

## Bank Regulation and Supervision

**T**HE regulation and supervision of banks are key elements of a financial safety net. By providing well-defined prudential guidelines and enforcing them, the safety net can guarantee that risk-taking is limited or at least provided for in a proper manner and hence can reduce the likelihood of systemic crises.

There are two classic arguments for banking regulation. First, it protects small and unsophisticated depositors. Given their small size and fragmentation, individual depositors do not have the ability to monitor whether bank managers are acting prudently and on their behalf. The regulator in such cases represents the depositors. Capital regulation and the requirement to inject new capital when necessary or face closure may be a way to (re)create the incentives present in nonfinancial firms for managers to act on behalf of shareholders, or depositors in the case of a financial firm (see Dewatripont and Tirole 1994).

The second rationale stems from the need to protect the payments system and the financial system more generally. On certain occasions, otherwise solvent banks may be subject to pure liquidity runs (see Diamond and Dybvig 1983). Moreover, if depositors run against a weak bank, they may also run against healthier banks in the system, in what is frequently referred to as contagion. Contagious bank runs may have significant negative effects on the rest of the economy and hence are generally thought to be costly, especially if they affect otherwise healthy banks or prevent the normal functioning of the payments system. In particular, if otherwise healthy banks fail, their private client information may be lost and the economy may suffer a general “credit crunch.”

One way to prevent such runs is for the central bank to promise liquidity to solvent banks—that is, for the central bank to provide lender of last resort services (see Box 6.1). However, the promise of such liquidity may weaken banks’ incentives to reduce risks. A second mechanism to prevent liquidity runs is the provision of deposit insurance. However, if depositors are insured, the link between the required rate of return and the underlying risk of the bank is broken, and once again the incentives of bank owners and managers may change.

These shifts in incentives are normally referred to as moral hazard. Capital regulations may then be seen as an attempt to counteract the moral hazard created by the existence of a safety net.

It remains difficult to justify the complex web of banking regulations present in most countries solely on the basis of these theories. One view is that banking regulators respond to managerial incentives toward “empire building.” However, the official sector appears to place greater stress on the overall costs of systemic banking crises. From this perspective, intervening through prudential regulation and supervision is justified on the basis of reducing general banking sector risks to avoid the potential negative externalities of crises on the rest of the economy.

Indeed, there is a wide and well-established body of literature, largely from the official sector, that develops a best-practice tool kit of banking regulation and supervision. Perhaps the most coherent official report promoting banking stability remains that produced by the G22 in 1988.<sup>1</sup> The G7’s formation of the Financial Stability Forum and its focus on financial systems further underlines the importance of developing good banking regulations. This body officially endorsed the Basel Core Principles for Effective Banking Supervision and the 1988 Basel Capital Accord as two key financial standards with which countries should aim to comply as minimum requirements.<sup>2</sup> The Basel Core Principles cover a wide terrain, including supervisory independence powers and resources, actual regulations (including capital regulations), and the process of banking supervision. These principles represent the most highly developed checklist of internationally accepted good practice produced to date.

Despite the existence of such accepted best practices and the large number of official reports extolling their virtues, there is a surprising deficiency of empirical analyses as to whether they truly deliver the adver-

<sup>1</sup> Available on <http://www.imf.org/external/np/g22/>.

<sup>2</sup> The changes to the 1988 accord that are underway, encapsulated in what is now known as Basel II, and their implications for Latin America are discussed in Chapter 16.

**BOX 6.1** | PRINCIPLES FOR AN EFFECTIVE LENDER OF LAST RESORT

The lender of last resort, usually the central bank, plays a key role in the financial safety net. It provides liquidity to banks in case of temporary liquidity shortages in order to minimize possible disruptions in credit, the payments system, and the stability of the banking sector. The main driving principle for the lender of last resort is known as Bagehot's principle, which states that liquidity assistance should be provided to illiquid but solvent banks in order to avoid bank failure.<sup>1</sup>

Liquidity risk is derived from the fact that banks transform short-term liabilities (deposits) into long-term assets (loans). Usually banks hold a small fraction of their assets in short-term instruments (10–20 percent). The mismatch between the maturity of assets and liabilities implies a risk, given that if depositors were to withdraw more deposits than what the bank holds in short-term assets, the bank would not be able to pay those deposits immediately because it would need to liquidate long-term assets. Management of liquidity risk is further complicated by the fact that deposits have to be paid at face value, while loans are illiquid and more difficult to value, especially in times of financial distress.

If a bank faces a liquidity shortage, depositors may panic and a bank run may occur. Despite difficulties in managing liquidity risks, banks have dealt effectively with liquidity risk, and bank runs are scarce episodes. However, when bank runs happen, they can be extremely traumatic. The main concern for authorities is that a run on an individual bank can lead to a systemic run. By providing liquidity to banks that have a temporal shortage, this type of panic can be avoided.

Banks can cover liquidity shortages in the interbank market or by using the lender of last resort.

The interbank market works well when liquidity requirements are small, short term, and needed by only a few banks. In episodes of turmoil, this type of provision of liquidity fails because it becomes difficult for liquid banks to assess whether banks in need are really facing a liquidity problem or, on the contrary, are insolvent. Moreover, given that there is a risk that the problem might be generalized, liquid banks tend to act more conservatively and protect their own liquidity instead of lending it to others.

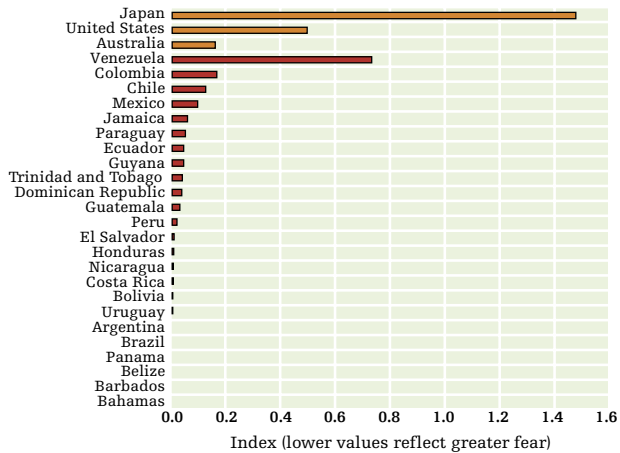
Given that there is a risk that the market will refuse to lend to a healthy bank and thus destabilize the system, there is justification for public intervention through the provision of lender of last resort services. However, the existence of a lender of last resort can lead to moral hazard and excessive risk-taking, which has led analysts to suggest that the lender of last resort must not announce its liquidity provision policy beforehand. Instead it should follow a relatively ambiguous policy and motivate banks to adopt conservative liquidity management strategies. This is known as following a policy of "constructive ambiguity."

Aside from following a relatively ambiguous policy, central banks usually provide last resort liquidity at high interest rates in order to discourage banks from accessing this source of liquidity unless they truly need it. If a bank is suffering from solvency rather than liquidity problems, the solution should not go through the lender of last resort, but rather through the mechanisms for bank liquidation and crisis resolution that the banking authority has at its disposal. In practice, distinguishing between liquidity and solvency problems is a nontrivial task. Nonetheless, the banking authority usually has enough information and qualified staff to assess the solvency status of a bank.

tised benefits. A notable exception is an empirical paper based on a recent survey by the World Bank that raises "a cautionary flag regarding reform strategies that rely on checklists of regulatory and supervisory practices that involve direct government oversight" (Barth, Caprio, and Levine 2004). The next section of this chapter reviews the available literature.

One potential explanation for the results obtained is that while countries may claim to have a version of best-practice regulation and supervision, actual implementation is far from ideal. This chapter analyzes recent data from the IMF and World Bank Financial Sector Assessment Program specifically regarding the implementation of the Basel Core Principles. The anal-

Fear of Floating Index, 1993–98



Note: Values are averages based on monthly data.  
Source: IDB calculations.

In many cases the central bank faces severe constraints on its ability to act as the lender of last resort. The central bank's mandate is to control inflation, and in some cases the provision of liquidity may affect that goal, particularly when a crisis is systemic. In such a case, there is a trade-off between financial and price stability.

The literature describes a related issue of concern, the "fear of floating," that is, central banks' possible reluctance to let the nominal exchange rate substantially accommodate shocks. This behavior can be rationalized as a response to the fear that swings in the exchange rate may destabilize domestic prices (and inflation targets), or to the concern that balance sheet effects, particularly in economies with dollar liabilities, may introduce bankruptcy pressures on borrowers. The figure above displays a fear of floating index akin to that used by Calvo and

Reinhart (2002), which compares countries in Latin America and the Caribbean with developed countries that are known for being exchange rate floaters (as is the case of Australia, Japan, and the United States). The low values for the former set of countries relative to Japan or the United States indicate that, before the effects of the Russian crisis of 1998, fear of floating was common in Latin America.

Countries that experience fear of floating (a common feature of emerging markets) may have limited room to work as a lender of last resort under systemic crises. The large monetary expansion typically needed to contain bank illiquidity may put substantial pressure on the exchange rate, especially if the additional liquidity ends up depleting the central bank's international reserves as depositors flee the banking system for safer havens abroad.

The inability of central banks to act as a lender of last resort under systemic banking crises reflects their inability to become borrowers of last resort (see Calvo 2000). Capital markets may remain closed for emerging market governments in times of crisis. When authorities cannot borrow to finance the needed liquidity of troubled banks, their only available option is monetary expansion, which may very well lead to a macroeconomic crisis. This is not the case in developed countries, where governments can effectively borrow in times of crisis to assist troubled banks without generating macroeconomic pressures.

<sup>1</sup> Walter Bagehot was a British economist who wrote *Lombard Street: A Description of the Money Market* (in 1873) and who, according to Goodhart and Illing (2002), is the classic reference on dealing with banking crises.

ysis supports the view that implementation, rather than regulations (or de jure supervisory power), remains a serious issue.

At the same time, there may be issues particularly pertinent to Latin America and the Caribbean that international best practices do not cover explicitly or do not stress sufficiently. Two such issues relate to the

treatment of dollar lending and the exposure of the banking sector to government risk. However, traditional problems of related lending, poor supervision, and delayed action persist, as illustrated by the recent case of the Dominican Republic. The chapter discusses these issues together with actual and potential regulatory responses.

## BEST-PRACTICE BANKING REGULATION AND SUPERVISION

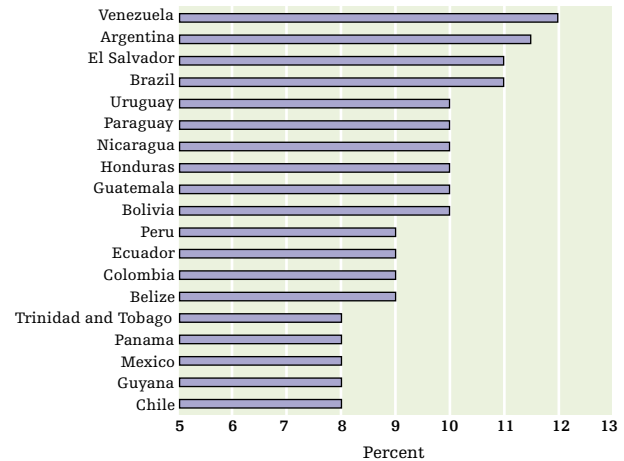
The World Bank has developed a comprehensive database on regulatory practices, based on a survey of bank regulators around the world, in an effort to fill the gap between policy advice and empirical evidence.<sup>3</sup> The data allow interesting comparisons across countries or groups of countries with respect to regulatory standards and supervisory practices. For example, one of the most remarkable features of the data is that there appears to be no difference in the overall measure of official supervisory power in developed and developing countries.<sup>4</sup> Furthermore, developing countries appear to have lower supervisory forbearance discretion, greater loan classification stringency, and greater provisioning stringency—although lower capital stringency—relative to developed countries.<sup>5</sup>

Although the responses of regulators suggest that the official supervisory powers of developing country regulators are similar to their developed country counterparts, IMF and World Bank assessments tell a different story. These external assessments of compliance with the Basel Core Principles show that developing countries perform significantly worse than developed countries when it comes to supervisory autonomy and powers. The comparison between the assessments and the survey data suggest that *de jure* powers may differ from *de facto* powers.

The World Bank survey shows that *all Latin American and Caribbean countries* state that they follow a Basel methodology for calculating and expressing capital requirements, and 16 countries out of 31 respondents say that their requirements are stricter than Basel's 8 percent recommended minimum.<sup>6</sup> Actual capital requirements across the region are illustrated in Figure 6.1.

Barth, Caprio, and Levine (2004) use regression analysis to test the significance of various regulatory measures and supervisory practices in explaining cross-country observations of the following outcome variables: bank development, bank profitability, overhead costs, nonperforming loans, and banking crises. The striking result is that few of the regulations and supervision practices analyzed are significant in explaining any of the outcome variables. The two variables that do appear as significant in the empirical analysis are private sector monitoring and, to lesser extent, restrictions on bank activities. In their analysis of banking crises, the capital regulatory index is significant in most specifications. The study also attempts to test whether countries that have more generous deposit insurance schemes

FIGURE 6.1 Capital Requirements in Latin America



Source: World Bank, Bank Regulation and Supervision online database.

control moral hazard through stricter capital regulations; it concludes that they do not.<sup>7</sup>

The measures of official supervisory power used in the Barth, Caprio, and Levine study do not seem to explain the outcome variables, but it is not clear whether this indicates that real supervisory power is irrelevant or simply that *de jure* power is irrelevant. As the macroeconomic literature on central bank independence

<sup>3</sup> See Barth, Caprio, and Levine (2001, 2004). The database was updated in 2003 and is available at [http://www.worldbank.org/research/projects/bank\\_regulation.htm](http://www.worldbank.org/research/projects/bank_regulation.htm).

<sup>4</sup> Official supervisory power measures the extent to which official supervisory authorities have the authority to take specific actions to prevent and correct problems. See Barth, Caprio, and Levine (2004).

<sup>5</sup> Developing countries also appear to have a much lower moral hazard index based on variables related to deposit insurance schemes.

<sup>6</sup> Interestingly, two economies—Mexico and Puerto Rico—state that subordinated debt is a required part of capital.

<sup>7</sup> However, this does not negate the fact that in the regression the simple capital regulatory index coefficient is significant. Independent of the generosity of the deposit insurance scheme in place, stricter capital requirements appear to reduce the likelihood of banking crises. Barth, Caprio, and Levine (2004) state that the relationship between the probability of banking crises and the capital requirement stringency variable is not robust. In their analysis, this variable always has a negative sign and tends to be significant at least at the 10 percent level in specifications that include the moral hazard index. Although the interaction between capital requirement stringency and moral hazard is not significant, the two variables tend to become significant when each is included in the regression (the correlation between the two is not high), indicating that capital requirements help to diminish the likelihood of crises, but not more strongly when deposit insurance is more generous.

stresses, there may be little correlation between legal and actual independence.

Another issue is that while some banking crises may have been due to problems within the banking sector or deepened by underlying fragilities in the financial system, others have clearly resulted from macroeconomic events. Empirical analyses have not captured this distinction; they have labeled all banking crises as the same in constructing the dependent variable for these analyses. The point is that while banking regulations may not reduce the probability of a macroeconomic-induced banking crisis, they may reduce the probability of a crisis that emanates from the banking system itself.

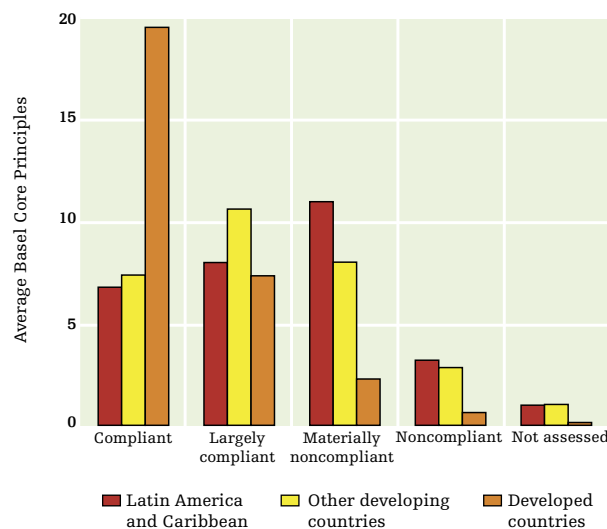
The preliminary conclusions from the work undertaken to date are that while more stringent capital requirements appear useful in reducing the likelihood of banking crises, and restricting banking activities may also help, most other measures of de jure regulations do little to improve bank performance or reduce banking fragility. In particular, how supervisors' powers are defined appears to be almost irrelevant. Interestingly, although private sector discipline appears significant in improving bank performance, it is not significant in reducing the likelihood of crises. However, a moral hazard index related to the generosity of deposit insurance is highly significant in explaining banking crises.

## BANKING REGULATION AND SUPERVISION IN LATIN AMERICA

The previous section focused on the responses to a survey of official bank supervisors. This section considers data from external assessments, which were performed by the IMF and the World Bank as part of the Financial Sector Assessment Program and relate specifically to compliance with the Basel Core Principles. In terms of many indicators, the Latin America and Caribbean region lies between the average developing country and the average developed nation. Compared with the survey data, the external assessment data give a less optimistic picture.

There are a total of 30 Basel Core Principles for Effective Banking Supervision.<sup>8</sup> Box 6.2 describes the principles, which are normally divided into seven chapters: objectives, autonomy, powers, and resources; licensing and structure; prudential regulations and requirements; methods of ongoing supervision; information requirements; formal powers of supervisors; and cross-border banking. The assessment finds a country compliant, largely compliant, materially noncompliant, or noncompliant for each principle that is assessed.

**FIGURE 6.2 Compliance by Average Country Type**



Source: World Bank/IMF Financial Sector Assessment Program.

Figure 6.2 illustrates that the average country in Latin America and the Caribbean is compliant with only 6.8 of the 30 principles and largely compliant with only another 8. Latin America and the Caribbean is compliant and largely compliant with fewer of the principles than other developing countries, and both Latin America and the Caribbean and other developing countries lag considerably behind developed countries.

Figure 6.3 gives a more detailed picture of the degree of Latin America and the Caribbean's compliance by principle. The region does particularly poorly in three key areas:

- Only 10 and 20 percent of the countries included are compliant with principles 1(2) (operational independence and resources of the regulatory agency) and 1(5) (suitable legal framework and legal protection for supervisors), respectively, and only 20 percent are compliant with principle 22 (remedial measures).
- Only 10 percent of the countries are compliant with principles 6, 8, 9, and 12, and none is compliant with principle 13. These principles refer to prudential regulations and requirements, including capital adequacy (principle 6), loan evaluation and loan loss provisioning (principles 8 and 9), and market risks and other risks, including interest rate and liquidity risk (principles 12 and 13).
- An area that has proven to be an Achilles heel for the region is the link between banks and other fi-

<sup>8</sup> Strictly speaking there are 25 core principles, but principle 1 is subdivided into six subprinciples.

**BOX 6.2** | **BASEL CORE PRINCIPLES FOR EFFECTIVE BANKING SUPERVISION***Chapter 1. Objectives, Autonomy, Powers, and Resources (CP 1)*

**Principle 1.** Objectives, Autonomy, Powers, and Resources. An effective system of banking supervision will have clear responsibilities and objectives for each agency involved in the supervision of banks. Each such agency should possess operational independence and adequate resources. A suitable legal framework for banking supervision is also necessary, including provisions relating to authorization of banking establishments and their ongoing supervision, powers to address compliance with laws as well as safety and soundness concerns, and legal protection of supervisors. Arrangements for sharing information between supervisors and protecting the confidentiality of such information should be in place.

*Principle 1(1).* An effective system of banking supervision will have clear responsibilities and objectives for each agency involved in the supervision of banks.

*Principle 1(2).* Each such agency should possess operational independence and adequate resources.

*Principle 1(3).* A suitable legal framework for banking supervision is also necessary, including provisions relating to authorization of banking establishments and their ongoing supervision.

*Principle 1(4).* A suitable legal framework for banking supervision is also necessary, including powers to address compliance with laws, as well as safety and soundness concerns.

*Principle 1(5).* A suitable legal framework for banking supervision is also necessary, including legal protection for supervisors.

*Principle 1(6).* Arrangements for sharing information between supervisors and protecting the confidentiality of such information should be in place.

*Chapter 2. Licensing and Structure (CPs 2–5)*

**Principle 2.** Permissible Activities. The permissible activities of institutions that are licensed and subject to supervision as banks must be clearly defined, and the use of the word “bank” in names should be controlled as far as possible.

**Principle 3.** Licensing Criteria. The licensing authority must have the right to set criteria and reject applications for establishments that do not meet the

standards set. The licensing process, at a minimum, should consist of an assessment of the banking organization’s ownership structure, directors, and senior management; its operating plan and internal controls; and its projected financial condition, including its capital base. Where the proposed owner or parent organization is a foreign bank, the prior consent of its home country supervisor should be obtained.

**Principle 4.** Ownership

**Principle 5.** Investment Criteria

*Chapter 3. Prudential Regulations and Requirements (CPs 6–15)*

**Principle 6.** Capital Adequacy

**Principle 7.** Credit Policies

**Principle 8.** Loan Evaluation and Loan Loss Provisioning

**Principle 9.** Large Exposure Limits

**Principle 10.** Connected Lending

**Principle 11.** Country Risk

**Principle 12.** Market Risks

**Principle 13.** Other Risks

**Principle 14.** Internal Control and Audit

**Principle 15.** Money Laundering

*Chapter 4. Methods of Ongoing Supervision (CPs 16–20)*

**Principle 16.** On-site and Off-site Supervision

**Principle 17.** Bank Management Contact

**Principle 18.** Off-site Supervision

**Principle 19.** Validation of Supervisory Information

**Principle 20.** Consolidated Supervision

*Chapter 5. Information Requirements (CP 21)*

**Principle 21.** Accounting Standards

*Chapter 6. Formal Powers of Supervisors (CP 22)*

**Principle 22.** Remedial Measures

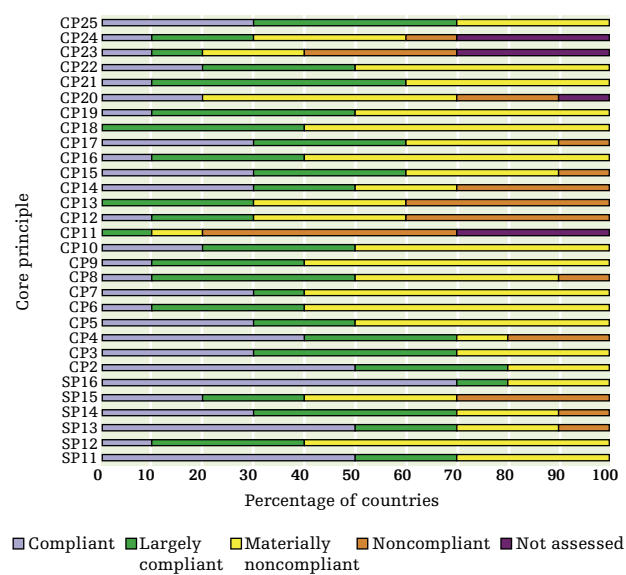
*Chapter 7. Cross-Border Banking (CP 23–25)*

**Principle 23.** Globally Consolidated Supervision

**Principle 24.** Host Country Supervision

**Principle 25.** Supervision over Foreign Banks’ Establishments

**FIGURE 6.3** Latin America and the Caribbean's Compliance with Basel Core Principles



Source: World Bank/IMF Financial Sector Assessment Program.

financial companies, including offshore entities. Unfortunately there is also a pattern of noncompliance with core principles 20 and 23, related to consolidated supervision on a national and global basis, respectively.

Principles 1.2 (supervisory independence and resources) and 1.5 (suitable legal framework and legal protection for supervisors) and remedial measures (principle 22) are related in that, frequently, supervisors do not take appropriate remedial measures precisely because of a lack of supervisory independence. In turn, there may be a lack of supervisory independence because supervisors lack effective legal protection. In common with debates regarding the independence of central banks, the issues are whether supervisors are legally independent and whether they can act independently in practice. Without effective legal protection it is questionable how independent a supervisory agency can really be.

A lack of real supervisory independence can affect how all regulations function. Political or legal pressures may cause officials to overlook noncompliance regulations (forbearance) and may produce loose monitoring of sensitive issues, such as lending to companies or individuals related to the bank or with political connections. Moreover, there is often a relation between lack of political independence and adoption of inefficient resolution measures when problems arise. Inefficient resolution measures that may favor particular groups or leave problems unresolved because of political or oth-

er constraints can ultimately be costly for society as a whole. The resources, political independence, and legal protection of bank supervisors remain key areas for improvement of banking oversight in the region.

The combination of Latin America and the Caribbean's high stated capital requirements and the poor assessment of principle 6 (capital adequacy) at first sight also appears somewhat inconsistent. However, capital adequacy according to compliance with the Basel Core Principles does not necessarily imply just being compliant with Basel I. First, although all countries state that they follow a Basel methodology to calculate assets at risk, there are various interpretations of what a Basel methodology implies. Second, an assessment of whether capital is adequate must first determine whether accounting practices value assets appropriately, non-performing loans are treated appropriately, and banks have reasonable provisions.<sup>9</sup> Third, although countries may state a headline Basel I capital requirement, the reality may be quite different if exceptions are granted frequently or remedial action is weak. Fourth, the assessment may conclude that Basel I's 8 percent is not enough and that capital requirements should be higher than the recommended minimum, given the risks of banks in the country concerned.

Furthermore, it appears that risk analysis is also inadequate. Poor compliance with the core principles regarding loan analysis and loan evaluation and the regulation of market and other risks is of grave concern. Credit risk remains perhaps the most important risk faced by banks in the region, but liquidity, interest rate, and currency risks have also proven to be highly significant. Clearly this is an area that urgently requires improvements.

The lack of consolidated supervision in many countries implies that supervisors do not have the legal authority (assuming they have the resources) to properly analyze the risks facing regulated institutions. Moreover, the lack of consolidated supervision may prove to be a significant hurdle if the region wishes to adopt Basel II. This is an area where banking supervisors must attempt to gain political support to increase their authority and ensure adequate resources for the task at hand. Moreover, as banking becomes ever more globalized, this is an area that will increase in importance in the future.

Empirical results to date, with the possible exception of results for capital requirement stringency, do

<sup>9</sup> More modern theory would recommend provisions that would cover expected losses such that capital would cover unexpected losses to a reasonable level of statistical tolerance.

not point to bank regulation or supervisory powers as being critical in improving bank performance or preventing banking crises. However, these results must be tempered by the fact that assessments of compliance with the Basel Core Principles find that supervisory independence, effective legal protection, and remedial measures are very poor for developing countries and for Latin America and the Caribbean in particular. Indeed, the data on compliance with the Basel Core Principles indicate that while all countries claim to follow a Basel methodology for capital, few actually have adequate capital for the job at hand. It is unclear whether the problem lies with the regulations themselves or inadequate implementation of the regulations.

### KEY VULNERABILITIES IN BANKING SECTORS IN LATIN AMERICA

Recent financial crises in the region, from Argentina to the Dominican Republic and from Ecuador to Uruguay, have brought attention to a set of key vulnerabilities regarding appropriate bank regulation and supervision. This section discusses two such issues: loans to the public sector and dollarized lending. However, at the same time, bank regulators and supervisors cannot be complacent regarding the more traditional risks of concentrated and related lending that were largely behind the recent crisis in the Dominican Republic. Box 6.3 presents a brief summary of how that crisis unfolded and its subsequent effects.

The question of loan concentration and related lending is addressed in Basel Core Principle 10. Compliance in Latin America and the Caribbean continues to be poor (only 20 percent of countries are compliant, although another 30 percent are largely compliant). However, there is no mention of related lending for the calculation of Basel I capital requirements, and Basel II's proposals on this issue are relatively lax compared with the current rules in many countries in the region. Basel II allows lending to related parties, but any lending above a certain fraction of bank capital to one related party (or above a second fraction to all related parties) must be subtracted from capital. Many Latin American and Caribbean countries simply impose strict limits (as a percentage of bank capital) on lending to a related party. The limit varies, with the tightest rule in Ecuador, where the figure is zero. Only seven of the 31 Latin American countries have quantifiable rules on lending concentration.<sup>10</sup> Assessments of the Basel Core Principles indicate poor compliance indeed with Basel Core Principles 9 and 13, which cover this area (large

exposure limits and other risks, respectively). Given the experience in the Dominican Republic and previously in other countries with banking crises in the region, this is an area that urgently requires some type of international standard—above and beyond the Basel Core Principles and the current drafts of Basel II.

Two of the major risks faced by Latin American banks are related to issues not covered explicitly in the Basel Core Principles or the Basel Capital Accords. On the one hand, Latin American banks are highly exposed to own-government risk; on the other hand, in most countries currency risk remains a major threat.

### Lending to the Sovereign

During the past several years, bank lending to national governments has increased dramatically. Figure 6.4a plots the trend of the ratio of bank loans to the public sector (including direct lending and holding government bonds) to total assets in the banking system. In the mid-1990s, bank holding of public debt was around 9 percent of the banking system's total claims; by 2002 the ratio averaged 16 percent. As shown in Figure 6.4b, in Mexico, Argentina, Jamaica, and Brazil, it reaches more than one-third of total claims. In Colombia and Venezuela, the ratio is nearly one-fourth of total claims.

It is natural that in times of crisis banks look for safe assets in order to reduce the risk of their portfolio. What is troublesome is that the risks of taking such positions are not dealt with efficiently, and regulation induces the holding of government debt by assigning low-risk weights to assets that, at least in the view of the markets, are far from risk-free. When negative shocks hit the economy, banks substantially increase their holdings of government debt, the riskiness of which also tends to increase with the crisis.

Table 6.1 summarizes legislation on the treatment of public debt in 11 Latin American countries. It is remarkable that in virtually none of the countries in the sample is there any consideration of the risk levels of government debt. In all countries except for Chile and Ecuador, the central government is given a zero risk weight.<sup>11</sup> Moreover, in most countries government

<sup>10</sup> The exact wording of the question in the Barth, Caprio, and Levine (2004) survey is, "Are there explicit, verifiable, and quantifiable guidelines regarding asset diversification (for example, are banks required to have some minimum diversification of loans among sectors, or are there sectoral concentration limits)?"

<sup>11</sup> Subregional government debt is given a higher risk weight almost everywhere, but bank holdings are primarily central government debt.

**BOX 6.3 THE BANKING CRISIS OF THE DOMINICAN REPUBLIC**

Throughout the 1990s, the Dominican Republic was the fastest growing economy in Latin America and the Caribbean. The country achieved fast economic growth in an increasingly stable macroeconomic environment, characterized by low inflation, manageable fiscal deficits, and declining public sector debt. During 2001–02, a combination of external factors (the global economic slowdown and the events of September 11, 2001) and domestic policy weaknesses contributed to a slower economic growth rate. The government responded with increased public spending, which led to worrisome but still manageable deficits, largely financed by foreign borrowing. Waning confidence in the adequacy of macroeconomic policies in the face of external pressures led to a weakening of the peso, which depreciated by 27 percent against the dollar between December 2001 and December 2002.

In 2003, a massive banking crisis shattered the already weakened economy. In April 2003, the third-largest commercial bank, Baninter, collapsed. To avoid the spread of a crisis of confidence to the rest of the financial sector, the central bank stepped in by guaranteeing all of Baninter's deposits. In the months following this intervention, two medium-size banks, Bancredito and Banco Mercantil, experienced large deposit withdrawals.

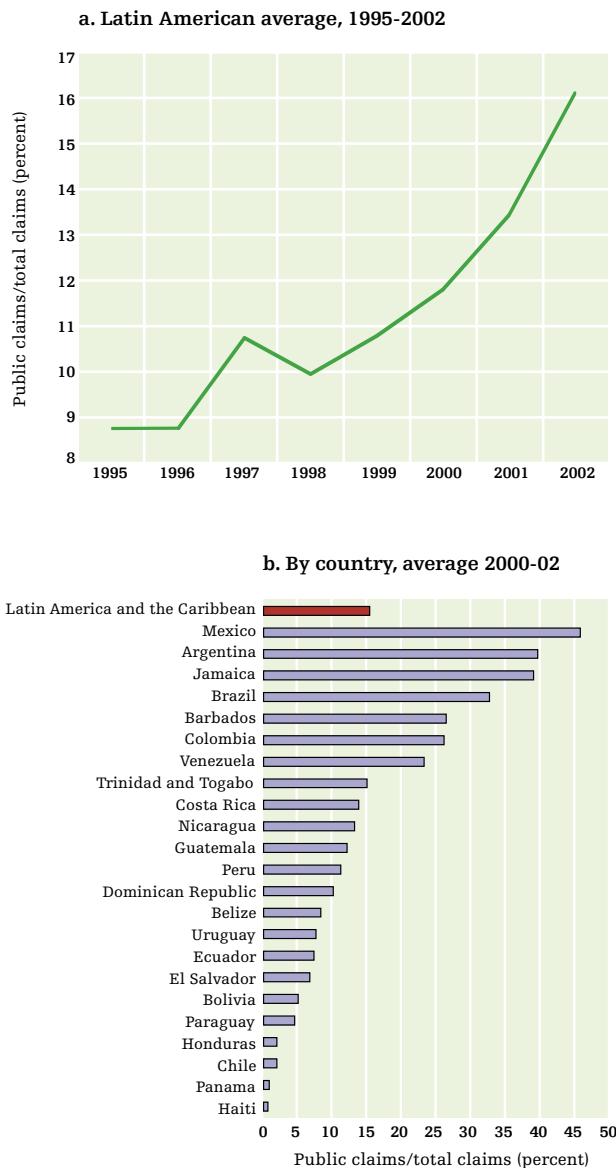
The Baninter collapse was the outcome of mismanagement and fraudulent banking practices as well as a weak banking supervision framework. The circumstances permitted perpetration of massive fraud in the banking system over an extended period, which revealed serious supervisory and regulatory weaknesses in the financial system and institutional failures in key government institutions. The banking system was suffering from systemic vulnerabilities resulting from major weaknesses in all supervisory agencies, insufficient levels of capitalization and provisioning, significant exposure to credit risks resulting from a large concentration of loans among a small group of borrowers, insufficient safeguards against related lending, and a substantial proportion of loans to unhedged foreign currency borrowers. Imperfections in the interbank market compromised the capacity of banks to respond quickly to deposit runs.

Compliance with the Basel Core Principles

was incomplete and weak. Increased dollarization of bank assets and liabilities had increased credit risk due to lending in foreign currency to non-earners of foreign exchange, and distortions in the foreign exchange market created uncertainty about the timely availability of foreign exchange for individual banks. Multiple linkages between certain private and public financial entities compromised the efficiency of financial intermediation and impaired the transparency of financial operations. Furthermore, a complex network of nonbank financial institutions had resulted in a wide variety of regulations that engendered regulatory arbitrage, due to gaps in the institutional framework and poor financial practices.

The macroeconomic implications of the 2003 banking crisis have been dramatic. The approach pursued by the government may have helped limit contagion in the banking system, but it also increased resolution costs and placed macroeconomic stability at risk. The central bank's quasi-fiscal deficit amounted to 2.5 percent of GDP as a consequence of the banking crisis, and the deficit of the nonfinancial public sector has grown to 2.7 percent of GDP. Public debt more than doubled from 27.5 percent of GDP in 2002 to an estimated 58.4 percent in 2003. The central bank's assistance to the troubled banks is estimated to amount to 21 percent of GDP so far. Since part of the liquidity support was not sterilized, the higher monetary expansion fueled currency depreciation and inflation.

In August 2003, the authorities started implementing an economic stabilization program in the context of an IMF-supported 24-month stand-by arrangement. The economic stabilization program includes measures aimed at ensuring banking sector reform, sound fiscal policy, sound monetary policy, and flexible management of the currency. It also includes structural measures to implement a new organic budget law and a new, integrated financial management system law. In the monetary sector, the program will implement a competitive auction for the placement of central bank paper, a rediscount window to provide liquidity to central bank paper, a plan for the recapitalization of the central bank, and the unification of the foreign exchange market.

**FIGURE 6.4** Bank Holdings of Public Debt

*Note:* Latin American countries included in Figure 6.4a are Argentina, Belize, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Haiti, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Uruguay, and Venezuela.

*Source:* IDB calculations based on IMF and World Bank data.

debt is valued at face value rather than at market value, clearly an improper valuation of government risk in banks' balance sheets.

While there are complex political economy problems involved in changing regulations on the treatment of public debt in bank balance sheets, given

that bank funding represents an important source of revenue for troubled governments across the region, it is certainly a problem that bank regulators need to face. Unfortunately, international standards do not provide effective ways of dealing with this, particularly in developing countries. It remains exclusively in the hands of local regulators to guarantee the safety of the deposits that back government bond holdings.

## Currency Mismatches

As shown in Figure 6.5a, financial dollarization has been growing in Latin America over time despite a major reduction in inflation and a shift toward fiscal consolidation and central bank independence. Although in principle dollarization can exacerbate a typical Latin American economy's vulnerability to adverse shocks (for example, sudden stops), it is likely to remain a key feature in the region. In fact, it is difficult to think of political economy incentives strong enough for policymakers to come up with explicit policy programs designed to actively reduce dollarization in the region in the near future. As dollarization seems likely to remain significant in the region, it is important to discuss how to cope with it while mitigating its potentially harmful effects. Current international regulatory practices do not deal with this risk explicitly.

Dollarization of private and public sector assets and liabilities is widespread throughout Latin America. As part of a comprehensive set of structural reforms—some of which came in the aftermath of financial crisis and hyperinflation—many Latin American countries liberalized and reformed their financial markets. In the process, strong linkages to the U.S. dollar were developed, frequently through the adoption of fixed or quasi-fixed exchange rate arrangements, in a context of increased capital mobility. In many countries restrictions on holding financial assets abroad, moving assets freely across the border, or issuing liabilities in foreign currency both locally and across the border were lifted, and competition between domestic and foreign currencies increased. In many cases this led to the dollarization of deposits and loans in the domestic financial system, significant holdings of financial assets abroad, and in general the issuance of foreign-denominated liabilities of the private and public sectors.

Figure 6.5b shows several countries in Latin America with less than full dollarization, that is, those that have not adopted the dollar as legal tender. A first pass at the data reveals that in some form or another dollarization is a generalized phenomenon throughout

**TABLE 6.1** | **REGULATION ON TREATMENT OF PUBLIC DEBT**  
(Percent)

Country	Risk weight on central bank debt	Risk weight on central government debt	Risk weight on debt of subnational governments or other public institutions
Argentina	0	0	100
Bolivia	0	0	75–100
Brazil	0	0	100
Chile	0	10	10–100
Colombia	0	0	0
Costa Rica	0	0	0
Ecuador	10	10	0
Mexico	0	0	0
Peru	0	0	100
Uruguay	0	0	0
Venezuela	0	0	20–100

*Source:* Central banks and bank superintendencies.

the region.<sup>12</sup> Compared with other emerging market countries, financial dollarization in Latin America is high. On average, in non-Latin American emerging markets the share of dollar-denominated deposits is around 22 percent; in Latin America the corresponding figure is around 37 percent. Moreover, in some countries, such as Bolivia, Costa Rica, Nicaragua, Paraguay, Peru, and Uruguay, more than 40 percent of deposits and loans are denominated in dollars.

Several concerns regarding the vulnerability of the financial system emerge with dollarization. Although empirical evidence suggests that dollarization can reduce the adverse effects of high inflation on financial intermediation, there are valid concerns with respect to its impact on financial fragility (De Nicoló, Honohan, and Ize 2003). Dollarized financial systems are particularly subject to solvency and liquidity risks. The main source of fragility is through currency mismatches in the event of large exchange rate depreciations. Regulations have limited the extent to which banks can have currency mismatches in their balance sheets, but the indirect effects of portfolio deterioration remain. In a way, the currency mismatch is transferred to borrowers, but the financial institution still bears the currency mismatch risk, especially if the borrower is unhedged.<sup>13</sup> This form of credit risk may be associated with an increased risk of deposit withdrawals that can lead to bank runs in response to or anticipation of a devaluation (De Nicoló, Honohan, and Ize 2003).

Despite the fact that the risks of dollarization have been felt strongly in most of the region, regulation

has not dealt efficiently with the potential risks. In fact, Galindo and Leiderman (2003) show that prudential regulation directly addresses risks related to dollarization in only a few cases. Table 6.2 presents some of the most important findings of a survey conducted by Galindo and Leiderman (2003) to identify how banking regulation deals with dollarization risks.

In all of the countries in the study, regulation imposes restrictions on direct exchange rate risk exposure in the balance sheets of financial institutions; however, it does not deal with the possible deleterious effects of borrowers' dollarization on the quality of loans. Only in Costa Rica and Uruguay are the authorities studying the possibility of assigning specific provisions or capital requirements to dollar-denominated loans. Argentina, Chile, Colombia, Costa Rica, Peru, and Uruguay have

<sup>12</sup> While some countries, such as Brazil, Chile, Colombia, and Venezuela, have successfully contained the degree of dollarization in the domestic financial sector, financial dollarization tends to appear in the form of dollarization of public sector liabilities or dollar-denominated offshore deposits and loans. Hence, even in cases of moderate domestic dollarization (following the terminology of Reinhart, Rogoff, and Savastano 2003), such as Colombia, vulnerabilities associated with dollarization may arise because the corporate sector may be exposed to balance sheet effects of exchange rate fluctuations via foreign indebtedness. This vulnerability can also lead to banking sector problems given that agents that are indebted abroad in foreign currency are also indebted to local banks.

<sup>13</sup> De Nicoló, Honohan, and Ize (2003) show empirical results suggesting that in fact highly dollarized economies are more prone to solvency problems and high deposit volatility.

encouraged banks to incorporate exchange rate risk into the valuation of credit risk. However, there are no systematic guidelines for doing so and no specific criteria for attaching specific provisions to these risks. Because in most countries provisioning rules are determined based on accruals rather than forward-looking criteria, there is no systematic way to deal with borrowers' currency mismatches and reduce the impact of exchange rate fluctuations on banking stability.

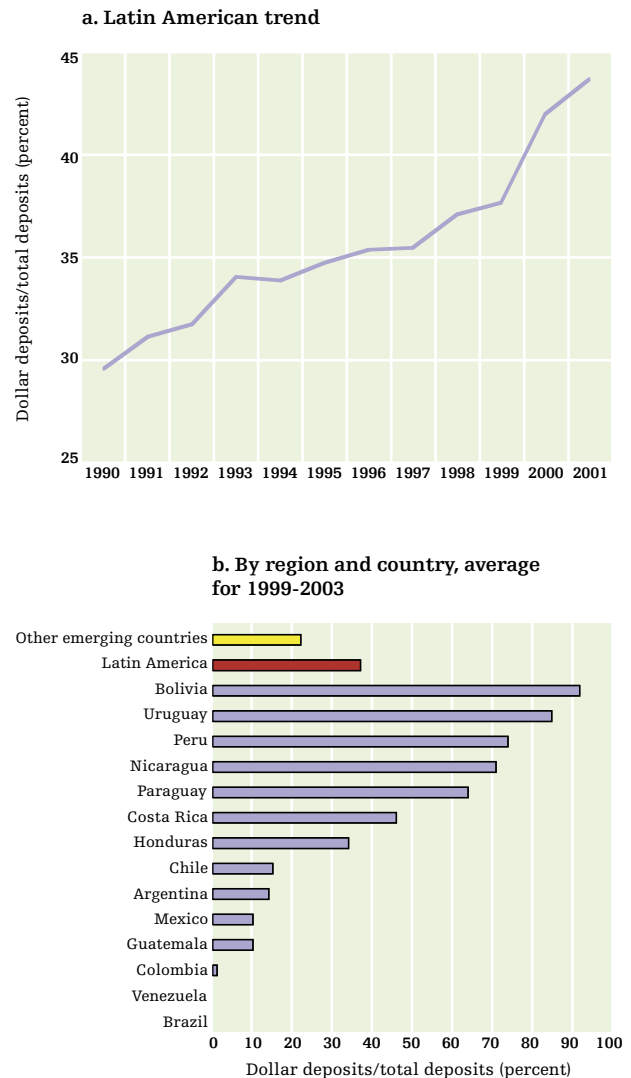
Although the adoption of Basel II (which is discussed in Chapter 16) could ease the current lack of direct prudential action with respect to currency mismatches, it is unlikely that the use of internal credit risk assessment models will be generalized throughout the region. Given the lack of data in some countries and questionable technical quality at some banks and banking superintendencies, it is unlikely that in the near future most banks will have the methods and mechanisms to adequately assess such risks. In addition, financial systems need to develop a prudential framework that deals with the risks of domestic dollarization. Therefore, countries should consider introducing tighter prudential requirements on foreign currency loans in the form of specific rules, such as ceilings on certain exposures, or general provisions on foreign currency loans. In more sophisticated markets, or at least for more sophisticated banks, such as foreign banks from developed countries that operate in the region, the use of internal credit risk models could be allowed as long as domestic regulators effectively deal with the currency mismatch problem.

The most dollarized countries have tried to deal with liquidity risk by imposing higher reserve requirements on dollar-denominated liabilities. In this sense regulation has been aimed at letting banks bear the full risk and cost of assuming dollar-denominated liabilities.

In Bolivia, for example, differential reserve requirements have been in place for a long time. Virtually no fixed-term deposits in domestic currency or inflation-indexed units with maturity of less than 720 days have a reserve requirement. All deposits in foreign currency have a 10 percent reserve requirement, except those with maturity greater than 720 days. Demand deposits in either currency have a 10 percent requirement.

The Peruvian case is similar. In order to reduce liquidity risk, maintaining relatively high levels of reserves is a policy objective. As in Bolivia, there are differential reserve requirements for foreign currency and domestic currency deposits. On average, domestic currency deposits have an 8 percent requirement, while foreign currency deposits have a 20 percent require-

**FIGURE 6.5 Financial Dollarization**



*Note:* Values are U.S. dollar deposits/total deposits in the domestic financial system. The sample for Latin America in Figure 6.5a includes Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Guatemala, Mexico, Nicaragua, Peru, Paraguay, Uruguay, and Venezuela. Other emerging economies include: Bulgaria, Czech Republic, Hungary, Israel, Korea, Malaysia, Morocco, Nigeria, Philippines, Poland, Russia, Slovak Republic, Thailand, and Turkey.

*Source:* Arteta (2003); Honohan and Shi (2002); bank superintendencies.

ment. These rates have been effective since 1998; however, differential requirements have been in place since the 1980s.

As in Bolivia and Peru, Paraguay has adopted differential reserve requirements. It is notable, however, that aside from this measure, the country has done little to deal with the financial vulnerabilities associated with dollarization.

**TABLE 6.2** PRUDENTIAL REGULATION AND CURRENCY MISMATCHES IN LATIN AMERICA

Question	Costa										
	Argentina	Bolivia	Brazil	Chile	Colombia	Rica	Mexico	Paraguay	Peru	Uruguay	Venezuela
Does regulation impose restrictions on foreign currency deposits?	No	No	Yes	No	Yes	No	Yes	No	No	No	Yes
Does regulation impose restrictions on foreign currency loans?	Yes	No	Yes	No	No	No	Yes	No	No	No	No
Does regulation impose restrictions on banks' currency mismatches	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Does prudential regulation provide explicit guidelines for different provisions or capital requirements for dollar-denominated assets vis-à-vis local currency-denominated ones?	No	No	No	No	No	Under consideration	n.a.	No	No	Under consideration	No
Does regulation deal with borrowers' mismatches?	Partially	No	Partially	Partially	Partially	Partially	No	No	Partially	Partially	No

Source: Galindo and Leiderman (2003).

## CONCLUSIONS

This chapter has focused on the rationale for banking regulations, how they have been implemented, their effectiveness, and what may be missing from banking regulations to date in the region. Banking regulations are normally justified on theoretical grounds to protect small depositors, the system of payments, and the financial system more generally. Preliminary empirical work based on data from a new survey of bank regulations in countries around the world offers a sanguine portrait of how they may be working in practice.

There is some evidence from a survey of official supervisors in each country that countries with stricter capital requirements and restricted bank activities have improved bank performance and reduced vulnerability to crisis. However, the evidence is mixed and other

indicators—including official supervisory power—appear to have little effect. The IMF and World Bank's external assessments of the Basel Core Principles find significant problems with the effective implementation of the standard checklist of internationally recognized best practices.

Clearly there is an urgent need in developing countries—and in Latin America and the Caribbean in particular—to focus attention on the appropriate implementation of banking regulations and the real power and independence of bank supervisors as opposed to their narrow legal authority. At the same time, there is evidence that moral hazard through generous deposit insurance increases the likelihood of banking crises and that private sector disciplinary techniques can improve bank performance if not stability.

