice of equity indices that are included in the simulation model is driven by the allocation of the banks' loan portfolio across sectors of the economy. Table 9.5 presents the percentage of loans allocated in the different economic sectors.

¹⁰ In practice, any number of interest rate term structures, foreign exchange rates, equity and real estate indices, commodities and economic indicators could be modeled. For the purpose of this exercise, the total number of the variables used in the simulations is 50.

first half of 1987 to the end of 1995, and the second negative period ranges from 1996 to the end of 2000.¹¹ The different characteristics of the distribution of changes in the environmental variables, as well as the reasoning behind our focus on these two periods, are described below.

Historical Distribution of Changes in Prices and other Environmental Variables

The Japanese financial and macroeconomic environment in the late 1980s was characterized by substantial economic growth, low inflation, and increased growth expectations and investor confidence. In a climate of rapid financial liberalization, asset prices were soaring and bank lending was expanding.¹² The early 1990s, on the other hand, were characterized by the collapse of the stock market, the dramatic fall in real estate prices, and the slowdown in economic growth. Tables 9.1 and 9.2 show the historical mean changes, standard deviations and correlations of percentage changes in selected financial and economic variables.

A look at the average historical returns, volatilities and correlations of the Japanese financial environment variables suggests the following:

- In general, the 1987–95 period had higher mean returns, volatilities and correlations between changes in prices and other environmental variables than the period 1996–2000 (See Table 9.2).
- Volatilities are higher for the 1987–95 period as that timeframe includes both the formation and the bursting of the asset bubble. This is especially true for real estate assets. The average volatility of the commercial and residential real estate price indices is six times higher than that for the 1996–2000 period.
- Average correlations between the change in the three-month yen Libor and real estate returns are positive and significant in the 1987–95 period. They average 0.56 and 0.61 for the residential and commercial real estate price indices, respectively. This is not the case in the 1996–2000 period where the correlations between interest rate changes and real estate returns become almost zero due to the relatively constant interest rates. One would normally expect such correlations to be positive as real estate assets are generally considered to

(Text continues on page 234)

¹¹ The common sample of the 50 variables used to describe the financial environment limits the length of the data series to a 14-year time span.

¹² For a description and explanation of the formation and collapse of the Japanese asset bubble, see Kanaya and Woo (2000), Shimizu (2000), and Hoshi and Kashyap (1999).

Table 9.1. Descriptive Statistics of Selective Environmental Variables

Panel A: 1987-1995

	Ylibor ch	USTBill ch	YEN/USD (%ch)	OilUSD (%ch)	CPI (%ch)	NIKKEI (%ch)	ChubuCom (%ch)	ChubuRes (%ch)
Mean	-0.002403	0.000067	-0.024270	0.007107	0.007324	0.000827	0.017302	0.019250
Median	-0.002659	-0.001250	-0.034816	0.031999	0.008487	0.015205	0.023643	0.015729
Maximum	0.018599	0.016600	0.141644	0.248975	0.027672	0.225530	0.103141	0.095410
Minimum	-0.017740	-0.013000	-0.165938	-0.339391	-0.006787	-0.356809	-0.047603	-0.019940
Std. Dev.	0.009241	0.009087	0.085399	0.169902	0.009409	0.168827	0.051133	0.038261
Skewness	0.382246	0.316488	0.299729	-0.467652	0.239394	-0.409618	0.216511	0.729657
Kurtosis	2.893495	2.001057	2.459750	2.145043	2.455008	2.259664	1.634866	2.295056
Annualised Return	-0.004806	0.000133	-0.048540	0.014214	0.014648	0.001654	0.034604	0.038500
Annualised Volatility	0.013069	0.012851	0.120772	0.240278	0.013306	0.238757	0.072313	0.054109

Panel B: 1996-2000

	Ylibor ch	USTBill ch	YEN/USD (%ch)	OilUSD (%ch)	CPI (%ch)	NIKKEI (%ch)	ChubuCom (%ch)	ChubuRes (%ch)
Mean	-0.000216	0.000800	0.008106	0.061610	0.001188	-0.007927	-0.044243	-0.012416
Median	0.000203	0.000400	0.031432	0.010016	-0.000505	-0.017667	-0.044423	-0.011561
Maximum	0.002671	0.007700	0.105549	0.577301	0.025617	0.224565	-0.032282	-0.005825
Minimum	-0.004214	-0.004300	-0.137675	-0.242742	-0.008828	-0.183526	-0.060454	-0.019359
Std. Dev.	0.001879	0.003809	0.083927	0.255822	0.009953	0.130192	0.009337	0.005637
Skewness	-0.668385	0.313791	-0.560773	0.838446	1.511708	0.264171	-0.241731	-0.109525
Kurtosis	3.378607	2.238408	2.078530	2.682057	4.718688	2.268143	1.826226	1.261721
Annualised Return	-0.000432	0.001600	0.016212	0.123220	0.002376	-0.015854	-0.088486	-0.024832
Annualised Volatility	0.002657	0.005387	0.118691	0.361787	0.014076	0.184119	0.013205	0.007972

Notes:

1. 'Ylibor ch' is the change in Yen Libor interest rate, 'USTBill ch' is the change in US treasury bill rate, 'Yen/USD (%ch)' is the FX rate between Yen and U.S. dollar, 'OilUSD (%ch)' is the percentage change for US oil quotations, 'NIKKEI (%ch)' is the percentage change in Nikkei index, 'ChubuCom (%ch)' and 'ChubuRes (%ch)' are percentage change in commercial and residential real estate price index for Chubu region respectively.
2. Based on semi-annual observations.

Table 9.2. Average Historical Volatilities, Correlations, and Returns (I)

Correlations (2)	1987-1995	1996-2000
Ch. in YenLibor & FX Returns	-0.020193	0.311575
Ch. in YenLibor Interest & Equity Returns	-0.090746	-0.310048
Ch. in YenLibor & Real Estate Returns (Total Real Estate)	0.589464	-0.005451
Ch. in YenLibor & Real Estate Returns (Com.)	0.614916	-0.012462
Ch. in YenLibor & Real Estate Returns (Res.)	0.564013	0.001560
FX & Equity Returns	0.301300	0.005645
Equity & Real Estate Returns (Total Real Estate)	-0.143819	-0.206630
Equity & Real Estate Returns (Com.)	-0.082353	-0.219681
Equity & Real Estate Returns (Res.)	-0.205285	-0.193578
FX & Real Estate Returns (Total Real Estate)	-0.052479	-0.151202
FX & Real Estate Returns (Com.)	-0.060654	-0.179397
FX & Real Estate Returns (Res.)	-0.044305	-0.123007
% ch. CPI & FX Returns	0.311736	-0.169209
% ch. CPI & Equity Returns	-0.031618	-0.086508
% ch. CPI & Real Estate Returns (Total Real Estate)	0.397168	0.368251
% ch. CPI & Real Estate Returns (Com.)	0.377309	0.355487
% ch. CPI & Real Estate Returns (Res.)	0.417026	0.381015
SP & FX Returns	0.397023	0.257626
SP & Topix Equity Returns	0.423639	0.234466
SP & JPN Real Estate Returns	-0.055187	0.022473
NIKKEI & FX Returns	0.350798	-0.106211
NIKKEI & Topix Equity Indices Returns	0.757966	0.475466
NIKKEI & Real Estate Returns	-0.156221	-0.205163
Gold & FX Returns	0.070170	0.266751
Gold & Equity Returns	-0.003590	0.194110
Gold & Real Estate Returns	-0.109000	-0.379206
Oil & FX Returns	-0.221925	-0.115211
Oil & Equity Returns	-0.213506	0.283719
Oil & Real Estate Returns	0.234869	-0.451965
Avg. FX	0.656037	0.083885
Avg. Equity	0.704932	0.471777
Avg. Real Estate (Total)	0.780534	0.631054
Avg. Real Estate (Com.)	0.862688	0.449854
Avg. Real Estate (Res.)	0.742782	0.793572
Volatility	1987-1995	1996-2000
Yen Libor	0.013069	0.002657
Avg. FX	0.116316	0.087669
Avg. Equity	0.254171	0.246568
Avg. Real Estate (Total)	0.054675	0.009121
Avg. Real Estate (Com.)	0.063150	0.010851
Avg. Real Estate (Res.)	0.046201	0.007392

(continued)

Table 9.2. Average Historical Volatilities, Correlations, and Returns (I)
(continued)

Return (Annualised)	1987–1995	1996–2000
Yen Libor	–0.004806	–0.000432
Avg. FX	–0.032544	0.039434
Avg. Equity	–0.002743	–0.020049
Avg. Real Estate (Total)	0.024594	–0.048281
Avg. Real Estate (Com.)	0.022392	–0.078661
Avg. Real Estate (Res.)	0.026795	–0.017901

Notes:

1. Estimates based on semi-annual observations.
2. The given correlations represent averages over sub sets of the stochastic variables. For example, Equity & Real Estate Returns (Com.) is the average of the correlations between all twenty equity indices and all ten commercial real estate indices. Similarly, 'Ch. in Yen Libor Interest Rate and Equity Returns' is the average correlation between the change in short-term Yen Libor interest rates and the percentage changes in the twenty equity indices.

be an inflation hedge, meaning that real estate becomes more valuable when inflation is high, and probably when interest rates are high too. In the 1996–2000 period, with interest rates and an inflation rate fluctuating around zero, real estate prices continued their declining pattern.

- As expected, there is a negative correlation between interest rates and equity indices. The correlation of the Nikkei and the 3-month yen Libor ranges between (–0.15) and (–0.20) for our two periods of study. However, one can observe much more negative correlations between changes in interest rates and percent changes in industry-specific equity indices. For example, in the 1996–2000 period, the correlation between changes in yen Libor and percent changes in the Topix Services index was (–0.60).

We focus on the 1987–95 and 1996–2000 periods in order to undertake our risk analysis.¹³ The underlying return, volatility and correlation estimates characterizing these two periods represent two different scenarios of economic and financial activity.¹⁴

¹³ Our simulation methodology employs constant mean correlations between variables and volatilities for particular periods. Estimating stochastic volatilities and correlations and allowing the simulation to update correlations and volatilities in a stochastic predictive model is a very interesting and potential venue for future research (Barnhill, et al., 2003).

¹⁴ Semi-annual observations were used to the estimation of the returns, volatilities, and correlations between asset price indices and economic indicators. Given the importance of bank mortgage loans and loans to the real estate sector (Shimizu, 2000, and Hoshi and Kashyap, 1999), semi-annual data were used in our analysis so as to include regional real estate price indices.

The 1987–95 period is characterized by higher volatility and correlations, as well as higher returns. It captures both the upward and downward sides of variation in asset returns (from the stock market and real estate prices rally to the burst of the equities bubble in 1990 and the sharp drop in real estate prices in 1992). In addition, it provides us with reasonable estimates for a simulation scenario of higher inflation and interest rates, higher volatilities and asset returns characterized by a more aggressive monetary and fiscal policy that aimed to provide an economic growth stimulus. With one modification, we use these historical mean returns, volatilities, and correlations as inputs in our more optimistic simulation scenario (the positive financial environment case). The one change is that we set the expected return on all equity indices at 8 percent.¹⁵ This represents a typical equity risk premium over the close-to-zero risk-free interest rate (Ibbotson, 1997).

On the other hand, the 1996–2000 period is characterized by a continuing depression of asset price returns and macroeconomic variables. With the exception of foreign exchange, the majority of the remaining financial variables provide us with negative annual returns. (See the average correlation, volatility, and annual return estimates derived from the historical distributions of selected environmental variables in Table 9.2.) Inflation and interest rates are at zero levels keeping asset returns and volatilities declining. The 1996–2000 period provides us with reasonable estimates for a simulation scenario of a continuation of the depressed economy. We use these assumptions as inputs in our negative financial environment simulation scenario.

Modeling Japanese Bank Asset and Liability Portfolios

The set of hypothetical banks that is simulated includes the aggregate balance sheets for Japan's main categories of banks: city banks, combined trust/LTC banks, regional banks, and regional tier-II banks. The banks' loan portfolios are assumed to be constant over the horizon of the risk analysis (1 and 3 years) and their future values are estimated using the simulated asset prices and credit quality of the borrowers. Simulations were run for 2000 times using twelve time steps

The main outcome of the model is the estimated distribution of the banks' capital ratios characterized by their means, standard deviations, maximum and mini-

¹⁵ It is also possible to model expected equity return using auto-regressive models (combined with moving average processes). It would require an adaptation of the current simulation methodology in order to implement this feature. We opted for a simplifying assumption of constant expected equity return, leaving this a point for future research.

mum values, as well as their value-at-risk points that indicate the probability of the banks' capital ratios falling below certain thresholds. Potential losses are estimated as the differences between the initial and the simulated bank capital ratios.

$$Capital_Ratio_t = MVE_t / \sum_{i=1}^n A_{i,t} \quad (7)$$

where:

$Capital_Ratio_t$ = The simulated bank capital ratio at time t .

$$MVE_t = \sum_{i=1}^n A_{i,t} - \sum_{j=1}^m L_{j,t} \quad (8)$$

where:

MVE_t = the simulated market value of the bank's equity at time t ,

$A_{i,t}$ = the market value of the i 'th asset at time t which reflects the simulated financial environment variables (e.g., interest rates, exchange rates, equity prices, and etc.) and where appropriate the simulated credit rating of the borrower, and

$L_{j,t}$ = the market value of the j 'th liability at time t , which reflects the simulated financial environment variables (e.g., interest rates, exchange rates, and so on).

Assets and liabilities that do not bear any credit risk are valued by discounting future cash flows at the appropriate simulated risk-free term structure. In the case of securities denominated in a foreign currency the simulated foreign exchange rate is used to estimate a numeraire currency value. In this way the model captures correlated market risk.

In the case of bank loans that are subject to credit risk, valuation includes also the estimation of shifts in the credit risk characteristics of the issuers/borrowers. Credit risk reflects the potential losses that a bank may suffer due to client default and/or downgrading. In this way, the model captures correlated market and credit risk. Loans to corporations (business loans), commercial and residential real estate, and non-recourse loans were modeled differently with respect to credit risk.

Loans to Corporations

Corporate loans represent a significant portion of the banks' total portfolios. The amount of business loans (as a percent of total assets) for the four different types of

banks ranges from 46.6 percent in the case of city banks to 59.1 percent for the case of regional banks.¹⁶ Table 9.3 presents a summary of the consolidated comparative balance sheets and selected income statement items for city banks, regional banks, regional tier-II banks, and trust-LTC Banks as of the end of 2000.

In the simulation context, the value of each corporate loan is calculated by discounting the future cash flows with the simulated interest rates that correspond to the simulated credit grade of the corporate client. In the event of default, the pay-off of the loan is given by its recovery value net of transaction costs. Based on data from defaulting Japanese companies, it is assumed that firms default when their simulated debt ratio is .9 or higher. Business loan recovery rates were modeled as a beta distribution with a mean of 30 percent and a standard deviation of 10 percent.

Black and Scholes (1973) and Merton (1974) provide the contingent claims analytical framework under which we estimate the stochastic changes in the business loan credit quality. This approach directly links the credit quality of a firm to its debt-to-value ratio, as well as its own firm-specific volatility.¹⁷ Table 9.4 presents the estimated debt-to-value ratios, betas, firm specific volatility, and simulated default rates for companies that fall under different categories of loan credit quality. These estimates were developed from time series data on approximately 100 publicly traded Japanese companies with a public bond rating.

With respect to credit quality, we follow the classification of loans used by the Japanese regulators (i.e., the Bank of Japan (BoJ), the Ministry of Finance (MoF) and the Financial Services Agency (FSA)). Under this system, loans are classified into four categories. Category four includes loans that are non-collectable, defaulted loans. Category three includes loans for which there are serious concerns about their collection. Category two loans are the ones that are not yet viewed as uncollectable but as potentially troublesome. Finally, in category one, loans include those on which repayment is considered certain. Table 9.4 includes the simulated default rates for companies in the four rating categories. For example, the simulated default rate for category 1, 2, and 3 business loans are 0, 0.16 and 0.73 for one-year and 0, 0.33, and 0.80 for three-years respectively.¹⁸ The BoJ has earlier reported three-year loss rates of 0.17 and 0.83 for

(Text continues on page 241)

¹⁶ Percentages reflect the summation of values for all banks included in each category. The source is the BoJ.

¹⁷ For a full explanation of the methodology behind the estimation of stochastic changes in loan credit quality (estimation of debt-to-value ratios, equity betas, and firm specific volatilities for firms failing in the different credit quality classes) used in the proposed simulation context, see Barnhill and Maxwell (2000) and Barnhill, Papapanagioutou and Schumacher (2002).

¹⁸ One of the limitations of our simulation methodology is that it underestimates the risk of default for very high quality loans (the zero simulated default rate on Category 1 loans).

Table 9.3. Summary Comparative Balance Sheets and Selected Income Statements Items for Japanese Banks, as of December 2000 (5)

	City		Regional		Regional Tier-II		Trust - LTC	
	Yen (millions)	% of T. assets	Yen (millions)	% of T. assets	Yen (millions)	% of T. assets	Yen (millions)	% of T. assets
Capital and liabilities								
Public funding (inter-bank, non-bank)								
Domestic funding (1)	328,172,134	86.71%	184,188,064	93.42%	109,307,882	94.74%	77,956,245	62.78%
Foreign funding	1,226,889	0.32%	7,191	0.00%	3,279	0.00%	99,850	0.08%
Total public funding	329,399,023	87.03%	184,195,255	93.42%	109,311,161	94.74%	78,056,095	62.86%
Capital and other liabilities								
Equity and reserves less impairments	19,417,636	5.13%	9,764,304	4.95%	4,139,009	3.59%	6,648,602	5.35%
Debt	6,944,038	1.83%	549,822	0.28%	302,661	0.26%	30,833,063	24.83%
Total capital and reserves	26,361,674	6.97%	10,314,126	5.23%	4,441,670	3.85%	37,481,665	30.19%
Non-interest bearing	22,706,838	6.00%	2,650,540	1.34%	1,626,643	1.41%	8,629,755	6.95%
Total capital and liabilities	378,467,535	100.00%	197,159,921	100.00%	115,379,474	100.00%	124,167,515	100.00%
Assets								
Money (2)	21,799,753	5.76%	8,936,744	4.53%	4,823,295	4.18%	7,928,258	6.39%
Loans								
Domestic risk-free loans	35,437,349	9.36%	22,853,315	11.59%	11,970,368	10.37%	16,878,315	13.59%
Domestic business loans	176,390,741	46.61%	116,435,125	59.06%	66,927,127	58.01%	59,188,207	47.67%
Domestic mortgage loans								
Residential mortgage loans	56,823,100	15.01%	23,454,909	11.90%	16,215,460	14.05%	4,406,038	3.55%
Commercial mortgage loans	44,195,744	11.68%	17,679,621	8.97%	12,970,033	11.24%	17,139,379	13.80%

Total domestic mortgage loans	101,018,844	26.69%	41,134,530	20.86%	29,185,493	25.30%	21,545,417	17.35%
Foreign loans	2,836,953	0.75%	148,155	0.08%	82,179	0.07%	322,225	0.26%
Total loans	315,683,887	83.41%	180,571,125	91.59%	108,165,167	93.75%	97,934,164	78.87%
Equity investments	27,844,292	7.36%	4,963,954	2.52%	2,330,559	2.02%	11,358,545	9.15%
Real estate investments	4,411,026	1.17%	3,018,720	1.53%	2,037,880	1.77%	1,051,338	0.85%
Other assets	14,077,876	3.72%	3,030,705	1.54%	1,586,998	1.38%	10,262,897	8.27%
Reserves	-5,349,312	-1.41%	-3,361,561	-1.70%	-3,564,696	-3.09%	-4,367,722	-3.52%
Total assets	378,467,522	100.00%	197,159,687	100.00%	115,379,203	100.00%	124,167,480	100.00%
Selected income statement items								
Reported interest income	9,865,691	2.61%	4,467,593	2.27%	2,770,405	2.40%	3,442,817	2.77%
Reported interest expense	5,512,329	1.46%	985,724	0.50%	570,738	0.49%	2,757,957	2.22%
Net interest margin (3)	4,353,362	1.15%	3,481,869	1.77%	2,199,667	1.91%	684,860	0.55%
Operating expense ratio (4)	-0.006066		-0.007166		-0.006116		-0.002283	
Effective tax rate	0.4087		0.4087		0.4087		0.4087	

Source: Bank of Japan.

Notes:

1. Inter-bank, demand, savings, fixed deposits, NCD's, repos, Other;
2. Legal tender and non-interest bearing deposits with reserve bank.
3. Reported interest income—Reported interest expense.
4. (Fee income + other income - operating expense) / total assets.
5. Amounts reflect the summation of values for all banks included in each category.

Table 9.4. Distribution and Characteristics of Business Loans by Credit Category (1)

	Category 1	Category 2	Category 3	Category 4
Lower credit risk (2)	0.86396836	0.11612868	0.01839240	0.00151057
Higher credit risk (3)	0.82594096	0.14859224	0.02353396	0.00193284
Projected debt to value ratio (4)	0.595	0.805	0.885	> 0.90
Beta (5, 6)	0.78	1.50	1.50	NA
Firm specific volatility (5, 6)	0.25	0.60	0.60	NA
Debt to value ratio				
Lower bound	0.45	0.74	0.87	NA
Upper bound	0.74	0.87	0.90	NA

Average simulated one-year default rate (7)*(In Percent)*

	Category 1	Category 2	Category 3	Category 4
Avg. simulated one-year default rate (7)	0	16	73	100
Avg. simulated three-year default rate (7)	0	33	80	100

Sources:

FX, Topix : Bloomberg
 Stock Prices : Tokyo Stock Exchange
 Land Prices : Japan Real Estate Institute
 CPI : Bank of Japan
 Gold, Oil : ICIS-LOR, London Bullion Market
 Interest Rates : FRB, Financial Times

Notes:

1. There are 4 loans categories used by bank supervisors. Category 4 includes the loans that are non-collectible. Category 3 includes the loans for which there are serious concerns about their collection. Category 2 includes the loans that are not yet judged uncollectible, but are deemed to be potentially troublesome. Category 1 includes the loans whose repayment is considered certain.
2. The estimate of the loans distribution in the four grades of credit quality is provided by the Financial Supervisory Agency (FSA).
3. Estimate based on Ohara's calculation of the amount of major banks' bad loans (Ohara, 1998).
4. Debt to value ratio were estimated for the 4 different credit categories as: $\text{Total Debt} / (\text{T.D.} + \text{M.V.E.})$, where M.V.E. is the market value of a firm's equity.
5. Beta and Firm specific volatility were estimated by using the standard CAPM approach, regressing the returns on a firm's stock price on the returns of the appropriate equity index.
6. Data on approximately one hundred Japanese firms was available to estimate typical debt to value ratios and betas for the various credit categories.
7. Business loans were assumed to default any time the simulated debt to value exceeded 0.9. The simulated default rates are similar for the positive and negative financial environments because firms are assumed to adjust their financing strategy to attempt to attain their projected debt to value ratios.

category 2 and category 3 loans (Hoshi and Kashyap, 1999, p. 29). After allowing for a 20 to 30 percent recovery rate on defaulted loans, the three-year simulated default rates are reasonably consistent with the historical experience.

The allocation of business loans across the four different credit categories was based on information about the distribution of loans by supervisory classification for the Japanese aggregate banking sector, and the major banks (city, trust, and LTC banks) found in Hoshi and Kashyap (1999). In the absence of relevant data for all four types of banks modeled in this study, we assume the same credit quality distribution for business loans for all simulated banks. Table 9.4 shows the estimated percent allocations of business loans across the different credit classes for all types of banks.

We distinguish between two different scenarios of business loan credit quality allocation that provide different results for the banks in terms of loan loss amounts. The first (conservative, lower credit risk case) estimate of the distribution of loans in the four grades of credit quality is provided by the FSA, while the second (less optimistic, higher credit risk case) is an estimate based on Ohara's (1988) calculation of the amount of major banks' bad loans. We believe it is important to explore these two different scenarios and their relative effects on the simulated banks' capital ratios in order to capture the sensitivity of the results to shifts in assumed credit quality of the business loan portfolio.

Finally, the allocation of the banks' business loans across sectors of economic activity was derived by the combination of information regarding the distribution of loans outstanding by industry for the Japanese aggregate banking system,¹⁹ and historical data about the percent allocation of the loan portfolio across selected industries, among the different types of banks found in Yoshinori Shimizu (2000). Table 9.5 shows the assumed sector allocation of business loans across city, regional, regional tier-II, and trust-LTC banks used in the simulations.

Loans to Real Estate Companies and Loans to Individuals

Loans to real estate corporations were modeled as a portfolio of non-recourse commercial mortgage loans. By non-recourse loan, we mean that the only security for the loan is assumed to be the commercial real estate asset. In the remaining part of the chapter we will refer to such loans as commercial mortgage loans. Loans to individuals were also modeled as a portfolio of non-recourse mortgage loans, but with different specifications when compared to the commercial mortgage loan category (different de-

¹⁹ Percentages reflect the summation of values for all banks included in each category. The source is the BoJ.

Table 9.5. Assumed Sector Concentration of Business Loans

Type of Bank	Other	Construction	Finance	Electricity
City	0.008895396	0.093794097	0.151615809	0.017143578
Regional	0.010875516	0.114672722	0.080462119	0.020959750
Regional Tier-II	0.012229079	0.128944850	0.071199617	0.023568393
Trust - LTC	0.006551973	0.069084775	0.294631559	0.012627237
Type of Bank	Transportation	Wholesale	Service	Manufacturing
City	0.055375095	0.225909391	0.235004503	0.212262132
Regional	0.067701626	0.276196963	0.201155299	0.227976005
Regional Tier-II	0.076127748	0.310572345	0.206478888	0.170879080
Trust - LTC	0.040786959	0.166395328	0.243391288	0.166530881

Source: Bank of Japan.

Note: The distribution of the business loans by the industry sector was determined based on the information on the loans and discounts outstanding by major industries. Loans to the real estate sector and loans to individuals were modeled separately as non-recourse commercial mortgage loans, and non-recourse residential mortgage loans.

fault rates, recovery rates, credit risk characteristics and so on). We will refer to the latter category as residential mortgage loans from here onwards.

Commercial and residential mortgage loans represent a significant portion of total bank portfolios. The percentage of commercial mortgage loans to total assets for the four different types of banks ranges from 8.97 percent in the case of regional banks to 13.8 percent for the case of trust banks. On the other hand, residential mortgage loans as a percent of total assets fell to between 3.55 percent in the case of trust banks and 15.01 percent in the case of city banks. (See Table 9.3 for a summary of the consolidated comparative balance sheets and selected income statement items for the various types of banks as of the end of 2000.)

Under the presented simulation context, the value of both commercial and residential mortgage loans is estimated by appropriately discounting their future payoffs. Again, in the case of default, the value of the loan is a function of its recovery rate, net of transaction costs. Based on recent Japanese data, recovery rates for commercial mortgage loans are modeled as a stochastic variable drawn from a beta distribution with a mean of 20 percent and a standard deviation of 10 percent. For residential mortgage loans, the recovery rate was modeled to have a mean of 70 percent and a standard deviation of 10 percent.

Following a similar methodology to that of business loans, the credit quality and the possibility of mortgage loan defaults are estimated with the use of the loan-to-

value ratio (that is the remaining notional value of the loan divided by the value of the property).²⁰ Loan-to-value ratios were linked to the modeled financial environment through the simulated returns of the Japanese regional real estate indices. In the case of both commercial and residential mortgage loans, returns on properties were assumed to have a beta of 1 relative to the simulated regional real estate returns and a total return volatility of 15 percent, and 25 percent for the negative and positive financial environment case respectively. Due to lack of data on specific property values, these total return volatilities are simply assumptions. However, the assumed values are consistent with the range of observed real estate return volatility estimates for the United States. In this way, the simulation model is able to reflect the fact that extensive defaults in the real estate sector are driven by adverse macroeconomic conditions, and are correlated with inflation rates, equity returns, interest rates, and so on.

With respect to the credit quality of mortgage loans, we again use the four categories classification system of loans used by the Japanese regulators (BoJ, MoF and FSA). In the absence of relevant data for all four types of banks that are modeled in this study, we assumed the same loan-to-value ratio distributions for all simulated banks. Table 9.6 shows the estimated percentage allocations of commercial and residential mortgage loans across the different credit classes for all types of banks.

The assumed credit class of non-recourse mortgage loans is based solely on the mortgage's loan-to-value ratio. Unfortunately we did not have direct information on the distribution of ratios for different types of mortgage loans. To estimate this required model input, we assumed that banks made the same quantity of amortizing 20-year, 6 percent mortgage loans each year over the period 1981 to 2000. We then assumed that the underlying property values increased and decreased in proportion to the commercial and residential real estate indices for the six large cities. For the lower (higher) credit risk case we assumed initial loan-to-value ratios of 0.7 (0.8). These assumptions allowed us to estimate the distributions of mortgage loan-to-value ratios given in Tables 9.6 and 9.7. Given the typical recovery rates on commercial mortgage loans in the area of 20–30 percent, we assume in the simulation that non-recourse commercial mortgages default when their loan-to value ratio reaches 3. Similarly, given the typical recovery rates on residential mortgage loans in the area of 70 percent, we assume in the

²⁰ Typical loan-to-value ratios were calculated for both commercial and residential mortgage loans assuming a 0.7 (lower credit risk case) and 0.8 (higher credit risk case) initial values, a 6 percent 20-year maturity rate, and using historical real estate index returns.

(Text continues on page 246)

Table 9.6. Distribution and Characteristics of Commercial (I) Mortgage Loans by Credit Category (2)*Percent of Non-Recourse Commercial Mortgage Loans*

	Category 1	Category 2	Category 3	Category 4
Lower credit risk (3)	0.52	0.30	0.178	0.002
Higher credit risk (3)	0.17	0.59	0.238	0.002

Average LTV Ratio for Non-Recourse Commercial Mortgage Loans

	Category 1	Category 2	Category 3	Category 4
Lower credit risk (3)	0.46	1.40	2.18	3.3
Higher credit risk (3)	0.25	1.17	2.35	3.3

Average One-Year Default Rate (4)*(In percent)*

	Category 1	Category 2	Category 3	Category 4
Positive financial environment	0.00	0.00	12.95	100.00
Negative financial environment	0.00	0.00	17.10	100.00

Average Three-Year Default Rate (4)*(In percent)*

	Category 1	Category 2	Category 3	Category 4
Positive financial environment	0.00	1.60	19.70	100.00
Negative financial environment	0.00	46.20	84.70	100.00

Source: Bank of Japan.

Notes:

- Loans to the real estate sector were modeled separately as non-recourse commercial mortgage loans.
- There are 4 loans categories used by bank supervisors. Category 4 includes the loans that are non-collectible. Category 3 includes the loans for which there are serious concerns about their collection. Category 2 includes the loans that are not yet judged uncollectible, but are deemed to be potentially troublesome. Category 1 includes the loans whose repayment is considered certain.
- The estimated fraction of loans with the given average LTV ratio was calculated assuming banks made the same quantity of twenty-year 6% mortgage loans each year between 1981 and 2000, and that on average real estate prices increased and decreased by the percentages given by the national commercial and residential real estate price indices. For the lower (higher) credit risk case, the initial LTV ratio was assumed to be 0.7 (0.8).
- Differences in default rates over one and three years in the positive and negative environment reflect differences in the assumed average return on real estate properties, as well as the volatility of real estate returns. For the positive (negative) case, the mean return was assumed to be 0.033 (-0.124). These are the historical returns from the region having the largest amount of mortgage loan (i.e., the Kanto region). The return volatility was assumed to be 0.25 (0.15). Commercial mortgage loans were assumed to default when their simulated LTV ratio exceeded 3.0.

Table 9.7. Distribution and Characteristics of Residential (1) Mortgage Loans by Credit Category (2)
Percent of Non-Recourse Residential Mortgage Loans

	Category 1	Category 2	Category 3	Category 4
Lower credit risk (3)	0.76	0.18	0.058	0.002
Higher credit risk (3)	0.31	0.51	0.178	0.002

Average LTV Ratio for Non-Recourse Residential Mortgage Loans

	Category 1	Category 2	Category 3	Category 4
Lower credit risk (3)	0.44	0.91	1.08	1.3
Higher credit risk (3)	0.32	0.84	1.14	1.3

Average One-Year Default Rate (4)

	Category 1	Category 2	Category 3	Category 4
Positive financial environment	0.00%	8.90%	33.85%	100.00%
Negative financial environment	0.00%	4.55%	47.00%	100.00%

Average Three-Year Default Rate (4)

	Category 1	Category 2	Category 3	Category 4
Positive financial environment	0.15%	14.25%	29.40%	100.00%
Negative financial environment	0.30%	52.60%	81.20%	100.00%

Source: Bank of Japan.

Notes:

- Loans to the real estate sector were modeled separately as non-recourse commercial mortgage loans.
- There are 4 loans categories used by bank supervisors. Category 4 includes the loans that are non-collectible. Category 3 includes the loans for which there are serious concerns about their collection. Category 2 includes the loans that are not yet judged uncollectible, but are deemed to be potentially troublesome. Category 1 includes the loans whose repayment is considered certain.
- The estimated fraction of loans with the given average LTV ratio was calculated assuming banks made the same quantity of twenty-year 6% mortgage loans each year between 1981 and 2000, and that on average real estate prices increased and decreased by the percentages given by the national commercial and residential real estate price indices. For the lower (higher) credit risk case, the initial LTV ratio was assumed to be 0.7 (0.8).
- Differences in default rates over one and three years in the positive and negative environment reflect differences in the assumed average return on real estate properties, as well as the volatility of real estate returns. For the positive (negative) case, the mean return was assumed to be 0.045 (−0.054). These are the historical returns from the region having the largest amount of mortgage loan (i.e., the Kanto region). The return volatility was assumed to be 0.25 (0.15). Residential mortgage loans were assumed to default when their simulated LTV ratio exceeded 1.2.

simulation that non-recourse residential mortgages default when their ratio reaches 1.2. Similar default prediction methodologies (using loan-to-value ratios to predict default) are understood to be used by large U.S. mortgage companies.

The average default rates on commercial and residential mortgages are a major risk driver in the simulation model. From Table 9.6 it can be seen that moving from a positive to a negative financial environment shifts the average three-year default rate on category 3 commercial loans from 19.7 percent to 84.7 percent. Table 9.7 indicates that a similar change in assumed financial environment results in the three-year default rate on category 3 residential mortgages increasing from 29.4 percent to 81.2 percent. The 3-year simulated default rates under the negative financial environment case can be compared to the previously cited BoJ study that found three-year loss rates on category 3 loans of 83 percent.

Finally, the allocation of the banks' commercial and residential mortgage loan portfolio across different geographic regions was estimated using data from the BoJ on the aggregate regional allocation of loans on deeds and housing loans and balance sheet data for the different banks. City banks as well as trust-LTC banks are assumed to be well-diversified across 10 geographic regions, while regional and regional tier-II banks are assumed to be concentrated in particular regions.²¹ Table 9.8 shows the assumed geographic allocations of commercial and residential mortgage loans across city, regional, regional tier-II and trust banks used in the simulations.

Other Assets and Liabilities

Deposits, direct equity and real estate investments and bond holdings were also modeled and priced in the simulation framework. For each of the hypothetical banks, approximately 200 business loans, 200 mortgage loans (commercial and residential), 20 equity securities and 20 real estate assets were used to model the banks' asset and liability portfolios.

The expense ratio (fee income plus other income, less operating expenses, divided by total assets) was used to estimate net operating income not accounted for by changes in the value of assets and liabilities. This additional net operating income (loss) is added to the simulated value of the banks' portfolios. The expense ratios for the different types of banks are assumed to be constant throughout the duration of the simulation exercise. Data for the calculation of fee income plus other income, less operating

²¹ The choice of the region was made on the basis of the aggregate mortgage loan allocation. Regional banks were assumed to be concentrated in the Kanto region, which has the largest aggregate regional amount of mortgage loans.

Table 9.8. Assumed Regional Concentration of Commercial and Residential Mortgage Loans (1)

Commercial										
Type of Bank	Chubu	Chugoku	Hokkaido	Hokuriko	Kanto	Kinki	Nagoya	Okinawa	Shikoku	Tohoku
City (2)	0.04368718	0.01627025	0.00825960	0.01130443	0.223356082	0.07706124	0.02870331	0.00214113	0.01003462	0.01647741
Regional (3)	0	0	0	0	0.42982456	0	0	0	0	0
Regional Tier-II (3)	0	0	0	0	0.44444444	0	0	0	0	0
Trust – LTC (2)	0.07943124	0.02958228	0.01501745	0.02055351	0.40647423	0.14011135	0.05218783	0.00389296	0.01824476	0.02995893
Residential										
Type of Bank	Chubu	Chugoku	Hokkaido	Hokuriko	Kanto	Kinki	Nagoya	Okinawa	Shikoku	Tohoku
City (2)	0.05616923	0.02091890	0.01061949	0.01453427	0.28743535	0.09907874	0.03690425	0.00275288	0.01290166	0.02118524
Regional (3)	0	0	0	0	0.57017544	0	0	0	0	0
Regional Tier-II (3)	0	0	0	0	0.55555556	0	0	0	0	0
Trust – LTC (2)	0.02042518	0.00760687	0.00386163	0.00528519	0.10452194	0.03602863	0.01341973	0.00100105	0.00469151	0.00770372

Source: Bank of Japan.

Notes:

1. Regional concentration estimated based on information on loan on deeds, housing loans, and balance sheet data for the different banks for these regions.
2. City and LTC-Trust banks are assumed to be well diversified across 10 geographic regions.
3. Regional banks were assumed to be concentrated in the geographical region that has the largest amount of mortgage loans (i.e., Kanto), while Regional Tier-II Banks were assumed to be concentrated in the region with the second highest amount of mortgage loans (i.e., Kinki).

expenses, for the city, regional, regional tier-II and trust banks was taken from the consolidated income statements of the banks and is given in Table 9.3.

Simulation Results

The various case scenarios from the simulation exercises are as follows.

Case 1: Immediate Liquidation of all Bad Loans

The first set of results focuses on the estimated cost of allowing, or even encouraging, weak credits to default and be liquidated. The possible rationale for such action is that it fixes and limits the potential loss. Many assumptions are of course required to undertake such an analysis, including importantly the amount and distribution of loans that would default without further support. In Table 9.9, we assume that all mortgage loans with a loan-to-value ratio over 1 default and that the recovery rate on these loans is equal to 90 percent of the current underlying property value. On business loans, we assume that 100 percent, 73 percent, 16 percent, and zero percent of category 4, 3, 2 and 1 loans default, respectively. These are the one-year default rates produced by the current simulations. In all cases, we assume a 30 percent recovery rate on defaulted business loans, which is consistent with recent Japanese experience.

Under these assumptions, the total default losses associated with liquidating all of the bad loans is approximately 30 trillion yen, and 45 trillion yen for the lower and higher credit risk cases respectively (see Table 9.9). If the recovery rate on liquidated real estate falls below 90 percent, the above loss would rise further, perhaps substantially. These estimates compare to earlier estimates that ranged from approximately 15 trillion to 38 trillion yen (Hoshi and Kashyap, 1999, pp. 29–30).

Relative to current low bank capital levels, ranging from 4 to 7 percent, these are very large losses. For city banks, the immediate liquidation of all bad loans would reduce bank capital by between 54 and 86 percent, and leave bank capital in the range of 2–3 percent of assets (see Table 9.9). For regional banks, the immediate liquidation would reduce bank capital by between 65 and 91 percent, and leave bank capital between zero and 2 percent of assets. For regional tier-II banks, it would reduce bank capital by between 100 and 140 percent and leave bank capital in the minus 2 to zero percent range. For trust-LTC banks, it would reduce bank capital by between 14 and 18 percent, leaving bank capital in the 26 to 27 percent of assets range. A subsequent

Table 9.9. Estimated Cost of Liquidating All Bad Loans and Recapitalizing Banks
(In millions of yen)

Type of bank	Current amount of bank capital	Amount of mortgage loans	Mortgage loan default losses	Business loan default losses	Total one-year default losses	Default losses as a fraction of business plus mortgage loans	Default losses as a fraction of bank capital	Pro-forma bank capital ratio (book value)	Pro-forma bank asset amount	Pro-forma bank capital	Pro-forma additional capital required to establish an 8% capital ratio for City, Regional, and Regional Tier II banks
City											
Higher credit risk	26,361,674	101,018,844	17,273,731	5,295,457	22,569,187	0.0814	0.8561	0.0107	355,898,335	3,792,487	24,679,380
Lower credit risk	26,361,674	101,018,844	10,002,865	4,138,537	14,141,401	0.0510	0.5364	0.0335	364,326,121	12,220,273	16,925,817
Regional											
Higher credit risk	10,314,126	41,134,530	5,922,760	3,495,519	9,418,279	0.0598	0.9131	0.0048	187,741,408	895,847	14,123,466
Lower credit risk	10,314,126	41,134,530	4,009,094	2,731,839	6,740,933	0.0428	0.6536	0.0188	190,418,754	3,573,193	11,660,307
Regional Tier-II											
Higher credit risk	4,441,670	29,185,493	4,307,400	2,009,231	6,316,631	0.0657	1.4221	-0.0172	109,062,572	-1,874,961	10,599,966
Lower credit risk	4,441,670	29,185,493	2,931,050	1,570,266	4,501,316	0.0468	1.0134	-0.0005	110,877,887	-59,646	8,929,877
Trust - LTC											
Higher credit risk	37,481,665	21,545,417	5,043,039	59,188,207	1,776,899	0.0845	0.1820	0.2613	117,347,542	30,661,727	NA
Lower credit risk	37,481,665	21,545,417	3,697,698	59,188,207	1,388,693	0.0630	0.1357	0.2720	119,081,090	32,395,275	NA
Total											
Higher credit risk	78,599,135	192,884,283	32,546,929	418,941,201	12,577,106	0.0738	0.5741	-	770,049,856	33,475,099	49,402,812
Lower credit risk	78,599,135	192,884,283	20,640,706	418,941,201	9,829,334	0.0498	0.3877	-	784,703,852	48,129,095	37,516,001

Note: All commercial and residential mortgage loans with a LTV above 1.0 are assumed to default with a 10% additional loss on liquidating the property.

capital infusion of between 38 and 50 billion yen would be required to re-capitalize the city, regional and regional tier-II banks at an 8 percent of assets level (see Table 9.9).

Case II: Negative Financial Environment (or Continuation of the Status Quo)

Tables 9.10 and 9.11 give the simulation results for the lower and higher credit risk, and negative and positive financial environment cases over one and three-year time horizons. Initial book value capital ratios,²² initial market value capital ratios, mean simulated and mean simulated percent changes in capital ratios are given. In addition, the standard deviation of the mean simulated capital ratio, the upper and lower bounds of the simulated distribution of capital ratios and the value-at-risk points at the 95, 97.5 and 99 percentiles are reported. The results illustrate the large risks faced by Japanese banks, bank regulators, and economic policy makers. We will initially consider the negative financial environment case that could be considered a continuation of the status quo (with zero to negative inflation and declining asset prices).

The main conclusions under this case are:

- Over a one-year time horizon, all four types of banks on average suffer continued substantial declines in their capital ratios, ranging from a minus 4 percent for LTC-trust banks to minus 28 percent for city banks. The declines are more severe for the higher credit risk case. The larger declines for city banks are explained by their small net interest margin, high operating expense ratio, and larger amounts of equity investments (over 7 percent of assets and 100 percent of capital, see Tables 9.3 and 9.10). The relatively smaller declines for LTC-trust banks relate to their current large capital base that is funded by large amounts of debt capital, which appears to be at great risk.
- On a value-at-risk basis, over a one-year time horizon, the banks again look very vulnerable. At the 99 percent confidence level, city banks, regional banks, and tier-II regional banks suffer losses approximately equal to their current capital under the low credit risk case and significantly more under the higher credit risk case. At the 95 percent confidence level, these banks are left with capital equal to 1–2 percent of assets under the lower and between minus 1 and zero percent for the higher credit risk cases.

²² The differences between the book value and the initial market value of the banks' capital ratios are higher under the lower credit risk scenario. These differences can be explained by the effects of the assumed credit quality distribution of the loan on the present value of assets and liabilities. Data about the credit quality, maturity structure, and coupon rates for each and every one of the banks would result in a much closer book and market value of the capital ratio. The higher credit risk scenario seems to reflect more closely the reported capital ratios for the different types of banks.

Table 9.10. One-year Simulation Results

	Book value capital ratio (1)		Simulated capital ratio (2) at a one-year time step							% of change in capital ratio			
	Tier 1 equity	Tier 1 (equity) plus Tier 2 (debt)	Initial market value	Mean	Std. dev.	Max.	Min.	99% VaR	97.5% VaR	95% VaR	Mean	Std. deviation	Delta mean % change relatively to City banks
	0.051	0.070	0.080	0.062	0.028	0.153	-0.022	-0.005	0.005	0.013	-0.224	0.350	-
Negative Financial Environment													
Lower Credit Risk													
City	0.050	0.052	0.056	0.047	0.020	0.094	-0.033	-0.004	0.004	0.011	-0.158	0.347	0.066
Regional	0.036	0.038	0.054	0.050	0.018	0.093	-0.027	0.002	0.009	0.018	-0.073	0.324	0.152
Regional Tier-II	0.054	0.302	0.327	0.314	0.027	0.419	0.223	0.253	0.261	0.270	-0.042	0.082	0.182
Trust - LTC													
Higher Credit Risk													
City	0.051	0.070	0.067	0.049	0.030	0.130	-0.096	-0.026	-0.015	-0.004	-0.265	0.453	-
Regional	0.050	0.052	0.044	0.032	0.022	0.083	-0.055	-0.029	-0.017	-0.010	-0.233	0.539	0.044
Regional Tier-II	0.036	0.038	0.040	0.032	0.019	0.074	-0.068	-0.022	-0.010	-0.004	-0.103	0.529	0.174
Trust - LTC	0.054	0.302	0.318	0.300	0.028	0.389	0.215	0.232	0.244	0.254	-0.044	0.089	0.233
Positive Financial Environment													
Lower Credit Risk													
City	0.051	0.070	0.080	0.070	0.027	0.171	-0.039	0.000	0.011	0.022	-0.128	0.340	-
Regional	0.050	0.052	0.055	0.052	0.017	0.086	-0.024	0.001	0.010	0.018	-0.058	0.311	0.070
Regional Tier-II	0.036	0.038	0.053	0.054	0.015	0.088	-0.005	0.010	0.017	0.025	0.024	0.289	0.152
Trust - LTC	0.054	0.302	0.326	0.322	0.028	0.421	0.236	0.254	0.265	0.273	-0.015	0.086	0.114
Higher Credit Risk													
City	0.051	0.070	0.067	0.059	0.029	0.148	-0.049	-0.015	-0.004	0.006	-0.119	0.439	-
Regional	0.050	0.052	0.044	0.043	0.020	0.091	-0.040	-0.015	-0.005	0.004	-0.033	0.449	0.086
Regional Tier-II	0.036	0.038	0.040	0.043	0.017	0.081	-0.036	-0.008	0.002	0.010	0.082	0.433	0.201
Trust - LTC	0.054	0.302	0.318	0.314	0.029	0.445	0.213	0.237	0.251	0.265	-0.010	0.092	0.109

Notes:

1. Banks capital ratios are defined to be capital (i.e. equity or equity plus debt) divided by total assets.
2. Simulated capital ratios are calculated after deduction of estimated taxes, but before payment of any dividends.
3. All hypothetical banks were simulated for a period of one year. Simulations were run for 2,000 times using 12 time steps.

Table 9.11.1. Three-year Simulation Results

	Book value capital ratio (1)		Simulated capital ratio (2) at a three-year time step							% of change in capital ratio				
	Tier 1 equity	Tier 1 plus Tier 2 (debt)	Initial market value	Mean	Std. dev.	Max.	Min.	99% VaR	97.5% VaR	95% VaR	Mean	Std. dev.	Delta mean % change (neg. pos. financial environment)	Delta mean % change (higher – lower credit risk levels)
City banks														
Negative financial environment														
Lower credit risk	0.051	0.070	0.083	0.002	0.056	0.467	-0.161	-0.102	-0.077	-0.067	-0.974	0.677		
Higher credit risk	0.051	0.070	0.069	-0.025	0.063	0.626	-0.218	-0.135	-0.121	-0.105	-1.364	0.923		-0.391
Positive financial environment														
Lower credit risk	0.051	0.070	0.082	0.069	0.083	0.722	-0.087	-0.049	-0.037	-0.026	-0.169	1.011		-0.805
Higher credit risk	0.051	0.070	0.069	0.054	0.092	0.731	-0.124	-0.076	-0.065	-0.055	-0.209	1.346		-0.040

Notes:

1. Banks capital ratios are defined to be capital (i.e. equity or equity plus debt) divided by total assets.
2. Simulated capital ratios are calculated after deduction of estimated taxes, but before payment of any dividends.
3. All hypothetical banks were simulated for a period of three years. Simulations were run for 2,000 times using 12 time steps.

- Over a three-year time horizon, matters only get worse. City banks, which are the largest banks in Japan, on average, exhaust their capital. At the 99 percent confidence level, they have capital ratios of approximately minus 10 percent. Maintaining the status quo is likely to be a very risky and costly choice.

Case III: Positive Financial Environment

In the positive financial environment case, we assume that policies are adopted which result in a modest but positive inflation rate, and modestly rising asset prices (on average plus 8 percent, plus 2.2 percent and plus 2.6 percent return respectively for equities, commercial real estate and residential real estate). The main conclusions under the positive financial environment case are:

- Over a one-year time horizon, bank capital ratios decline by smaller amounts or even increase slightly for regional tier-II banks. Also, the declines are on average similar for the lower and higher credit risk cases. These results are consistent with the expectations that in the positive environment, mortgage loan default rates will be lower and the value of the banks' equity holdings will increase. The city banks still show the larger average capital ratio declines of approximately 12 percent due to their low net interest margin and high operating expense ratio. Regional tier-II banks show modest increases in capital ratios due in part to their higher net interest margin. Also, the region where the regional tier-II bank is assumed to be located (Kinki) had above average increases in real estate values under the positive financial environment scenario. Had an under performing region been selected, the results would have been less favorable.
- On a value-at-risk basis over a one-year time horizon, all of the banks still look very vulnerable. At the 99 percent confidence level, city banks and regional banks suffer losses essentially equal to their current capital or significantly greater than their capital under the lower and higher credit risk cases. At the 95 percent confidence level, these banks are left with capital equal to between zero and plus 2 percent of assets. Regional tier-II banks perform marginally better on a value-at-risk basis, primarily because of their higher net interest margin. Given their large amount of debt capital trust-LTC banks do not come close to exhausting all of their capital over either a one or three-year period, regardless of the assumed level of credit risk. However, they still run a significant risk of losing all of their equity capital.

- Over a three-year time horizon, matters improve somewhat in the positive financial environment case. Rather than on average losing all of their capital city banks only lose 15–20 percent of it. However risk levels are still very high. At the 99 percent confidence level, capital ratios fall between a minus 5 and minus 8 percent. At the 95 percent confidence level, capital ratios fall to between a minus 2 and minus 5 percent. Given that banks typically fail well before they exhaust all of their capital, additional bank failures are likely even under the more positive financial environment assumptions.

Conclusions

As discussed above, we find that the assumed levels of credit risk, equity investment, bank operating expenses, bank net interest margin, and the assumed future financial environments interact to determine bank risk levels. Under the status quo, it is very likely that the major Japanese banks will suffer further large losses and exhaust their current already low levels of capital over the next three years. Alternatively, a return to more positive economic and financial market conditions, with moderately increasing as opposed to sharply decreasing real estate and equity prices, would increase the chances of avoiding a major crisis and reduce the ultimate cost of resolving current problems. Nevertheless, under both financial market scenarios the risk of further bank failures appears to be substantial.

There are no easy or cheap answers to resolving the Japanese financial crisis. The collapse of the real estate and equity price bubble of the late 1980s has simply left Japanese banks with too many bad loans, secured by collateral of low value. It would seem that a moderately inflationary monetary policy could help minimize the direct cost of dealing with the problem of bank fragility. Allowing particularly weak credits to fail and moving to protect any remaining value for loan collateral will likely reduce the long-term costs of resolving the crisis. However, the risk of applying this strategy on a massive scale is that real estate and other asset values could be depressed even further in the short to medium term. In any event, additional large capital infusions from the government will likely be required to avoid depositor losses. The key questions are how many, what types and what size of banks does Japan really need?

The implications of this analysis for Latin America, as emerging economies, center on the challenges of managing and regulating financial institutions in countries where regulatory environments are in a state of change and asset price bubbles occasionally occur. Banks and regulators must keep in mind that asset prices that go up rapidly can also come down rapidly, thereby creating bad loans. Actions that may be

taken to protect banks, depositors, governments and economies from such bubbles include adoption of economic policies that encourage sustainable long-term economic growth rates, raising credit standards (for example, increasing required loan-to-value ratios), and increasing bank capital requirements during boom times. Efficient bank management (control of operating costs) and loan pricing (maintaining net interest margins adequate to more than cover credit costs) are of course always crucial to maintaining bank profitability and ultimately solvency. It is also important to be mindful that portfolio theory applies to banks. Other things being equal, overall portfolio risk levels decrease (increase) as banks diversify (concentrate) their lending across various regions and sectors of the economy. Further, when assessing bank portfolio risk levels it is important to model the correlations among interest rate, foreign exchange, equity price, real estate price, and credit risk to get realistic overall risk assessments. Finally it is important to understand that financial market liberalization offers both significant long-term benefits and, in some cases (as in Japan), major risks as institutions are required to adapt to a new competitive environment.

We firmly believe that setting capital requirements for banks operating in highly volatile environments, as in Latin America, requires the development of models to assess bank failure risk in an integrated market and credit risk framework. To accomplish this, banks and firms need to compile and disclose financial information in standardized accounting statements. The basic idea is to assess the risk of a potential crisis before it materializes, which would require that more and better data are provided. We understand that it is costly and hard to implement such measures, but it is much more so to have to deal with a financial crisis contaminating the whole economy, with perverse effects on the population (as in Argentina).

This study has a number of limitations. It would have been helpful to have had better information on the typical loan-to-value ratios of defaulting non-recourse commercial and residential mortgages. This assumption substantially affects the outcome of the risk analysis. More extensive data on business loan defaults would have also improved the study. Feasible and useful extensions of the study could include modeling specific banks and modeling multiple banks simultaneously to assess the risk of correlated and perhaps cascading bank failures. Such extensions would require access to more detailed data on bank portfolios.

References

- Barnhill, T., and W. Maxwell. 2002. Modeling Correlated Interest Rate, Exchange Rate, and Credit Risk in Fixed Income Portfolios, *The Journal of Banking and Finance* 26(2): 347–374.
- Barnhill, T., P. Papapanagiotou, and L. Schumacher. 2002. Measuring Integrated Market and Credit Risk in Bank Portfolios: an Application to a Set of Hypothetical Banks Operating in South Africa. *Journal of Financial Markets, Institutions, and Instruments* 11(5): 401–43.
- Barnhill, T., and K. Gleason. 2002. The New Basel Capital Accord: The Crucial Importance of a Conceptual Framework. Working Paper. The George Washington University.
- Barnhill, T., R. Savickas, M. R. Souto, and B. Tabak. 2003. Banking Sector Systemic Risk Analysis: An Application to Brazil. Working Paper. The George Washington University.
- Barnhill, T., and G. Kopitz. 2003. Assessing Fiscal Sustainability Under Uncertainty. IMF Working Paper.
- Bayoumi, T. 1998. The Morning After: Explaining the Slowdown in Japanese Growth in the 1990s. Working Paper. International Monetary Fund.
- Black, F. 1972. Capital Market Equilibrium With Restricted Borrowing. *Journal of Business* 45(3): 444–455.
- Black, F., M. C. Jensen, and M. Scholes. 1972. The Capital Asset Pricing Model: Some Empirical Tests. In *Studies in the Theory of Capital Markets*, ed. M. C. Jensen. New York: Praeger.
- Black, F., and M. Scholes. 1973. The Pricing of Options and Corporate Liabilities. *Journal of Political Economy* 81(3): 637–59.
- _____. 1974. The Effects of Dividend Yield and Dividend Policy on Common Stock Prices and Returns. *Journal of Financial Economics* 1(1): 1–22.
- Blume, M., F. Lim, and C. MacKinlay. 1998. The Declining Credit Quality of U.S. Corporate Debt: Myth or Reality. *Journal of Finance* 53(4): 1389–1413.
- Bollerslev, T., R. F. Engle, and J. M. Wooldridge. 1988. A Capital Asset Pricing Model with Time-Varying Covariances. *Journal of Political Economy* 96(1): 116–131.

- Choy, J. 1999. Japan's Banking Industry: the "Convoy" Disperses in Stormy Seas. n10A. Japan Economic Institute Report.
- Corbett, J. 1999. Japan's Banking Crisis in International Perspective. In *Finance, Governance, and Competitiveness*, eds. M. Aoki and G. Saxonhouse. Oxford University Press.
- Fama, E., and J. D. MacBeth. 1973. Risk, Return, and Equilibrium: Empirical tests. *Journal of Political Economy* 81(3): 607–36.
- Fama, E., and K. R. French. 1992. The Cross-Section of Expected Returns. *Journal of Finance* 47(2): 427–65.
- Ferson, W. E., and S. R. Foester. 1994. Finite Sample Properties of the Generalization Method of Moments in Tests of Conditional Asset Pricing Models. *Journal of Financial Economics* 36(1): 29–55.
- Fridson, M., C. Garman, and S. Wu. 1997. Real Interest Rates and the Default Rates on High-Yield Bonds. *Journal of Fixed Income* 7(2): 27–34.
- Gibbons, M. R., and W. E. Ferson. 1985. Testing Asset Pricing Models with Changing Expectations and an Unobservable Market Portfolio. *Journal of Financial Economics* 14(2): 217–36.
- Harvey, C. R. 1989. Time-Varying Conditional Covariances in Tests of Asset Pricing Models. *Journal of Financial Economics* 24(2): 289–317.
- Hoshi, T., and A. Kashyap. 1999. The Japanese Banking Crisis: Where Did it Come from and How will it End? Working Paper 7250. National Bureau of Economic Research.
- Hull, J. 2000. *Options, Futures, and Other Derivative Securities*, Upper Saddle River, NJ: Prentice Hall.
- Hull, J., and A. White. 1990. Pricing Interest-rate Derivative Securities. *Review of Financial Studies* 3(4): 573–92.
- . 1993. One-factor Interest-rate Models and the Valuation of Interest-rate Derivative Securities. *Journal of Financial and Quantitative Analysis* 28(2): 235–54.
- . 1994. Numerical Procedures for Implementing Term Structure Models I: Single-factor Models, *Journal of Derivatives* 2(1): 7–16.

- Ibbotson, R. 1997. *Stock, Bonds, Bills, and Inflation (1997 Yearbook)*. Chicago IL: Ibbotson Associates.
- Kanaya, A., and D. Woo. 2000. The Japanese Banking Crisis of the 1990s: Sources and Lessons. Working Paper. International Monetary Fund.
- Krugman, P. 2001, Delusions of Respectability, Comment, <http://web.mit.edu/krugman/www/jrespect.html>
- Meggison, W. L. 1997. *Corporate Finance Theory*. Reading, MA: Addison-Wesley Educational Publishers Inc.
- Merton, R. 1974, On the Pricing of Corporate Debt: the Risk Structure of Interest Rates. *Journal of Finance* 29(2): 449–70.
- Ohara, Y. 1998. Ginko Sector One Point (Banking Sector One Point). SBC Warburg.
- Packer, F. 1998. The Disposal of Bad Loans in Japan: the Case of CCPC. Manuscript. Federal Reserve Bank of New York.
- Peek, J. and E. Rosengren. 1997. Collateral Damage: Effects of the Japanese Real Estate Collapse on Credit Availability and Real Activity in the United States. Working Paper. Federal Reserve Bank of Boston, 97-5.
- Roll, R. 1977. A Critique of the Asset Pricing Theory's Tests; Part I: on Past and Potential Testability of the Theory. *Journal of Financial Economics* 4(2): 129–76.
- _____. 1979. Measuring Portfolio Performance and the Empirical Content of Asset Pricing Models: A Reply. *Journal of Financial Economics* 7(4): 391–400.
- _____. 1988. R-Squared. *Journal of Finance* 43(3) 541–66.
- Shimizu, Y. 1997. Speculative Bubbles, Depression and the Monetary Policy in Japan, *Hitotsubashi Journal of Commerce and Management* 32(1): 23–58.
- _____. 2000. Convoy Regulation, Bank Management, and the Financial Crisis in Japan. In *Japan's Financial Crisis and Its Parallels to U.S. Experience*, eds. R. Mikitani and A. Posen. Washington, DC: Institute for International Economics.
- Woo, D. 1998. In Search of “Capital Crunch:” Supply Factors behind the Credit Slowdown in Japan. Working Paper. International Monetary Fund.

CHAPTER 10

A Strategy to Prevent Future Crises: Safely Shrink the Banking Sector

Adam S. Posen

A recent article in a well known magazine contained a history of how people have tried to reduce the number of traffic fatalities in the United States. Essentially, there were two basic strategies: the first was to make safer cars, and the second to make better drivers. If your goal is to reduce fatalities, these both seem like legitimate means. And so we have things like airbags and crumple zones to make cars safer, and we also have Mothers Against Drunk Driving and seatbelt regulations to make safer drivers. However, this being the United States, nobody seems to have thought of reducing the number of drivers. If there are fewer drivers, there will be fewer accidents and fewer fatalities.

Like traffic fatalities, financial crises are bad, so the fewer there are the better. When we look at financial crises and think about the historical record, financial crises are in essence banking crises. So as with traffic, you can try to make a safer banking sector by having prudential rules and credit standards, and so on. You can also try to make safer bankers and better bank supervisors by exchanging experiences at conferences (like the one that gave rise to this book), having the BIS Financial Stability Institute train everyone involved, and instilling market discipline. My suggestion instead is that the best strategy to prevent future crises is to reduce the number of banks. If traditional deposit-taking, long-lending banks were to play a reduced role in most economies, thereby reducing the damage caused by bank failures, the extent of financial crises would be more limited.

Of course, this raises the questions of what economies would give up if the number of banks was reduced, and how feasible (or likely) it is for this to happen. On the first point, not much is lost by reducing the number of banks, that other financial services can easily replace them both for borrowers and depositors. On the second point, trends in corporate finance and technology are so strongly against traditional banking, that the public policy issue is how to assure sufficient safe exit of banking firms; feasibility of exit is not the problem.

Some Preliminary Questions

The first issue is why we should be shrinking the banking sector. The answer is simple: we economists now seem to have an exceptionally good understanding of financial crises. Everybody agrees that put together imperfect information, regulatory forbearance, connected lending, illiquid collateral, lack of transparent accounting, and deposit insurance that are not fully creditable (Mishkin, 1997; Goldstein, 1998), shake it up, add a macroeconomic shock, and presto, a banking crisis! And the consensus on this analysis is now pretty wide. This is why regulators can call for prediction (see Chapter 3) and attempts are made to create systems of early warning (Goldstein, Kaminsky and Reinhart, 2001). Yet, with all due respect, early warning does not seem to work. We have known all this for some time and we are constantly improving our forecasting; but the problem is not so much warning as acting on the warnings received.

At issue is not whether there is time enough to react; but instead, if banks and regulators have too much time to react, what do they do? It is well known that the basic danger is that when an economy has undercapitalized regulated banks, they behave badly, are subject to moral hazard, and this results in adverse selection in the financial markets. The resulting rolling over and accumulation of bad loans is an enormous drag on growth. You either suffer the cost of re-capitalizing the banks quickly at large cost in terms of real output (repeatedly the case in Latin America), or you suffer the costs of having wasted a lot of your capital, foregoing growth, and eventually paying a larger bill (which is arguably a major part of what has happened in Japan over the last ten years). This is serious stuff. And we all knew ahead of time both that bank crises are serious and where they were occurring.

The second point is that learning, unfortunately, does not seem to affect behavior when it comes to financial crises. As a think tank type, one is supposed to believe in the power of learning. The only hope of having influence is that people listen to one of us and say: "Aha! Good idea; I'll do that." However, this does not seem to overcome the incentives underlying bank crises. Consider U.S.-Japanese foreign economic relations, specifically financial relations, over the last 20 years (Posen, 2002). What is interesting is that, going through the history, the amount of trans-Pacific and international exchange in the happy community of bank supervisors was already quite great by the late 1980s. Yet, we still had the U.S. Savings and Loans (S&L) crisis, and prior to that there was the U.K. land-bubble, and immediately after that there was the Swedish banking crisis, and then we have the ongoing Japanese financial crisis. This is but a partial list and one confined to wealthy countries; the problem is universal. So even with the best of intentions, the most effective public oversight, the best training,

the most rigorous supervision, and (let us assume) the least corrupt civil servants, learning from banking crises does not seem to take place. The U.S. S&L crisis ended when there was a political demand *ex post*; we hope that the Japanese banking crisis is ending now that there is a political demand ten years *ex post*. There was no shortage of advice or warning to Tokyo from Washington and elsewhere in the bank supervisory community by the early 1990s.

There are very fundamental economic and political incentives for why this is the case. It is not necessary to be an experienced political cynic, however, to model these processes. There are reasons why banks roll over bad loans and why bureaucrats engage in regulatory forbearance, and it is very difficult to get beyond these. As is so often the case in economic policy, we are caught in the choice between removing discretion altogether (which seems self-defeating since the whole point of the bank supervisory exercise is the judgment of imperfect information) and giving the regulators the discretion to engage in regulatory forbearance (which is sometimes euphemized as “prompt corrective action”).¹ So, that is the “why.” There does not seem to be any easy consistent way to keep banks whose capital is short from falling into crisis once bad times start. We can try to box in bank lending behavior as a useful effort, but there does not seem to be any way to fundamentally remove this difficulty with regulators. So what do you do instead?

That is the third point. New and perhaps primary emphasis must be given to minimizing the banking sector in market economies. This raises the question of why we have banks, besides tradition and the fact that their buildings look familiar and solid. There are two essential reasons why we have banks. The first, on the deposit-taking side, is that small depositors supposedly need these institutions to conduct their day-to-day transactions and to have a safe place to put their money. The second reason, which grows out of the work of Fama (1985) and Stiglitz (1993), has to do with imperfect information in financial markets. There are certain smaller businesses, or risky businesses, that cannot go directly to capital markets to achieve their financing, so they have to go to an intermediary. When they go to an intermediary, these businesses must put up some asset as collateral, because only then does the intermediary have the incentive to look through the imperfect information about the firm, make a judgment, and spend a lot of time monitoring the loan. Thus, the argument for banks to exist is both on the depositor’s side and on the corporate finance or borrower’s side.

¹ Friedman (2000) and Glauber (2000) explain how in the U.S. context these discretionary abuses were endemic, even though they still only lasted a few years in the S&L crisis compared to Japan.

Issues in Conventional Banking

In terms of the vulnerabilities and costs of banking, it is banks, more than any other actor in the financial system, that have a maturities mismatch. Any financial sector business can of course have one, but banks inherently have deposits on demand and illiquid long-term loans, or else why are they banks? Because banks tend to lend in domestic currency, and because they tend to become temporarily over-stretched and need to borrow in international markets, they also often have currency mismatches. Again, individual corporations can have them, but it is worse for banks. Banks also have a perverse incentive from the deposit insurance system when their capital dips too low. This seems to say to bankers with weak balance sheets that once having lost as much capital as can be lost, they still have money to gamble with, because depositors do not withdraw their money.

Meanwhile, banks inherently have to deal with proprietary information. We hear much about transparency, but working from Fama (1985) and from first principles, the reason for having banks is that they lend on the basis of information that cannot be publicly traded and disclosed. Without that proprietary information, there is no reason for a borrower not to take its business plan and instead go directly to the financial markets. Banks do not have securitized assets and are dependent on illiquid collateral, or at least they depend on things like real estate for collateral, which in a financial crisis normally becomes illiquid. So banks remain vulnerable in a way that very few other financial institutions are.²

Such vulnerabilities and their potential costs to the public could of course be outweighed if banks provided unique and special services. The question is whether—at the margin, or even quite a long way from it—they still do so. Looking back, the first argument that is often made is that banks play a special role in development. If you come from Harvard, and you read Alexander Gerschenkron (1962), he offers a whole historical argument about how German industrial development relied on *hausbanken*, and how important these were in acquiring machine tools, chemicals, and steel. Then if you turn to Aoki and Patrick (1994), they offer a similar argument for the Japanese main bank system. Then there was that ill-timed World Bank report (1993) on the East Asian miracle, which suggested that inter-twined bank relationships played a role in the Asian New Industrialized Countries's success. And then, of course, there are lobbying interest groups, not least in the United States, that argue that small businesses are the “backbone of our society” and on the strength of this ask for government-supported loan programs.

² See Chapters 3, 4 and 5.

The problem is that such beliefs do not hold up very well to econometric analysis. There is a vast literature out there, much of the best work done by Gerard Caprio and his colleagues at the World Bank (World Bank, 2001), though a number of other people have contributed. The bottom line is that while an economy does need some financial intermediation to get proper investment allocation, it does not have to be banks that carry out that allocation. In the cross-national evidence, what matters is the amount of credit being disbursed, the amount of private-sector investment, and the rates of return—not the institutional structure of financial firms per se. Moreover, as has become clearer since the Asian crisis, with banks, especially in developing societies, there is a tendency towards politicization of lending. Either there is government pressure on the banks to make loans for specific purposes, which would be more difficult to do in a marketized framework, or there are insiders' clubs, industrial networks and other relationships that are very hard for new firms to break into.

There are a number of economists who reconsidered Japan's postwar economic history and suggested that Japan grew despite the main-bank relations in the post-war era, not because of them. (Hall and Weinstein 1996, Weinstein and Yafeh, 1998, and Posen, 1998). Takeo Hoshi and Anil Kashyap (2001) develop very clearly and with persuasive evidence the idea that the *keiretsu*-type financing in Japan was largely an artificial post-war construction that did not really reflect the mainstream of Japanese economic development. Indeed, in the first chapter of this volume, Utsumi cites the example of Japanese banks in the early post-war era, which, he says, had the foresight to lend without collateral to what we know today as Sony and Honda. In those days, however, they were not acting as banks, but as venture capital funds. These were not set loans but investments in return for equity stakes. Once upon a time, Japan had a venture capital culture (even if you would not recognize it now), which was replaced by a commercial bank culture.

In addition to this backwards-looking, long-term view, minimizing the uniqueness of the role of banks in development, there are some trends that are gaining strength right now that seem important. We are moving towards a world where there is less need for banks in corporate finance. Considering that, historically, banks made their profits by arbitraging information imperfections, there is reason to doubt such a large role in today's world in which there is superior accounting, improved computerization, better disclosure and training, and an accumulation of financial innovation. Taken together, it is ever easier for firms to go directly to markets for their financing. This is a worldwide trend, albeit less so in emerging markets than in Japan, and less so in Japan than in the United States.

It is also the case that international capital mobility is increasing. Although this can be subject to major interruptions, global financial markets are sufficiently deep that

we are no longer in the Feldstein-Horioka world where the amount of capital available for investment is the amount of savings that happens to be available in a given country at a given time. And the further we move away from this, the less we need a depositor base in every country to aggregate savings for investment. Look at the United States. We do not have much in the way of domestic private sector savings, but we still manage to achieve investment funding. To argue that emerging markets should copy the United States and they will receive easy access to capital markets is, of course, facetious. However, the basic point remains. With deeper financial markets, better information flows, more advanced technology, lower transaction costs, new financial instruments, better trained financial professionals and regulators, and more people in the world exposed to financial concepts, the need for financial intermediation is reduced. By the same token, the ability of firms to go directly to financial markets is increased.

How do we know this? Banks are becoming less profitable as competition and technology reduce the cost of intermediation. In Chapter 6, Mitsuhiro Fukao examines the declining profitability of Japanese banks and uses this as a major explanation for Japan's financial problems. The basic story of the Japanese financial crisis is well known: that there was a partial financial deregulation in the mid 1980s; that the best firms, the large non-financial corporations on which banks were making high margins with little risk, then went directly to the financial markets; that the margins in what was left of the banks' business with those firms shrunk; that unprofitable banks were not allowed to exit because exit was seen by the regulators as market instability; that the banks had a captive body of deposits, which they had to keep lending out; and that they shifted to real estate based lending and to riskier small and medium-sized enterprises, and earned no profits. This went on for years (Mikitani and Posen, 2000). Even in the United States, which liberalized its financial markets earlier and more extensively, there is arguably still a serious problem of over-banking. For Japan, it is frightening to look at Table 3.1 in Chapter 3, which shows just how many banks there are in Japan. This number has remained virtually unchanged in all parts of the banking sector, despite zero profitability for five, six, seven years. This is a major problem.

Accelerating the Decline in Traditional Banking

When calling on policymakers to shrink the banking system, this is not to say that a law should be passed that shuts down all traditional banks on day X; nor is it to suggest that the Basle II capital accords suddenly raise the capital requirement to 15 percent for banks in international commerce and shut down every bank below that. The

suggestion here is that we take advantage of some of these major, long-term trends against traditional banking, and encourage them. “We” means the policymakers, the elected legislators, the people working at the International Financial Institutions (IFIs). There is a real role for efforts to improve supervision, but equally there is a role to encourage the decline of traditional banking. Banks only exist due to regulation, and their unregulated closure can have systemic effects.

Importing Financial Services

First, and this was mentioned by several people at the conference on which this book is based, emerging markets or even developed small open economies should import foreign financial services. This may sound opportunistic, because obviously a great beneficiary of this would be U.S. financial firms. However, it is important to realize that Foreign Direct Investments (FDIs) in the financial sector, just like in every other sector, tends to transfer skills, technology, management techniques, and that these are embodied in the actual investment. Moreover, as we have seen in country after country (including Japan), when FDIs enters into the financial sector, investing firms need to hire local people. Usually, the most successful financial firms (including banks) are those where top management and financial principles emerge from the world’s financial centers, but which train or re-train local people to implement them. Moreover, except for the possibility of systemic risk, there is no special reason to think that protection of the banking sector is any better than protection of anything else (Graham, 2001). The relevant thought experiment is to imagine a U.S. auto industry in the late 1970s that refused to accept FDIs or production/management techniques from Japan. Just think how uncompetitive such firms would have been, how backwards their production techniques, how under-performing the whole U.S. economy. In the auto sector, the intellectual battle has clearly been won; yes, there still is a General Motors and a Ford, but these basically follow Japanese production, shop-floor management and inventory techniques, and were prompted to do so by Japanese FDIs and competition. Such openness matters.

There are two other reasons why importing financial services is good as a practical measure in emerging markets or all small economies. For one thing, such FDI allows the smaller economy to do some free-riding on more diversified portfolios and on better supervision. As we know, Latin America, especially the larger countries, has been in the forefront of taking in foreign investment in the banking sector. Argentina staved off crisis as long as it did in part because it had a very strong financial system, a strength in large part the result of foreign investment. You can free-ride to some degree of Fed-

eral Reserve supervisors, and you are not relying solely on locally-invested portfolios for the stability of these banks. The second important advantage of importing financial services is that it is a useful constraint on government behavior. We have already mentioned the idea that banks, under regulatory control, can be arm-twisted into doing things for the government. Not everything in the world should be privatized, but anything that is not, all would agree, should be on the public books in a transparent fashion. Bringing in foreign financial firms, and using competition to make banks more independent, helps weaken the ability of governments to exert hidden pressures for the allocation of investment.

Securitization

The second suggestion as to how policymakers should bandwagon on the transition to a world with fewer traditional banks would be extending securitization and transparency. In the United States, one of our great success stories has been Fannie Mae, Freddy Mac and all the semi-private institutions that securitize vast numbers of otherwise illiquid long-term bank-based loans to individuals. There have been efforts to do likewise outside of the United States, the general point being that securitization allows markets and regulators to work together. It allows for more market signals, it allows very straightforward performance requirements to be set and, in the event of a financial crisis, it helps financial firms unload distressed assets. One way to make the comparison is to combine my previous point about government influence with this one. Would you rather have the Japanese Fiscal and Investment and Loan Program (FILP) taking savings directly for the government to make use of, or Fannie Mae adding liquidity to lending but holding no specific loans? Most would rather have Fannie Mae.

The other thing that has to be said here when we talk about transparency is the advantages it offers in trying to make sense of what is a reasonably profitable bank and what is not. Perhaps it has been overstated that banks in general are not profitable, not just in Japan, but elsewhere, or at least banks that have not diversified their activities out of traditional deposit-taking and which are lending long are losing their margins. The usual answer to this from regulators is to encourage consolidation, mergers and acquisitions, forced or voluntary. Unfortunately, in practice, this tends to be much like regulatory forbearance; it is just a way of keeping banks afloat.

In Japan, of the top thirteen banks, there are going to be four new merged groups of three, each supposedly having gained in terms of capital strength and economies of scope. The problem is that the reductions in their labor force and branch networks so far announced are miniscule. Consider the merger of two city banks in

Japan. Both have national branch networks, and both thousands and thousands of employees. Both announce they are going to shrink their branch networks by 5 percent, and they will shrink their workforce by voluntary attrition over the next four years. What such banks need is movement into new services, investment in information technology (IT), new products with which to compete. They certainly do not need that many staff, nor branches across the street from one another throughout Japan. In a world where the trends is towards internet banking and automatic teller machines (ATMs), shrinking the workforce and branch networks should be happening—even in the absence of mergers—for banks to make a profit. And if this is true in Japan, the same is true in almost every emerging market.

Customer Responses and Narrow Banking

The third trend against banking on which to piggyback comes on the deposit side. We could tell a story about the hypothetical Argentine grandmother who is financially more sophisticated than the average American bank teller, given the instability she has had to cope with in protecting her savings over the years. Savers who get burnt enough times will put their money offshore, or will realize that other forms of investment impose little by way of more risk than bank accounts. They will not simply accept things as they are.³ We can expect that there will be a very rapid tipping point at which demand for standard user branch deposit services is going to disappear. It is better to promote the shrinking of banks beforehand than to have a bloodbath of called-in loans and failures when it happens.

Bringing in here the more timid Japanese type of grandmother, let us ask what then happens to depositors and consider bank runs. For those who have seen the movie “It’s a Wonderful Life,” the image is clear of what a bank run looks like. Those who have lived in Latin America know from bitter experience what a real bank run is like. As suggested by Martínez Peria and Schmuckler in Chapter 7, no deposit insurance system involves true market discipline or full credibility. Even in Japan in recent years, say in 1997–98 when the crisis was at its most overt (so far), people still moved a significant proportion of their savings out of private banks despite an explicitly unlimited deposit insurance scheme guaranteed by the government. Even in Japan, they put their money into the postal savings system, recognized foreign owned banks’ accounts, or in cash in their home safes. Deposit insurance does not seem to do that much good, except for a very limited subset of small depositors. Also, most people are inclined to react

³ The exception is Japan, but even this is changing. See Posen (2001a).

and take preemptive action on their own, whether or not this constitutes full self-insurance.⁴

Although protecting small depositors, there might be a different way of doing it. There used to be a term that was kicked around called “narrow banking.” This involved the idea that the government could create a bank whose job was solely to provide simple financial services—secure small deposits, checking accounts for industrials—and which would invest in very safe assets and charge a very transparent fixed price (in the form of below-market returns) for these services. So, for example, you could take the Postal Savings System in Japan, buy a bunch of Japanese government bonds (they already do that) and use them as the investment portfolio of a narrow banking system. Unlike the current postal savings in Japan, however, you would buy the government bonds in the secondary market and not give the government discretion over allocation of lending, and you would offer lower returns on accounts than private banks.

The creation of such an institution has the beneficial side effect of adding depth in the secondary market for government bonds in any country you choose. You essentially create money market mutual funds with check-writing privileges that do not pay quite the full rate, to give an option to the Japanese grandmother who does not feel like moving her own money as often as her Argentine counterpart. Everybody else, all other depositors, are entitled to the risks and rewards of being equity investors or whatever other type they wish to be.

The Payment System

The final issue in taking advantage of the trend against traditional banking relates to the payments system. The bottom line we appear to be approaching is that we are moving nearer and nearer towards use of real time gross settlement for financial transactions. We are also moving closer and closer to where even private non-financial entities are able to settle their books very quickly, or to off-load payments risk through derivatives and other means. There is even some movement towards privatizing forms of payment (Friedman, 1999).

Were this to happen on a wide scale, it might take away from the potency of monetary policy. However, for the purposes of discussion here, it does tend to shift the risk onto the counterparties in any given transaction and limit the exposure to inter-bank payment problems. In a system that is largely securitized, if there are fewer banks,

⁴ See the evidence for a credit crunch in Japan due to low bank capital, despite blanket deposit insurance, in the estimates in Kuttner and Posen (2001).

shorter-term assets, more real-time settlement, the *Herstatt* and related kinds of risks tend to decrease. For the individual depositor, we are moving more and more towards everyone having credit cards, e-money, debit cards and so on. I am not suggesting that these are replacing all checking accounts, but you can imagine a citizen of Ecuador, or perhaps even Argentina, asking themselves whether they need to go through their banking system to achieve a means of payment, but rather use a value card from a recognized foreign owned bank, or even a non-bank corporation. While they may appreciate that there is corporate risk, still the money is on the card for only a month and then once used payment or bank-run risk disappears.

These are four very practical, reasonable steps towards shrinking the banking sector, which piggy-back on current trends towards increased financial and allocative efficiency. They by no means replace bank supervision, nor the need to recapitalize banks in as much as banks remain. However, if we do not shrink the banking sector, we will not only remain unduly vulnerable to financial crisis, but we will also become increasingly vulnerable over time as bank profitability declines. It is therefore both feasible and pre-emptive for emerging markets to encourage FDIs and imports in the financial sector, to promote securitization and transparency, to shift depositors to either narrow banking or risk-based assets, and to privatize the payment systems as far as is reasonable.

Monetary Policy

So where is monetary policy in this bottom line? Looking forward, the question is the extent to which monetary policy is either a cause or a fix for the pressures on bank profitability and for slow response to a mounting financial crisis. The experience of Japan has helped demonstrate for us that the effect of monetary policy is very asymmetric. Unduly deflationary monetary policy can cause great harm, although actively inflationary monetary policy may not do much good either. In other words, as I have said many times in many contexts, the reason for the Bank of Japan printing money, buying Japanese government bonds (JGBs), buying dollars and so on, is not that inflation will fix the Japanese economy, but because it removes the additional drag and burden of deflation. A hammer may not be the correct tool for every kind of repair, but it is still worthwhile stopping repeatedly hitting yourself on the head with one.

What of the supposed connection between loose money and crises? I think this illustrates in another way that shrinking the banking system reduces vulnerability. Monetary policy that targets asset prices does not seem to work very well. Admittedly, this is an open debate in economics. In Mikitani and Posen (2000), Ben Bernanke

(2000) and Olivier Blanchard (2000), two of our most brilliant macroeconomists, come down on opposite sides on this question. Nevertheless, stepping back into my mindset as a former central bank employee, you err on the side of caution, and avoid tackling issues beyond your control. A central bank can be very confident in its capabilities to be lender of last resort for one bank. A central bank can generally presume that if it raises interest rates a lot, it can probably make asset prices decline, but only by being unsure when, or for how long, or how much. No central bank can be sure how much real effect there will be from increasing money in the banking system once the banking system is already broken. So, rather than distracting from the main matter with monetary policy, I think the most important thing is simply to keep it sectioned off into a macro focus. You do not want high inflation; obviously you do not want deflation (or we would have hoped that would have been obvious), but avoiding these extremes is not the fix for financial crises, nor is it likely to prevent them.

During the last couple of years of the U.S. economic bubble, visitors from Japan would typically ask me what was going to happen when the bubble burst. I always agreed that there was a bubble, and that was why I had not invested myself. However, I disagreed on whether the effects would be the same in the United States as in Japan, because we are not as bank dominated, we are much more securitized, our collateral is more varied, and our real estate markets are much more liquid. We have now seen how it turned out. The U.S. technology stocks have deservedly crashed, U.S. productivity growth indeed may have been somewhat inflated by how much was attributable to the cyclical upswing, and there may be lingering effects from corporate scandals and the like. However, there has been nothing of the transmission mechanism, of the financial fragility, of the devastating effects on growth we saw in Japan from the asset bubble there. That, of course, is an argument against banks, which is where the chapter started.

References

- Aoki, M., and H. Patrick, eds. 1994. *The Japanese Main Bank System: Its Relevance for Developing and Transforming Economies*. New York: Oxford University Press.
- Bernanke, B. S. 2000. Japanese Monetary Policy: A Case of Self-Induced Paralysis. In *Japan's Financial Crisis and Its Parallels to U.S. Experience*, ed. by R. Mikitani and A. S. Posen. Washington: Institute for International Economics: 149–66.
- Blanchard, O. 2000. Discussions of the Monetary Response. In *Japan's Financial Crisis and Its Parallels to US Experience*, eds. R. Mikitani and A. S. Posen. Washington: Institute for International Economics: 185–193.
- Fama, E. F. 1985. What's Different About Banks? *Journal of Monetary Economics* 15: 29–39.
- Friedman, B. M. 1999. The Future of Monetary Policy: The Central Bank as an Army with Only a Signal Corps. *International Finance* 2(3): 321–38.
- _____. 2000. Japan Now and the United States Then: Lessons from the Parallels. In *Japan's Financial Crisis and Its Parallels to U.S. Experience*, ed. R. Mikitani and A. S. Posen. Washington, D.C.: Institute for International Economics.
- Gerschenkron, A. 1962. *Economic Backwardness in Historical Perspective: A Book of Essays*. Cambridge, MA: Harvard University Press.
- Glauber, R. R. 2000. Discussions of the Financial Crisis. In *Japan's Financial Crisis and Its Parallels to U.S. Experience*, ed. by R. Mikitani and A. S. Posen. Washington, D.C.: Institute for International Economics.
- Goldstein, M. 1998. *The Asian Financial Crisis: Causes, Cures and Systemic Implications*. Washington: Institute for International Economics.
- Goldstein, M., G. Kaminsky, and C. Reinhart. 2000. 1998. *Assessing Financial Vulnerability: An Early Warning System for Emerging Markets*. Washington, D.C.: Institute for International Economics.
- Graham, E. M. 2001. Opening up the Banking Sector to Foreign Competition. In *Open Doors: Foreign Participation in Financial Systems in Developing Countries*, eds. R. Litan, P. Masson and M. Pomerleano. Washington, D.C.: The Brookings Institution.

- Hall, B., and D. E. Weinstein. 1996. *The Myth of the Patient Japanese: Corporate Myopia and Financial Distress in Japan and in the U.S.* NBER Working Paper 5818 (November). Cambridge, MA: National Bureau of Economic Research.
- Hoshi, T., and A. Kashyap. 2001. *Corporate Financing and Governance in Japan: The Road to the Future.* Cambridge, MA: MIT Press.
- Kuttner, K., and A. S. Posen. 2001. The Great Recession: Lessons for Macroeconomic Policy from Japan. *Brookings Papers on Economic Activity* 2001(2): 93–185.
- Martínez Peria, M. S., and S. L. Schmuckler. 2001. Do Depositors Punish Banks for Bad Behavior? Market Discipline, Deposit Insurance and Banking Crises? *Journal of Finance* 56(3) 1029–105.
- Mikitani, R., and A. S. Posen, eds. 2000. *Japan's Financial Crisis and its Parallels to U.S. Experience.* Washington, D.C.: Institute for International Economics.
- Mishkin, F. S. 1997. *Understanding Financial Crises: A Developing Country Perspective.* NBER Working Paper 5600 (June). Cambridge, MA: National Bureau of Economic Research.
- Posen, A. S. 1998. *Restoring Japan's Economic Growth.* Washington: Institute for International Economics.
- _____. 2001. Japan 2001—Decisive Action or Financial Panic. International Economics Policy Briefs 01-4 (March). Institute for International Economics, Washington, D.C.
- _____. 2002. Finance. In *U.S.-Japan Relations in a Changing World*, ed. S. Vogel. Washington, D.C: Brookings Institution.
- Stiglitz, J. E. 1993. *Banks versus Markets or Mechanisms for Allocating and Coordinating Investment.* NBER Working Paper R1821 (December). Cambridge, MA: National Bureau of Economic Research.
- Weinstein, D. E., and Y. Yafeh. 1998. On the Costs of a Bank-Centered Financial System. *Journal of Finance*, 53(2): 635–672.
- World Bank. 1993 *The East Asian Miracle: Economic Growth and Public Policy.* Oxford: Oxford University Press.
- _____. 2001. *Finance for Growth: Policy Choices in a Volatile World.* Oxford: Oxford University Press.

PART V

CONCLUSIONS

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CHAPTER II

Financial Crises: Lessons for Latin America and the Caribbean

Roberto Zahler

The special characteristics of the financial system justify the concern of the authorities for its health over all other sectors of the economy for three main reasons:

- Due to the high degree of leverage in its financing and the inherent liquidity and currency mismatch between its assets and liabilities, the banking industry is more likely to face crises than others. This is because there is a basic asymmetry between the economic, as opposed to the accounting, value of bank assets and liabilities. The former is essentially variable and market-determined, while the latter is perceived, in practical terms, to be rigid and fixed to the accounting value determined in the initial contracting conditions because of the de facto or de jure guarantees on bank liabilities. When the wedge between the value of assets and liabilities increases and is maintained through time, liquidity problems may easily turn into solvency problems, ultimately causing a financial institution failure.
- The financial system, and particularly banks, play a central role in the functioning of a modern market economy, especially with regard to the payments system.
- The private sector on its own is unable to carry out adequately and completely the role of monitoring the quality of financial assets and their economic equivalence with bank liabilities. The reasons for this include the atomized structure of depositors, implicit and/or explicit government deposit insurance, and problems that arise from asymmetric information between bank management, depositors, and creditors.

In sum, governments should give priority to maintaining a sound and efficient financial system in order to preserve depositors' confidence, to uphold the smooth func-

tioning of the payment system, and to ensure sufficient financial resources to cover the needs of the economy. Banks have the character of public goods since it is usually public funds that are injected to help reconstruct the sector when it faces a major crisis.

Financial Crisis in Japan

Japan has undergone a prolonged banking crisis, and this is one of the major factors responsible for more than a decade of stagnation. And even though Japan has yet to recover from that crisis, and in spite of the significant differences between the structure and functioning of its financial sector and that of Latin America and the Caribbean, some important lessons can be learnt from the Japanese banking and regulatory systems with regard to financial crisis prevention and management.

One of the main causes of Japan's banking crisis was the undercapitalization of its banks. From the 1970s on, bank lending expanded faster than bank capital and capital adequacy rates fell. A second cause was the way in which the Bank of International Settlements (BIS) rules of July 1988 were applied, since banks, to satisfy the minimum capital adequacy requirement of 8 percent, were allowed to include 45 percent of unrealized gains on shareholdings in tier-two capital.¹ A third, and perhaps the most important cause of Japan's banking crisis, was the comprehensive use of inappropriately-valued real estate as collateral,² which removed the need to improve capabilities to analyze and evaluate loan risk.

The attractions for prime businesses to fund themselves through equity finance and bond issuance in European markets during the late 1980s, combined with the restrictions on Japanese banks engaging in new business, encouraged them to finance real estate to an excessive extent, thus contributing to the asset price bubble. The bursting of that bubble in the late 1980s and early 1990s meant that Japanese banks had very large amounts of non-performing loans. This brought the financial system to the brink of disaster in the midst of the global financial crisis of late 1997 and 1998. The continued sluggishness of the Japanese economy since the mid-1990s has hampered resolution of the financial sector's problems.

To confront a situation initially considered temporary, but which turned out to be structural in character, sweeping reforms were made in 1992 and 1998, spear-

¹ However, the structural problem came to light after the collapse of the asset bubble, when the decline in stock prices hit banks balance sheets directly.

² The heavy use of fixed collateral in corporate finance was characteristic of Japan.

headed by the financial sector regulators. Basically, three types of measures were envisaged: those related to the stability of the financial system; those attempting to increase its efficiency; and those related to the structural problems of dealing with non-performing loans.

Stability

Because of the prolonged nature of their economic difficulties and the increase in competitive pressures in a rapidly changing business environment, Japanese financial institutions have been dramatically reduced in number in recent years, and the trend is expected to continue.

Throughout the 1990s, and particularly since 1998, the regulatory and supervisory framework in Japan has been strengthened. Of key importance has been the improvements in supervisory standards and their implementation. Among the measures adopted has been the introduction of prompt corrective actions combined with a system of triggers for regulatory responses. The disclosure standards have been enhanced so as to make use of market forces in establishing confidence in the financial system. The capital adequacy of the banks has also been restored through injections of public money.

Efficiency

To make the financial system more efficient, a set of comprehensive measures were introduced, mostly in the context of the Big Bang capital market reform of 1997. The reform encompassed a wide range of areas, and was designed to encourage flexible business strategies, make fuller use of market forces and competition, and help adapt the Japanese financial market (including the banking sector) to changes in the global environment. Amongst other things, the reform included the following key points: it allowed banks, securities companies and insurance companies to do business in each other's sphere by establishing subsidiaries or holding companies; it permitted cross-sales of certain financial products such as banks selling mutual funds; it deregulated brokerage fees; it abolished government approval for listings of stocks; it brought in improved accounting standards, including the mandating of consolidated statements and mark-to-market accounting for financial products; and it improved the legal and regulatory infrastructure for securitization of various assets. The new business approach also involved new guidelines being set to ensure observation of sound banking principles. Moreover, efforts have been made to introduce stricter fit and proper tests to vet shareholders and

management, especially in light of increasing number of non-financial firms planning to enter into banking by way of new establishments or through acquisition.

Structural Measures

In April 2001, a new broader approach was announced that not only covered the banking sector but also the legal and tax-related aspects of corporate sector restructuring. This encompassed a wide range of institutional and regulatory measures to address the issues of corporate debt and non-performing loans. In this context, the new rules introduced limitations on the stock holdings of banks to reduce the risk of volatility. Major banks in Japan had traditionally held very significant amounts of stocks, because of the role they had played in equity financing during the post-war period. This brought with it cross-holding relations with corporate borrowers and increased volatility risk from full mark to market accounting. It is expected that these new limitations will bring structural changes in the stock market, improve corporate governance, and contribute to the revitalization of the Japanese economy.

Pending Problems

In dealing with these banking sector problems, one of the main problems was the delay in the economic authorities recognizing the existence and implications of the asset bubble. Another problem that made crisis management more difficult was the hesitation and reluctance of both regulators and banks to disclose the true picture of the situation they faced. A third element that contributed to the length and intensity of the crisis was that, when it was most needed, the authorities lacked the political independence and credibility to take the necessary measures to confront it responsibly and efficiently.

In spite of attempts by the banks to deal with their non-performing loans, these have not been reduced in recent years. They represent around 5 percent of GDP and are still on the bank's balance sheets. As such, they undermine efforts to improve bank profitability. Furthermore, the deflationary impact of the sluggish economy on real estate prices creates additional needs for provisioning on the portion of non-performing loans backed by real estate collateral. To solve this problem, banks need to remove non-performing loans from their balance sheets. Without this, financial intermediation cannot revive. Furthermore, banks have to learn to work in an environment where collateral is uncertain and volatile and therefore manage risk professionally. As in Latin America, credit officers and bank supervisors in Japan demonstrated a notable lack of professionalism. Creating serious and responsible risk management remains a major challenge.

Proposals to reform the banking sector in Japan are similar in approach to those taken by many Latin American countries. They are based on the need for precise recognition of problems, for market transparency, and for strong regulatory regimes and safety-nets to protect depositors and ensure the stability of the system. However, the experiences of the Japanese financial sector differ in some important ways from those of most of Latin American countries.

In Latin America, financial intermediation is much lower relative to GDP than in Japan, where it is more than double that of most other industrial countries. In Japan, non-prime firms rely heavily on banks for financing, not only short-term but also medium and long-term. Until recently, banks not only accounted for a large share of intermediation, but also played a significant role in risk-taking through equity investment. In both these respects, the situation is very different to most Latin American countries.

Furthermore, in contrast to the general pattern in Latin America, Japan has not been externally indebted. Indeed, it is one of the world's largest creditors, and its currency is traded freely and globally. In Latin America, when times get tough international investors lose confidence in the domestic financial system, with the consequence that the region's economies end up being squeezed out of international capital markets. Again, by contrast, Japan's banking crisis was related to the bursting of the domestic asset price bubble, and developments in foreign exchange markets had little impact on domestic financial issues. So while Japan's banking crisis was not accompanied by a foreign exchange crisis, it is difficult to find a systemic banking crisis in Latin America in the last 25 years that was not accompanied by such a crisis.

Latin American Financial Crises

Instability in the access to resources, problems of loan portfolio quality and difficulty managing unpredictable foreign shocks all help make Latin American financial systems more fragile than those of the developed world. Such fragility and consequent vulnerability can seriously affect overall economic performance. On the one hand, it introduces microeconomic inefficiencies into the intermediation between savings and investment, and consequently limits economic growth. On the other, it can affect the proper functioning of the payment system, thereby increasing transaction costs and reducing the overall productivity of capital. It may also be an important factor in generating and/or deepening macroeconomic crises.

In recent decades, the fragility of Latin America's financial systems has been a cause of significant financial crises. These have been extremely costly in terms of lost

output, reduced access to foreign financing, significant fiscal revenue losses, and regressive income and wealth redistribution effects. On many occasions, they have turned into full macroeconomic crises, with further damaging effects on growth and employment.

Since the 1990s, Latin America has witnessed extraordinary turbulence in its financial markets, and events in Argentina, Mexico, Ecuador, Venezuela and Brazil, among others, serve as a reminder that volatility is still a salient feature of the financial landscape. A key lesson has been that financial markets and institutions, both domestic and international, have played a major role in determining economic fluctuations, growth, and development. In this respect, financial policies remain central to any strategy to reduce the region's external vulnerability and restore sustainable capital flows.

Despite their diversity, banking crises in Latin America have followed a common pattern that reflects some underlying regional realities: shock-prone economies; structural fragilities in their financial systems; and inappropriate crisis management. Many of the causes of financial vulnerability in the region persist, with new risks arising from changes in the competitive landscape. The region's experience points to two significant areas towards which policy should be directed to strengthen financial systems and to make them more efficient, thereby reducing the probability of crises in the future. One is related to appropriate macroeconomic policy design and implementation; and the other to introducing updated financial policies, centered on building adequate preventive regulatory and supervisory frameworks, a challenge that remains at the top of the agenda for most of the region.

Macroeconomic Policy

Macroeconomic shocks can jeopardize the health of the banking system. On the asset side, terms of trade shocks, wild variations in key macro prices and unsustainable asset prices (bubbles) can affect the payment capacity of bank debtors and/or the value of the collateral for their loans. They can generate a mismatch between the value of assets and liabilities, which should be absorbed by equity values. On the liability side, sudden changes in the public's preference for holding deposits (for example, because of changes in inflation or in expectations about devaluation), or in access to external financing (due to changes in the international perceptions of country-risk), can generate a liquidity shortage that can turn into a solvency crisis by blocking access to financing for bank debtors.

Because of its economic structure—limited export diversification (by products and by markets) and dependency on foreign saving—Latin America tends to be more

prone to macroeconomic fluctuations and is particularly vulnerable to volatility arising from foreign and domestic shocks.³

The preservation of macroeconomic stability is a *sine qua non* for the proper functioning of the financial system. To minimize the likelihood of macroeconomic shocks generating financial crises, experience from Latin America indicates that macro policy should focus on two objectives: (i) reducing the degree of intensity of the economic cycle (in particular, avoiding credit booms and asset price bubbles) and (ii) avoiding key macro prices becoming outliers.

Stability and Sustainability of Aggregate Demand

A major challenge facing most countries in the region is to reduce levels of macroeconomic instability. This militates against efficient resource allocation and, in particular, capital accumulation. Macroeconomic instability also correlates positively with vulnerability of bank debtors and with inappropriate and erroneous risk evaluation in the financial sector and, consequently, with the fragility of the banking system.

Excessive and rapid credit expansion is one of the major causes of economic booms in Latin America that too frequently end in busts and banking crises. Credit expansion can generate a boom in asset prices, which increases (temporarily) the value of the bank debtors' collateral and this, in turn, generates a further wave of credit expansion and so on. Excessive increases of loan portfolios usually come about in periods of economic expansion, when credit policy standards tend to become more relaxed because borrowers give the appearance of being profitable and liquid. In such periods, it is harder to discriminate between good and bad loans. Moreover, the impact of the excessively expansive and/or contractive phase of the economic cycle (especially if not anticipated) is asymmetric with regard to the vulnerability of the financial sector. In practice, banks tend to get stuck with bad loans in the downward part of the cycle, while individual banks' credit standards decline in the presence of excessive credit growth in the expansive phase of the cycle.

In such circumstances, an effective system of financial regulation and supervision is insufficient in avoiding a generalized banking crisis. The solvency of each financial institution can be viable in the sense that the loans granted appear to be fully backed by the payments flows from borrowers and the guarantees that back up loans.

³ Foreign shocks include terms of trade variations, changes in international interest rates—especially in highly indebted countries—and abrupt movements of international liquidity constraints and/or volatility in short-term capital flows. Domestic shocks include 'stop-go' macroeconomic policies that tend to exacerbate the booms and busts of economic cycles, and high variability of key macro prices, such as the exchange rate, domestic interest rates, and asset prices.

However, this all depends on the maintenance of the expansionary credit cycle and, at the macro level, the situation may be highly vulnerable since that expansion may be unsustainable and a setback can trigger a downward trend in economic activity. Therefore, an appropriate financial policy combines effective supervision at the level of individual institutions with consistent macroeconomic policy alert to the dangers of an expansionary cycle leading to a possible generalized banking crisis.

Therefore, to reduce the probability of financial crises, Latin American countries need to design macroeconomic policy in such a way as to achieve internal equilibrium in a stable, sustainable and credible way, exercising preemptive action and a proper coordination of fiscal, monetary, exchange rate and wage policies to avoid exaggerated booms and busts.

Successful fiscal policy is also important in having sound domestic financial systems. Financial markets cannot work well in an environment where a government crowds out the private sector. Establishing effective fiscal institutions capable of ensuring sustainable fiscal positions greatly helps to preserve macroeconomic and financial stability. Fiscal discipline, however, goes beyond achieving budgetary equilibrium. The fiscal system needs to be made less vulnerable to external shocks, and contingent costs arising from problems in the financial services industry need to be explicitly recognized.⁴

Those costs, if properly measured and acknowledged, require fiscal provisioning. They need to cover an appropriate percentage of implicit, and certainly explicit, banking deposit insurance schemes, as well as for foreign exchange insurance and other contingent support that governments tend to give bank depositors and/or borrowers in times of banking crisis. If such contingent transfers are taken into account, then public sector liabilities—appropriately measured—would grow at a faster rate than official statistics suggest. Such informational transparency would have beneficial effects on the ability of the economic authorities to judge the soundness and sustainability of macroeconomic policy and the consequent need for proper and timely corrective measures.

Time and time again, external sector imbalances have been at the root of financial crises in the region. Experience suggests that Latin American policy makers should be made more aware that the current account of the balance of payments matters. This is especially relevant if a country has large gross foreign financing needs together with insufficient international reserves and/or a high stock of short-term foreign debt. Particular care needs to be taken regarding the current account in countries fac-

⁴ Banks typically have an explicit or widely perceived implicit government guarantee on many of their domestic, and even on some foreign liabilities. Also, pension funds, even with reformed and privatized social security capitalization schemes, have contingent fiscal resources committed, especially in the form of legal minimum pensions.

ing significant short-term “voluntary” foreign financial inflows, which usually take place during the expansive phase of the cycle. When faced with such inflows, and especially when the fiscal accounts are in equilibrium, governments have sometimes been tempted to rationalize the existence and persistence of large current account deficits. They argued that such deficits were not the result of excessive (public) domestic spending, but reflected a “healthy” economy with plenty of profitable investment projects.

On many occasions, however, it has been high levels of domestic interest rates, together with inadequate country-risk or exchange rate risk evaluation by foreign creditors that have attracted significant short-term capital inflows. In such conditions, inflows can disrupt the functioning of domestic financial markets, through which most of them are intermediated. In the case of the banking system, if not properly supervised and regulated, the resulting increase in its liabilities tends to transfer into excessive and risky (related, concentrated and/or mismatched) bank credit to the domestic economy. The outcome, in addition to weakening the banking sector, has been to generate macroeconomic disequilibria. This occurs not only because of the increase in overall spending, but because when there is overabundant liquidity domestic banks relax their credit standards and lending policies and thus the quality of their loan portfolio tends to deteriorate. Furthermore, since there is no lender of last resort at the international level, those banks that depend most heavily on short-term external financing are those most likely to suffer the runs and sharp reversals of resource flows that make the financial system vulnerable.

In addition, non-bank financial markets in Latin America tend to lack depth and liquidity. When an important part of net short-term capital inflows are channeled through the stock exchange and/or other non-tradable markets, it has on many occasions led to asset (stock market and real estate) price bubbles. Examples include Mexico in the early 1990s and Bolivia in the late 1990s. This further stimulates domestic spending, due to perceived (although unrealized) positive wealth effects, leading to a higher current account deficit on the balance of payments and increasing the chances of a currency crunch even where the banking sector is initially strong. Rising asset prices also distort, by biasing upwards, banks’ collateral valuations, and so contribute to weaknesses in their loan portfolios and increases in their non-performing loans.⁵

In short, because of their size and speed, short-term financial inflows may contribute to creating and/or exacerbating macroeconomic and financial disequilibria, even

⁵ As mentioned, Japan’s asset (real estate and stock) price bubble of the late 1980s and its disinflation in the 1990s, with the well known consequences on non-performing loans of most of its banking system is generally considered the main cause of its major financial crisis of the 1990s.

when the recipient economies and their financial system are well managed. Experience and practice in Latin America suggest that when “excessive” short-term voluntary foreign financing continues to flow into a country, measures should be taken to prevent those inflows from undermining macroeconomic objectives and damaging the health of its financial system.⁶

Key Macro Prices should not Be Outliers

Together with appropriate aggregate demand policies, care needs to be taken when key macro prices, such as interest rates, exchange rates and in some cases asset prices, tend to behave as outliers over a prolonged period of time, in the sense that they become divorced from fundamentals or long-term equilibrium values. Even though these prices may be market determined, they are not necessarily efficient or equilibrium prices. In fact, they can have a seriously disruptive effect on overall macroeconomic equilibrium. The wide fluctuations usually required to correct them can transform dynamic and profitable sectors into problem sectors over short periods of time. Since banks usually share the losses, but not the windfalls, of their clients, defaults increase on average with the presence of unsustainable values for key macro prices. In short, the changes and adjustments required of those key macro prices may affect debtors’ capacity to service their debts. They may also distort the appropriate valuation of collateral in the bank lending process, thereby increasing financial fragility. Misalignment between these prices and their fundamentals generally has an extremely harmful effect on the financial system.

It has been quite common to observe in different Latin American countries very high real domestic interest rates going hand in hand with domestic currency appreciation.⁷ In such circumstances, perverse incentives affect the workings of the financial system. Lending tends to concentrate on the non-tradable sector and adverse selection tends to be the norm. Also, roll-over of the non-performing loans of over-indebted agents increases so as not to acknowledge losses. A bubble of (mainly non-tradable) asset prices tends to appear stimulating credit growth and spending, the latter by means of a (transitory) wealth effect, while financial fragility increases due to distortions in the evaluation of collateral by banks.

⁶ Chile’s liberalization and the opening-up of the capital account of its balance of payments, implemented in mid-1991, were pursued at a pace coherent with the objective of overall macroeconomic equilibrium. A detailed analysis of those measures can be found in R. Zahler, Policy Options for Capital Importers, in P. B. Kenen and A. K. Swoboda (eds.) *Reforming the International Monetary and Financial System*, International Monetary Fund, Washington, D.C., 2000.

⁷ This is usually associated with sudden opening-up of the capital account of the balance of payments, accompanied by financial sector liberalization without proper regulation.

When real interest rates are much higher than those that would give a reasonable rate of return in the non-financial sectors of the economy (the banks' main debtors) over lengthy periods of time, it often reflects some major hidden policy mistake that could easily develop into a financial sector crisis,⁸ since those rates will eventually undermine the ability of the financial system's debtors to pay. Many financial crises in Latin America have been associated with extraordinarily high real interest rates, which the economy could not tolerate indefinitely.

Financial Sector Policies

Latin America's experience with capital market deregulation and financial liberalization shows that establishing an adequate regulatory and supervisory framework is still at the top of the agenda. The approach needs to be preventive and prudential; anticipating problems, evaluating them and taking appropriate corrective measures on a timely basis.

A problem typical in those countries that engaged in financial reform was that not only bank managers but also regulators and supervisors were unaware of the implications of reform on their behavior. In the more liberalized and competitive economy, there is a crucial need for both regulators and banks to engage in serious, responsible and professional risk evaluation.

Although entry rules have been modernized in many countries to include proper licensing provisions, it is still the case that many newcomers to the banking industry fail to comply with the requirements needed for being bankers.⁹ Latin American countries need to insist on strict entry conditions, requiring fairly high minimum-entry capital and appropriate standards on the part of shareholders, directors and top management. In particular, new banking licenses should only be issued after exhaustive analysis of the moral and ethical qualifications of bank owners and the degree of professionalism of senior management. Where this is not the case, problems tend to multiply, given the limitations on supervisory and regulatory capacities. Regulations have

⁸ In addition, under such conditions, monetary policy, even though designed to be contractionary, is not. This is because such high real rates of interest tend to be ineffectual in moderating excessive spending, since they are not binding on bank debtors' behavior. This is because borrowers expect to defer indefinitely their debt payments (rollover of loans) and/or have their debt bailed out. Excessively high interest rates do not help ration credit effectively and banks do not play their proper role in the transmission of monetary policy. What happens is that the budget constraint is not operative and excessive spending takes place in spite of (and even because of) the presence of extremely high real interest rates, which cause both macroeconomic conditions and the quality of bank loan portfolios to deteriorate.

⁹ This has been especially notorious during the privatization process of banks.

been modernized but in many countries, enforcement is still deficient¹⁰ because of political pressures and/or inadequate institutional capacities.

To improve the quality of the region's financial systems, and thereby to help integrate its economies into international financial markets, Latin American countries need to be more proactive about banking. Experience shows that financial sector strategies should center around three basic areas: (i) improving institutions; (ii) improving, updating and enforcing financial regulations; and (iii) improving corporate governance so as to rely more heavily on enhanced market discipline.

Institutional Framework

Banking regulation and supervision requires a high degree of independence, well qualified personnel, appropriate resources and adequate training programs. There is a need for a strong supervisory authority, endowed with legal and financial autonomy, that is capable of basing its activities on technical criteria and fending off political interests (from government, parliament or political parties) and pressure groups.

Making supervisors more independent requires, first of all, a suitable legal framework. Bank supervisors are increasingly called upon to exercise judgment and be proactive, rather than just passively apply predetermined rules. Their mandate therefore needs to be clearly spelled out in the legislation to make supervisors accountable, protect citizens from bureaucratic abuse, and protect supervisors from harassment by vested interests. Regulators need to be accountable both to the executive and the legislative branches of government, because social checks and balances rest on accountability. How well this system of checks and balances actually works in practice depends on the strength of democratic institutions and the overall transparency of public decision-making. Strengthening democratic governance, therefore, works in tandem with enhancing accountability. The modernization of the judicial system needs to be accelerated to assure expedient and efficient solutions to property rights when these are placed in question by banking conflicts.

In some Latin American countries, the quality of professional risk analysis by banks and even supervisors has been undermined by the lack of credible information on borrowers. In some countries, firms produce three sets of balance sheets: one they submit to the banks (showing an excellent financial picture), one to the tax authorities (showing a loss) and one to the owners (showing the true situation). To cover the increased risk caused by deficient information, decision-making on credit is based on

¹⁰ It has been common in Latin America that multilateral institutions base their loan conditionality on the existence of prudential regulations, but not on how these are enforced in practice through the approved regulatory framework.

high real guarantees that increase the cost of credit and restrict access to financing for many. The viability of a loan therefore relies much more on a mortgage guarantee than on a financial analysis to determine the payment capacity of the would-be debtor. Basing borrower viability on guarantees has meant biasing credit allocation towards the non-tradable sectors (land, real estate and rural property) and perpetuating pre-existing concentrated wealth patterns. While excessive reliance on fixed collateral for guarantees may, in certain circumstances, suffice to deal with an eventual non-performing loan, it does nothing improve resource allocation by pushing bankers and supervisors to assume their professional role in developing the appropriate credit tools to evaluate the cash-flow of the project underlying a loan.

Sound banking is a necessary condition for capital market development. However, financial regulations should evolve in accordance with market developments. Non-bank financial intermediaries, including pension funds, insurance companies and mutual funds, are becoming increasingly important in Latin American capital markets. They will play a major role in long-term financing. Therefore corporations that require such finance should make themselves and their operations more transparent, adopting codes of good practice with regard to governance.

At the same time, the financial services industry is becoming well established in some countries. Disintermediation requires adapting financial (and not just bank) legislation and supervision. Such changes should be oriented towards strengthening the institutional basis of the regulatory and supervisory agencies, as well as promoting their coordination.¹¹ Changes need to be incorporated as they appear (such as corporate governance, protection of minority shareholders' rights and risk evaluation capacity in the development of new financial techniques and instruments) in order to encourage modernization and efficiency in the sector and to help it contribute to the on-going process of saving and investment. In short, the region should establish institutions to coordinate among different regulatory agencies to assure transparency and avoid regulatory arbitrage.

Banking Regulations

Each country's banking regulation and supervision standards should adopt the core Basle principles, recognizing that special efforts need to be made to enforce prudential rules. In particular, Latin America needs to consider a more strict and effective imple-

¹¹ In Japan, the FSA, as an integrated supervisor covering the banking, securities and insurance industries, is well placed to supervise financial conglomerates and the markets for complex financial products.

mentation of agreed minimum capital requirement standards, as well as of liquidity requirements, to compensate for the fact that it has higher macroeconomic vulnerability, higher risks and poorer supervision levels than industrialized countries.

Furthermore, individual asset risk criteria need to be complemented with exchange, interest rate and loan concentration risks when defining the appropriate capital requirements. Credit risk alone does not take into account other significant risks related to exchange rate or interest rate fluctuations, portfolio concentration and the like, which are especially relevant in Latin America. In this regard, the authorities need to set up a regulatory framework for portfolio diversification by, for example, setting limits for the maximum mismatch in terms of maturities and currencies.

Special consideration should be given to the way in which regulators consider the currency match between bank assets and liabilities. A common mistake is not to analyze the characteristics of those economic agents indebted to the banking system in foreign currency. Regulators may feel comfortable with the fact that there is a balance between bank assets and liabilities denominated in foreign currency, but they may be missing the crucial point, which is the risk run by bank debtors of a change in the exchange rate. In other words, if bank loans in foreign currency are concentrated among debtors whose income originates in the non-tradable sector, and there is a big domestic currency depreciation, the value of those loans should be downgraded, since the debt service capacity of those debtors is impaired. So even though banks' assets are matched with liabilities in terms of foreign currency, debtors may be unable to absorb exchange rate fluctuations. In sum, an exchange rate change may increase the risk of financial instability in spite of the fact that there may be an accounting match between bank assets and liabilities in foreign currency. This is true even if the economy is highly dollarized. Banks should be obliged to conduct sensitivity analysis of their exposure to exchange rate changes, and be required to increase provisioning in those circumstances where an alteration in the exchange rate is likely that will have negative consequences on their debtors' capacity to serve their debt.

More generally, bank soundness should rest on asset quality, appropriate and timely provisioning and a capital base that is effectively available for write-offs in the event of problems. As already mentioned, in order to appropriately manage the true risk and volatility of bank asset values, each country must adapt risk assessments contained in the current standard Basel approach. Furthermore, it has to be recognized that both government bonds and private financial instruments are vulnerable to international capital market volatility as well as to domestic developments, and therefore deserve appropriate capital requirements. In particular, banks' investment in government bonds implies rises and does not ensure the long-term stability of financial systems in Latin America.

Experience has shown that, as a rule, the initial symptoms of a bank crisis are to be found in problems of illiquidity. In fact, it has been quite common in Latin America for banks in situations of illiquidity to increase their rates of interest on deposits far above the average for the banking system as a whole, which is why special care needs to be taken to avoid key market prices becoming outliers. In response to very high passive interest rates, banks need to grant loans also at very high interest rates, increasing the risk of their portfolio, especially when depositors give little consideration to risk-return. The effects of such risky behavior tend to be aggravated when there is a low level of bank capitalization, generating the well-known “agency problem” whereby a bank no longer defends the interest of its depositors, becoming instead an agent of some of its borrowers (usually related to its shareholders). Problems multiply and finally the institution, which started with what appeared as an illiquidity problem, ends in insolvency and has to be intervened or liquidated when it can no longer capture deposits from the public or from the inter-bank market and lacks access to external financing. Such behavior transforms a problem for an individual bank into a systemic problem, usually ending in a macroeconomic crisis. Policies should be established to reverse such situations as quickly as possible.

With respect to liquidity management in foreign currency, the rules should be strengthened by requiring banks to hold an appropriate level of liquid high-grade foreign assets for which the market value will not be impaired by domestic financial and/or macroeconomic instability and which will hedge the associated foreign exchange risk exposure.

High concentration of ownership and connected lending (to owners, directors and related businesses on the basis of insufficient guarantees) are one of the main causes of banking weakness in Latin America. Since concentration of ownership in the region’s banking system is commonplace, implementing effective consolidated supervision and properly measuring risk on a consolidated basis becomes that much more important in avoiding connected lending. Where there is as yet no consolidated supervision, bankers and supervisors need to devote special efforts to identifying and measuring the risk that non-financial companies may pose to the solidity of financial conglomerates. The need for consolidated supervision is all the more urgent in countries where conglomerates exist or are being created *de facto*, and where banking and financial operations are just one of their economic activities. This is particularly relevant when these conglomerates look for opportunities abroad to acquire real and financial assets and/or (in the case of banks) start lending abroad.

Exit rules in Latin America often continue to be too loose and subject to discretionary decisions by political authorities. Prompt corrective action-type rules that call for pre-specified supervisory actions triggered by declining thresholds of bank cap-

ital ratios should be adopted as a means to avoid regulatory forbearance and to minimize the potential cost to the taxpayer. More specifically, capitalization of an entity with insufficient capital should take place immediately, either by its current shareholders or third parties.

The internationalization of domestic banking tends to diversify portfolio risk, but few countries in Latin America have the capacity required to oversee bank lending or investment abroad. Those markets may have a higher country risk, contagion risk and arbitrage risk, as well as having different sorts of regulation and supervision. Information from other countries is usually more costly to obtain, and the differences in national accounting practices, as well as banking laws, supervisory and regulatory systems, suggest that the increase in the scope of international banking activities should proceed gradually and in a prudential way. Information sharing and coordination among national supervisory agencies should be a necessary condition in the initial stage of domestic banking internationalization. If this is not the case, banking activities outside the home country may end up increasing, rather than reducing, a bank's overall portfolio risk.

A related point is the problem of risk triangulation: banks in low sovereign-risk countries may end up acting as mere intermediaries for placing funds in higher-risk economies. Although this situation can offer attractive opportunities for financial arbitrage, this should not be done at the cost of triggering explicit or implicit government or central bank guarantees, and should therefore be avoided.

Another major challenge for regulatory and supervisory agencies in Latin America relates to the risk involved in the rapid development of new financial techniques and instruments.

The Role of the Private Sector

The development of enhanced corporate governance and risk management practices in financial institutions throughout the region should be encouraged,¹² since it represents the best way of strengthening banks from within. In particular, standards of governance should grant greater independence to internal control units. Experience from

¹² In many Latin American banking crises, due to high concentration of wealth and a lack of governance, bank owners became involved in management, reducing the transparency and efficiency of banks as institutions. Under constant pressure from owners, managers lacked the incentives to grant loans using professional conditions and criteria. In many cases, internal controls were non-existent, and internal auditors responded to the interests of the owners.

Latin America has shown that weak corporate governance carries with it poor lending practices, loan concentration, connected lending, significant term-mismatch and/or currency-mismatch, careless collateral management, and poor loan recovery. Poor risk management, ineffective internal controls and inadequate disclosure render even the best of regulatory practices ineffective.

Responsibility for sound banking should lie primarily with the private sector. Banking legislation should assure that bank directors and management are liable and take effective responsibility for banks' risk practices. Corporate governance improves when laws and regulations clearly define the responsibilities and liabilities of directors and establish mechanisms for making them accountable. Dealing seriously with conflicts of interest and making controlling shareholders, directors and managers fully accountable leads to stronger banks operating more prudent policies. Effectively protecting the rights of outside investors and minority shareholders empowers them to help monitor banks.

Market discipline enforced by depositors, bondholders, other creditors, and shareholders should play a greater role in pushing banks to improve the quality of their assets and their capital base. Regulators should therefore seek to enhance disclosure and transparency and introduce adequate incentives so that markets signals can increasingly contribute to bank monitoring. The key to market surveillance is timely disclosure of relevant information about banks' asset quality, their risk exposure, profitability and net worth.

Compliance and disclosure rules for government-owned banks must be the same as those governing private banks. Public sector banks should not be granted unfair competitive advantages.

Strengthening the working and scope of private agents, such as credible external auditors and ratings agencies, while at the same time making these accountable to bank supervisors should be encouraged, since in that way the market's ability to monitor bank risk is expanded. In the past, however, external auditors have been extremely negligent. Also, the ratings industry in Latin America is weak and capital markets are underdeveloped, so there is little incentive for companies to have themselves rated. Furthermore, conflicts of interest may bias ratings, since existing regulations do not provide adequate oversight of ratings agencies. Therefore, the scope for external ratings agencies to play a meaningful role in the region's markets is still narrow.

Perhaps of more immediate use is the development of indicators for market perceptions of bank risk. Sophisticated depositors should know when a bank begins paying well above market rates. The more skilled depositors become in responding to

these signals, the lower the cost of bank failures will be. Regulators can thus enhance market signaling by developing useful financial indicators to communicate market perceptions of bank risk. Both the deposit market interest rate and the inter-bank money market rate produce useful signals from which such indicators can be constructed. Subordinated debt indicators, however, are not useful in most Latin American countries because capital markets are still in the early stages of development.

Finally, the increasing presence and role of foreign banks in most of Latin America should contribute to the role of the market and the private sector in strengthening the domestic financial system.

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ECONOMIC DEVELOPMENT

In the developed and developing world alike, financial crises impede economic growth and can even threaten a nation's stability. Yet despite the frequency of such crises, there is still no generally accepted set of policies and actions to prevent and respond to them.

Financial Crises in Japan and Latin America examines episodes from the 1990s in different regions and countries with contrasting cultures and levels of development. The book looks at the key issues and lessons that policymakers must consider in designing an adequate framework for dealing with financial crises. These include structural problems and their causes, policy actions, the role of market discipline, and preemptive strategies.

By comparing experiences and relating theory to empirical episodes, the book sheds light on how financial crises come about and how to best resolve them. It is a must read for financial practitioners, bankers, policymakers, regulators and supervisors in Latin America, Japan and beyond who are on the front line at moments of crisis and must make the tough decisions required.

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