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Central Bank Involvement in Banking Crises in Latin America

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Abstract

This paper reviews the nature of central bank involvement in 26 episodes of financial disturbance and crises in Latin America from the mid-1990s onwards. It finds that, except in a handful of cases, large amounts of central bank money were used to cope with large and small crises alike. Pouring central bank money into the financial system generally derailed monetary policy, fueled further macroeconomic unrest, and contributed to simultaneous currency crises, thereby aggravating financial instability. In contrast, when central bank money issuance was restricted and bank resolution was timely executed, financial disturbances were handled with less economic cost. However, this strategy worked provided appropriate institutional arrangements were in place, which highlights the importance of building a suitable framework for preventing and managing banking crises.

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Keywords: Central banks, monetary policy, banking crises, financial instability

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Contents Page

I. INTRODUCTION

This paper assesses 26 events of central bank involvement in episodes of financial turmoil and crises in Latin America since the mid-1990s, reviews their main macroeconomic repercussions, and distills lessons applicable to future crises.[2] It examines both idiosyncratic and systemic events, including episodes that did not turn into full-fledged banking crises due to early government responses, and emphasizes the role played by central banks in managing financial market turmoil. This document sets the stage for future empirical work, which may seek to address policy related questions.

Central banks participated in banking crises by providing limited and extended liquidity assistance as lender-of-last-resort (LLR), and also by financing bank resolution. In a number of these events, central banks were required to participate in the official response to banking crises amid fears of a systemic impact that could lead to the collapse of the payments system (Argentina and Uruguay in 2002 are relevant examples). However, they were also required to inject money—beyond limited LLR assistance—to cope with idiosyncratic events. Episodes of financial instability in Dominican Republic (1996), Guatemala (2001), and Honduras (1999) are cases in point.

The use of large amounts of central bank money was an empirical regularity, except in a handful of cases. However, pouring central bank money into the financial system derailed monetary policy and fueled further macroeconomic unrest, thereby exacerbating banks' instability and, on many occasions, triggering simultaneous currency crises. Central bank involvement sometimes also created microeconomic distortions since the assistance provided served to bail out not only small but also large bank depositors, which eventually induced moral hazard and relaxed market discipline. In a small number of cases, governments managed effectively market turmoil without resorting to large amounts of central bank money, which limited the escalation of financial instability. Nonetheless, this was only possible provided adequate institutional arrangements were in place or timely introduced.

The intensive use of central bank money was mainly the result of institutional weaknesses that did not allow governments to address banking problems at an early stage.[3] It may also have been induced by governments as they tried to avoid using—or at least postponing in the short-term—the use of tax payers' money to finance the cost of resolving the crisis. When central banks financed the cost of the crises they sometimes incurred large losses, which eventually wiped out their capital without compensation from government. As a result,

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[2] The systemic banking crises that hit a number of countries in the region during the early to mid-1980s have been extensively analyzed before. See for example Sundararajan and Balino (1991) and Rojas-Suarez and Weisbrod (1995).

[3] Most Latin American countries modernized central bank and financial institutions legislation during the 1990s. While the former sought to enhance central banks' autonomy to abate inflation, the latter liberalized financial markets with the aim of fostering economic growth. The new legislation, however, did not provide a suitable framework to cope with major banking problems.

central banks operational autonomy became undermined because they were unable to credible commit to successfully tighten liquidity as needed.

On the other hand, in those episodes in which central bank money was banned or provided only in limited amounts, major macroeconomic instability was avoided. This alternative approach helped to handle financial disturbance more effectively, thereby minimizing fiscal costs. However, countries could only follow this strategy provided they had in place—or managed to rapidly build—appropriate institutional arrangements (for instance in Argentina (1995), Peru (1999), and Colombia (1999)). A strong macroeconomic position—in particular solid public finances—and a sound financial system also contributed to avert a major banking crisis and limited resolution costs and side effects.

Despite its potentially negative effects, the role of central bank money in episodes of financial turmoil is an issue that has been marginally addressed in the literature.[4] Although the multiplication of banking crises in recent decades has motivated a large number of studies, they primarily have stressed the identification of early warning indicators, the dynamics of banking crises and their aftermath on a country or regional basis, or the link between banking and currency crises.[5] From a microeconomic standpoint, these studies mostly addressed issues such as the government response to banking crises and their fiscal cost, the role of supervision and regulation in explaining banking crises' eruption and contagion, and the nature of financial restructuring policies.[6]

This paper helps to fill this gap as it highlights the perils of an excessive use of central bank money to contain a banking crisis—rather than resorting to bank resolution on a timely basis. It also stresses the need to build suitable institutional bases to prevent and manage financial crises—although providing a detailed set of recommendations is beyond the scope of this paper. However, the conclusions of the paper are subject to some caveats. While recognizing their impact in shaping the dynamics of the crises, the countries' macroeconomic strength and the multilateral international support—most typically from the IMF—at the time of the crises are not factored into the analysis. Similarly, the role played by foreign banks is not addressed.[7] Also, the paper does not examine the soundness of the countries' banking system, which is relevant in those crises that were triggered by an adverse exogenous shock.

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[4] Only a few studies examine this important issue. See, for example, Dziobeck and Pazarbaşioğlu (1997) who analyze the management of banking crises, including the role of central banks.

[5] See for example the comprehensive work on early warning indicators by Goldstein and others (2000). On the dynamics of banking crises, see the work by Collyns and Kincaid (2003).Also Kaminsky and Reinhart (1999), who stress the link between banking and currency crises.

[6] See for example the review on how governments managed banking crises by Hoelscher and Quintyn (2003), the analysis by de Juan (1996) on the microeconomic roots of banking crises, and Calomiris and others (2005) for a taxonomy of resolution mechanisms applied to cope with banking crises.

[7] This issue is discussed, for example, by Arena and others (2006) based on a sample of more than 1,500 banks from Asia and Latin America.

The rest of the paper is organized as follows: section II identifies episodes of financial instability and banking crises in Latin America since the mid-1990s and points out macroeconomic features that may have exacerbated the costs of the crises; section III discusses the nature of central bank involvement in those crises; section IV analyzes macroeconomic repercussions; section V draws lessons and concludes.

II. Taking Stock of Banking Crises in Latin America

After decades of high inflation, governments across the region implemented sound macroeconomic—and in particular fiscal—policies. However, with inflation in decline and, in many cases, following sudden stops and reversals of capital inflows, banking crises hit almost all countries in the region, thereby inflicting significant economic costs. This section identifies main episodes of banking crises in Latin America, highlights their roots, and ascertains whether common macroeconomic factors were present at the time of the crises, which may have exacerbated financial instability.

A. Defining Banking Crises

Banking crises have been recurrent events in Latin America and, hence, became the main source of macroeconomic instability during the last 15 years.[8] Since 1990, only Chile and Panama have been immune to financial instability, with a number of countries suffering periods of financial turmoil more than once (Argentina, Bolivia, Dominican Republic, Ecuador, Honduras, Guatemala, and Paraguay), and going back to the 1980s, not a single country escaped from this curse. However, instability was more frequent during the early-1980s in the wake of the regional debt crisis, the mid and late-1990s, and the early 2000s. While these events were widespread, not all of them were equally intense. Some countries experienced idiosyncratic problems whereas others suffered full-fledged systemic crises.

This paper defines banking crises in a broader sense than is usually found in the literature as it considers full-fledged financial crises and also idiosyncratic events. In particular, banking crises are defined in this paper as those events where at least one institution was intervened and/or closed, or was subject to resolution. Based upon this broad definition, the paper assesses 26 episodes of banking crises in Latin America between the mid-1990s and 2007 (see in Appendix I a brief description of the main stylized facts and the government's response in each event).

Based on the above definition, banking crises are clustered by size into two groups, large and systemic crises and minor and moderate ones.[9] The paper discriminates between the two

[8] Latin America also seems to have suffered a disproportionate number of banking crises compared with other regions in the world (Carstens and others, 2004).

[9] Similar criteria are applied by Caprio and Klingebiel (2002)—they call "systemic" and "borderline and smaller crises"—and Lindgren and others (1996), who make references to "crises" and "significant problems."

groups depending on the market share of the failing banks—measured by assets or deposits before the crises erupted. To draw the line between the two groups, a working assumption is adopted, namely setting a threshold of 15 percent market share of the troubled banks. Also as a working assumption, troubled banks are assumed to encompass those institutions that were intervened or subject to bank resolution, plus other institutions that received government support or extended emergency assistance from the central bank—in an amount that exceeded their individual equity.

The proposed analysis departs from previous studies because it applies an ex-ante approach when defining and measuring banking crises. By adopting this approach we also incorporate into the analysis events of financial instability that were tackled at an early stage, and hence, did not turn into full-fledged banking crises. These events have not been studied in the banking crises literature. However, they are worth analyzing for the purposes of this paper as they allow to ascertain the role played by central banks in these events and, in particular, because they allow to draw lessons from what can be considered successful cases of banking crises management.

Admittedly, other measures of the size of banking crises could also have been used, like the amount of deposit withdrawals or the fiscal cost of the crises.[10] However, they pose measurement problems and, therefore, may not provide reliable and comparable information across countries for a number of reasons. Using deposit withdrawals as a measure of the size of banking crises, when a generous financial safety net exists or it is introduced as the crisis unfolds, may underestimate the magnitude of the run on deposits. This may happen if, for instance, off-balance sheet liabilities become part of the official balance sheet of banks as they seek coverage from large deposit insurances or from a blanket guarantee in anticipation of a possible closure of banks. In addition, financial dollarization makes it hard to compare across countries the size of the run on deposits in the event of a currency crisis. This is because comparing deposit withdrawals requires converting into the local currency the value of deposit withdrawals in the dollarized country, which necessarily captures the effect of the exchange rate devaluation. In turn, the inter-temporal nature of the recovery of impaired assets and the difficulties of measuring over time the welfare losses associated with banking crises introduces noise to the calculation of the fiscal costs of banking crises.

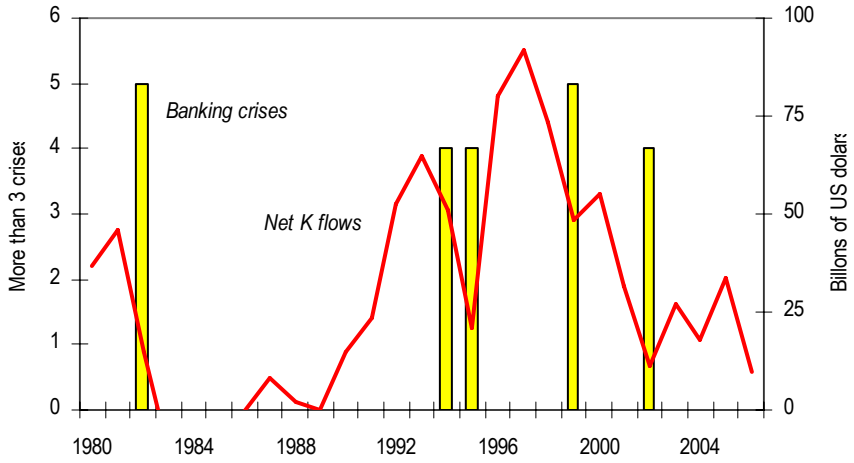
B. The Roots of the Crises

While there is no single reason beneath all recent Latin American banking crises, the "boom and bust cycle" probably explains most, in particular those classified in this paper as large and systemic. From a microeconomic perspective, "bad banking practices" in an environment

[10] There is no standard way of characterizing the size of banking crises in the literature. A number of approaches are found depending on the objective of the study. Crises are typically measured in terms of a given scale of fiscal costs, the share of systemic deposit withdrawals, or the proportion of banks' capital exhausted. See, for example, Lindgren and others (1996), Demirguc-Kunt and Detragiache (1997), and Bordo and others (2001).

of weak supervision fueled many episodes of financial instability in the region. In addition, specific macroeconomic features or given initial economic conditions seem to have made countries more prone to banking crises. Financial crises were triggered mostly by external shocks, although contagion from within and outside the region played an important role. In addition, economic policy-induced shocks and even political events were triggers. In general, banking crises were associated with waves of capital outflows (Figure 1).

Figure 1. Capital Flows and Banking Crises in Latin America
(Years in which Three or More Crises Occurred, 1980-2006)

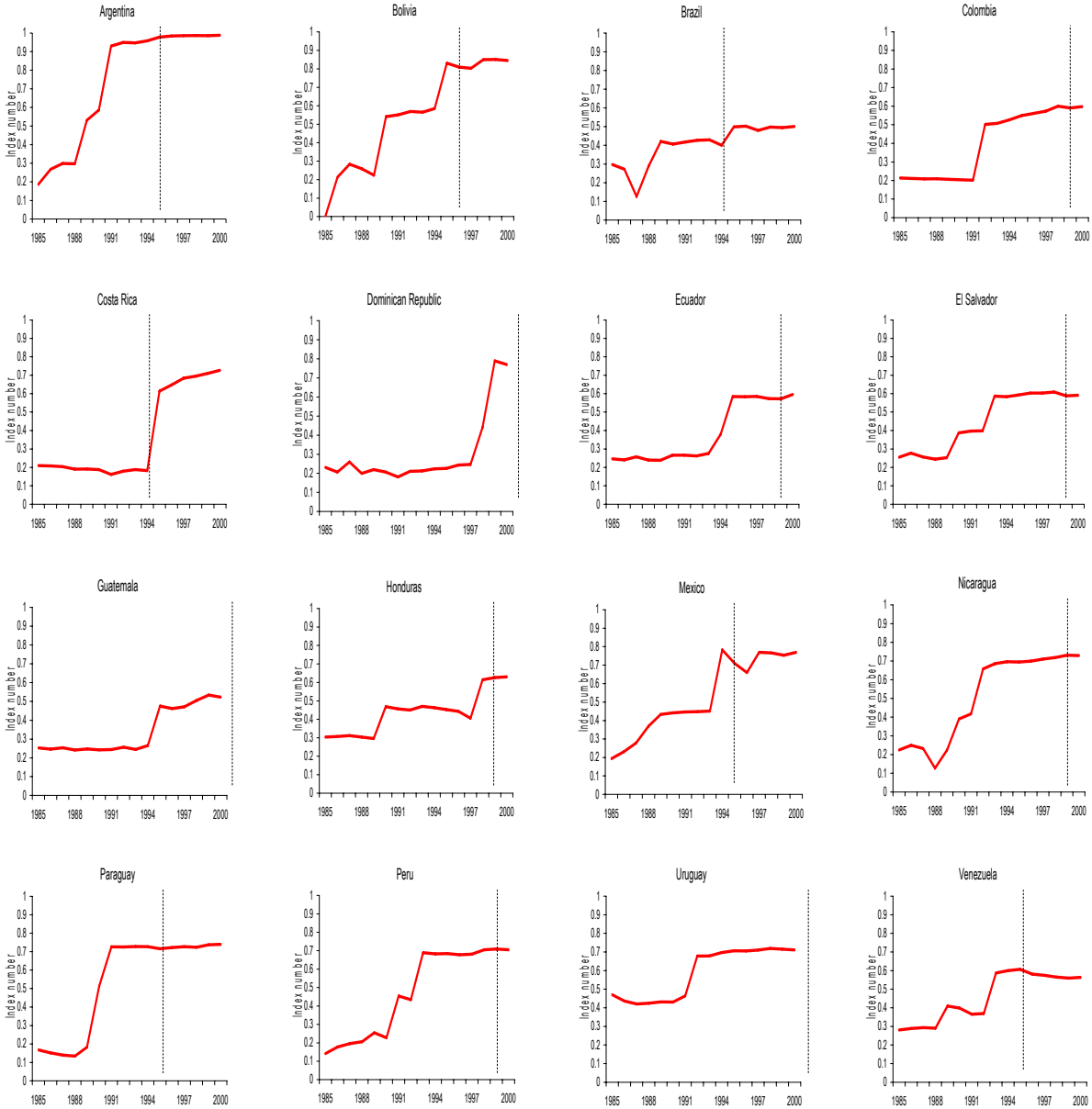


Source: Private capital flows, *IMF World Economic Outlook*. For banking crises: Rojas-Suárez and Weisbrod (1995); Lindgren and others (1996); and author's updates.

Latin America liberalized financial markets during the late-1980s and early-1990s but this reform was not accompanied with stronger financial surveillance. Financial liberalization was part of a far-reaching program of structural reform and was adopted by literally all countries in the region with more or less intensity (Figure 2). At the same time, however, the enforcement capacity of bank regulators remained weak and, therefore, financial surveillance was not strengthened. In an environment of financial liberalization and loose financial supervision, banks developed a variety of new and at times risky products, many of them denominated in foreign currency, which made financial institutions more vulnerable to changes in market sentiment and, hence, to stops and reversals of capital flows.

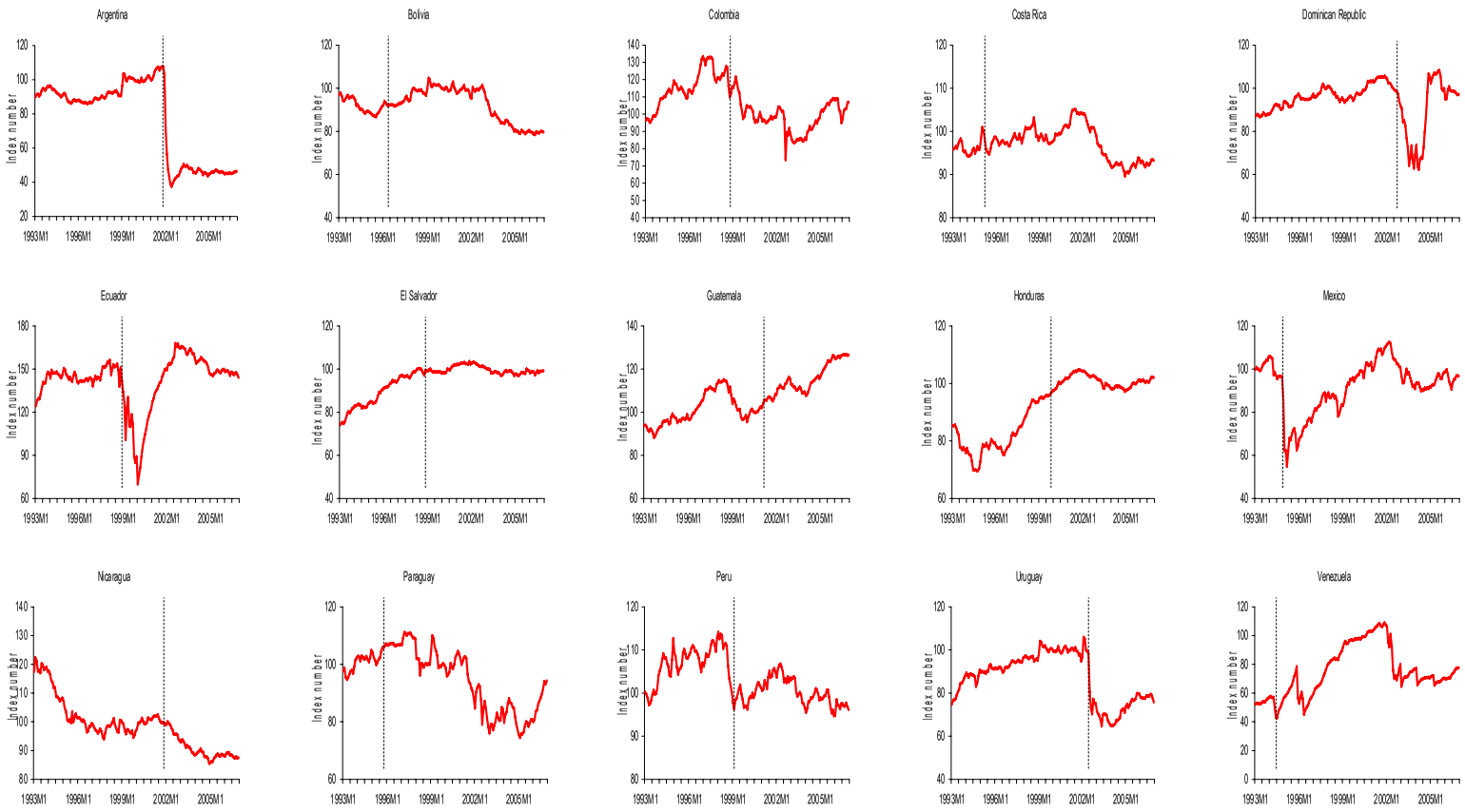
Financial liberalization attracted capital inflows from abroad, which were also encouraged by the increasing macroeconomic stability in the region. Owing to closer links with international financial markets, capital inflows benefited primarily emerging markets, thereby strengthening their domestic currencies (Figure 3) and fueling a wave of downward pressures on interest rates. The combination of capital inflows, real exchange rate appreciations, and interest rate declines created the conditions for a "credit boom" in various financial systems.

Figure 2. Financial Reform and Banking Crises in Latin America, 1985–2000
Index of Financial Reform and Year of Banking Crisis (dotted line)



Source: Index of financial reform elaborated by the Inter-American Development Bank

Figure 3. Real Exchange Rate and Banking Crises in Latin America, 1993–2006.
(Real effective exchange rate index and year of banking crises (dotted lines))



Source: IMF's Information Notice System (row *ereer*).

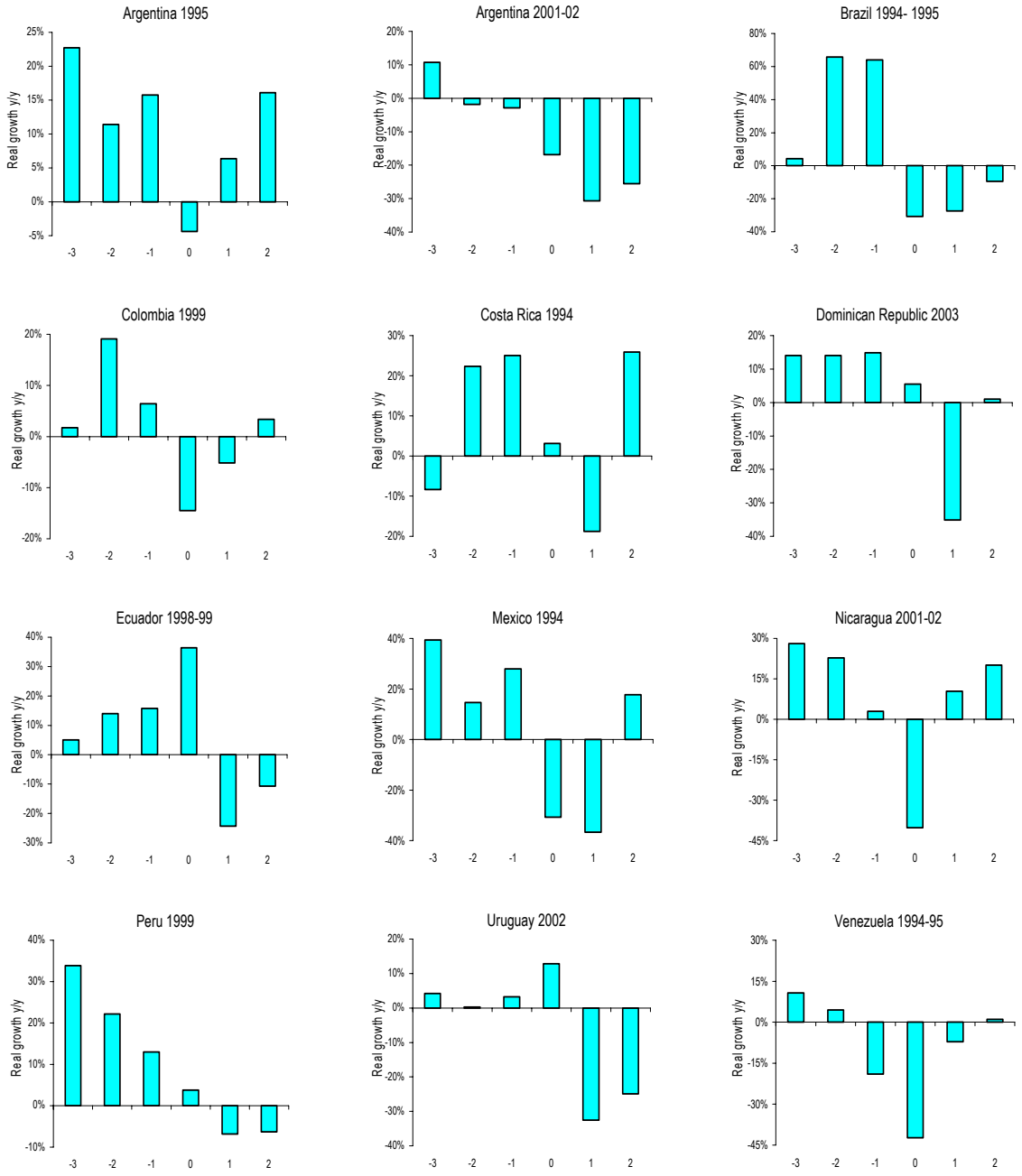
The credit boom lasted only until various shocks hit Latin America starting in the mid-1990s, which in many cases led to banking crises. These shocks triggered massive capital outflows, in particular in emerging markets, inducing liquidity and credit crunches (Figure 4). In turn, liquidity shortages brought to the forefront deficiencies in asset quality, which had been acquired as a result of lax credit policies by commercial banks, leading eventually to solvency problems. Domestic political events or economic policy-induced factors led to generalized macroeconomic disarray, including banking crises, in Argentina (2002), Brazil (1994), and Mexico (1995). On the other hand, the crises in Argentina (1995) and in Paraguay and Uruguay in 2002 are clear examples of external contagion, as they were hit by the crises in Mexico—the former—and in Argentina—the other two countries. Similarly, the crises in the Andean countries in the late 1990s (Colombia, Ecuador, and Peru) were triggered by the impact of the Russian and the Brazilian currency crises, which fueled capital outflows. In turn, the crisis in Costa Rica, the Dominican Republic, El Salvador, Guatemala, and Honduras illustrate episodes where solvency problems were the underlying cause and external shocks were mostly absent.

The severity of the banking crises was exacerbated by the lack of appropriate institutional arrangements to tackle them at an early stage. The financial reforms adopted in the region during the early 1990s emphasized deregulation with the aim of strengthening financial deepening and promoting free entry and exit of financial institutions. However, the reform did not create a suitable framework for preventing and handling crises and did not lay the ground for the smooth exiting of failing institutions. As a result, banking crises unfolded in a disorderly manner, inflicting high social and economic costs.

The central bank reform adopted during the 1990s typically did not assign them a clear role in the institutional framework aimed at preserving financial stability. They fundamentally focused on enhancing central bank political and operational autonomy to fight inflation.[11] And, in the event of financial distress, in a number of countries, central banks were empowered with excessive discretion to "monetize" banking crises should a systemic risk emerge. In addition, with few exceptions, the reform did not envisage a need to ensure financial autonomy for central banks, as governments were not obliged to compensate central banks if they lost their capital. Under this institutional setting, most governments in the region resorted to central banks to obtain financing to handle both systemic and idiosyncratic banking crises, without compensating them for their financial losses.

[11] See Carstens and Jácome (2005) for a review of the nature of central banks reform in Latin America during the 1990s.

Figure 4. Banking Crises and Real Credit Growth
(Selected Latin American countries. 0 = initial year of the crisis)



Source: *International Financial Statistics*, IMF (*22d* deflated by *64*).

C. Some Stylized Macroeconomic Facts Accompanying Banking Crises

There are a number of macroeconomic features that could have made Latin American countries more vulnerable to banking crises, in particular to systemic events. These features include the prevailing exchange rate regime, financial dollarization, and a weak fiscal position—measured in terms of the country's debt burden—at the time of the crises. The degree of financial integration with the rest of the world, namely if the country was an emerging market, may be another relevant characteristic (see Table 1). To carry out this preliminary analysis we make specific working assumptions. We discriminate between "hard" peg, "soft" peg, and flexible exchange rate regimes, based on the IMF's Annual Report on Exchange Arrangements and Exchange Restrictions.[12] We define financial dollarization whenever banks' foreign currency deposits account for more than 50 percent of total deposits.[13] A weak fiscal stance is characterized by a public debt burden exceeding 50 percent of GDP at the time of the crisis. In turn, emerging markets are those Latin American countries included in the Emerging Market Bond Index (EMBI) elaborated by J.P. Morgan.

A general reading of Table 1 suggests that countries that suffered systemic banking crises generally had in place "soft" pegs and were mostly financially dollarized emerging markets. Although one can say that pegged regimes were the prevailing exchange rate arrangement in the region, they seem to be more common in those countries that experienced systemic crises. Moreover, most countries—typically emerging markets—that went through systemic crises abandoned the peg in the middle of the crisis, which largely exacerbated the financial turmoil. The combined effect of banking and currency crises buttressed macro-financial instability and magnified side effects. The crises in Argentina (2002), Ecuador (1999), Mexico, and Uruguay illustrate the devastating macroeconomic effects of exiting a peg in mid-course of the crises.

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[12] In this classification "hard" pegs comprise currency boards and formally dollarized systems; flexible rates refer to pure floating and managed floating arrangements; and "soft" pegs include all other regimes, including fixed rates, crawling rates, and crawling bands.

[13] This percentage does not consolidate the onshore and offshore data because of information problems, which implies that the amount of foreign currency deposits at the time of banking crises, like those in Ecuador during the mid-1990s and Venezuela, are underestimated.

Table 1. Banking Crises in Latin America and Relevant Macro-Financial Features

Country and crises years	Exchange regime [1/]			Financial dollarization[2/]	Emerging market [3/]	Fiscal weakness[4/]
	Hard peg	Soft peg	Floating rate			
Minor and moderate crises						
Argentina (1995)	✓			✓	✓	
Bolivia (1994)		✓		✓		✓
Bolivia (1999)		✓		✓		✓
Dom. Repub. (1996)			✓			
Ecuador (1994)		✓				✓
Ecuador (1996)		✓				✓
El Salvador (1998-99)		✓				
Guatemala (2001)			✓			
Guatemala (2006)			✓			
Honduras (1999)		✓				
Honduras (2001)		✓				
Honduras (2002)		✓				
Paraguay (1995)			✓			
Paraguay (2002)			✓	✓		
Systemic crises						
Argentina (2002)	✓			✓	✓	✓
Brazil (1994-95)		✓			✓	✓
Colombia (1999)		✓			✓	
Costa Rica (1994)		✓		✓	✓	
Dom. Repub. (2003)			✓		✓	
Ecuador (1998-99)		✓		✓	✓	✓
Mexico (1995)		✓			✓	
Nicaragua (2000-01)		✓		✓		✓
Paraguay (1997-98)			✓	✓		
Peru (1999)			✓	✓	✓	
Uruguay (2002)		✓		✓	✓	✓
Venezuela (1994-95)		✓			✓	✓

1/: Based on the IMF's Annual Report on Exchange Arrangements and Exchange Restrictions. 2/: The banking system holds more than 40 percent of deposits denominated in foreign currency, although off-shore deposits are not considered. Data obtained from several IMF reports. 3/: Countries included in the EMBI at the time of the crisis. 4/: If the public debt to GDP ratio was more than 50 percent.

The reason why emerging markets were probably more prone to systemic crises is their higher exposure to changes in capital flows. As opposed to developing countries, like the Central American countries, emerging markets are vulnerable to recurrent external financial shocks—like the "Tequila effect" in 1995, the Asian crisis in 1997 and 1998, and the Russian and Brazilian currency crises during the late 1990s—which triggered capital flights back to mature markets. This is because foreign financial investors monitor closely macroeconomic and financial developments in emerging countries, and hence, initial bank problems lead soon to a deterioration of country risk indicators and later to successive downgrades of the

countries' key debt instruments.[14] As a result, runs on deposits escalate and capital outflows take place, thereby putting pressure on and eventually depreciating the domestic currency and heightening initial financial instability. In turn, emerging markets may be in a better position to weather periods of financial distress because they have more developed capital markets, which provide additional sources of financing to endure a liquidity and credit crunch. However, the benefits of deeper capital markets may vanish when financial distress turns into a banking crisis.

Although not a rule, financial dollarization may negatively affect the dynamics of banking crises. Until recently, dollarization was considered a factor that contributed to stabilize the deposit base and reduced capital flight in the wake of banking crises. However, in light of recent banking crises worldwide, an alternative notion has emerged claiming that high financial dollarization restricts the ability of government and central bank to confront banking crises. On the one hand, a rapid acceleration of inflation resulting from a sudden and fast depreciation of the domestic currency does not help to reduce the real value of banks' liabilities when they are denominated in foreign currency. On the other hand, central banks' inability to print foreign currency undermines the credibility and effectiveness of financial safety nets to protect dollar deposits. Eventually, financial dollarization may fuel a simultaneous currency crisis.[15] Yet, from an empirical standpoint, there is no evidence that financial crises are more costly in highly dollarized economies.[16]

The association between systemic crises and weak public finances captures the restrictions imposed by a high debt burden on the management of banking crises. Highly indebted countries were generally unable to raise money in—domestic or international—capital markets during periods of financial stress, thereby hindering governments' capacity to cope with banking crises using non-inflationary means. In these circumstances, tightening fiscal policy may be the only alternative countries have to demonstrate the government's commitment to maintain macroeconomic fundamentals in check and temper market's expectations in the midst of banking crises. In practice, however, raising taxes to obtain additional fiscal revenue may be politically difficult to implement. This is because economic agents tend to resist an increase in tax rates as their real income is falling, and because adopting revenue measures tends to be associated with "socialization" of private losses—those of banks' shareholders—and this exacerbates social unrest.

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[14] Emerging markets are closely scrutinized in light of periodic reports and country risk indicators, which are almost non-existent for other developing countries.

[15] See Ingves and Moretti (2004) for a general discussion of the limitations imposed by financial dollarization in managing banking crises, and Jácome (2004), for a description of how dollarization may have affected the unfolding of the late 1990s systemic crisis in Ecuador.

[16] Arteta (2003) points to the macroeconomic and exchange rate policies in place as more important factors contributing to systemic crises.

Fiscal weaknesses also interact with the other macro-financial features in Table 1, and together seem to have contributed to shape the dynamics of banking crises in some countries. For example, a fragile fiscal position during a banking crisis deteriorates market sentiment and accelerates capital outflows; in particular in emerging markets, thereby triggering a simultaneous currency crisis. In turn, the rapid depreciation of the domestic currency not only hampers bank solvency, especially if their degree of financial dollarization is high, but also raises the value of public expenditure, in particular, debt payments denominated in foreign currency, possibly leading to a debt default. The triple crisis (banking, currency, and sovereign debt) in Argentina (2002), Ecuador (1999), and Uruguay (2002) illustrates this interaction.

III. The Role of Central Banks in Banking Crises in Latin America

The recent history of financial instability in Latin America is a fertile soil for analyzing central banks' involvement in banking crises and their aftermath. In most of the 26 crises examined in this paper injecting central bank money was a common policy response. This section identifies the various alternatives central banks employed to manage banking crises, and discusses the institutional underpinnings underlying central bank involvement in these crises. A description of the central bank and government response in each banking crisis is presented in the appendix.

A. Intensive Use of Central Bank Money

Central bank involvement in banking crises can vary depending on the degree of financial instability. During periods of financial distress, and provided that commercial banks remain solvent, central bank actions aim to restore the normal functioning of the money market and prevent financial turbulence from turning into a major crisis. To this end, central banks may increase liquidity provision, expand the type of collateral to be pledged by financial institutions in exchange for these resources, and reduce the discount rate vis-à-vis normal times.[17] If bank instability worsens, central bank financial support may increase. However, a difficult equilibrium must be found between preventing a systemic collapse—by preserving the integrity of the payment system—and fueling inflation as a result of granting extensive financial assistance to impaired banks. Against this background, Table 2 identifies the types of central bank involvement in our sample of financial crises in Latin America.

[17] These transactions are generally intended to cover intra-day and overnight requirements—although they could also be provided at somewhat longer maturities—or even to cover overdraft operations to avoid disturbances in the functioning of the payments system. They are automatic operations by which banks discount or use repo operations using central bank, government, or any other pre-qualified security.

Table 2. Modalities of Monetization of Banking Crises

Country and crises years	Central banks' involvement in banking crises (beyond limited LLR)		
	Extended LLR 1/	Finance bank resolution 2/	Payment of deposits, insured or guaranteed 3/
Minor and moderate crises			
Argentina (1995)			
Bolivia (1994)			✓
Bolivia (1999)		✓	
Ecuador (1994)			
Ecuador (1996)	✓	✓	
Dominican Republic (1996)	✓	✓	
El Salvador (1998-99)		✓	
Guatemala (2001)	✓		✓
Guatemala (2006)			
Honduras (1999)	✓		✓
Honduras (2001)			✓
Honduras (2002)			✓
Paraguay (1995)	✓	✓	✓
Paraguay (2002)	✓		
Large and systemic crises			
Argentina (2002)	✓		
Brazil (1994-1995)	✓	✓	
Colombia (1999)			
Costa Rica (1994)			✓
Dominican Republic (2003)	✓	✓	✓
Ecuador (1998-99)	✓	✓	✓
Mexico (1995)	✓	✓	
Nicaragua (2000-01)	✓	✓	✓
Paraguay (1997-98)	✓		
Peru (1999)			
Uruguay (2002)		✓	✓
Venezuela (1994-95)	✓	✓	✓

1/ Central bank emergency assistance granted to impaired banks was larger than the size of equity.
2/ Central banks discounted government paper to provide open-bank assistance, or they provided resources to facilitate purchase and assumption operations or directly capitalized impaired banks.
3/ Central banks paid an implicit or explicit deposit insurance or deposit guarantee either in cash or by issuing negotiable securities.

To cope with banking crises, central banks in the region followed four broad courses of actions. The first line of defense was to assist commercial banks with short-run liquidity to cope with deposit runs.[18] Emergency loans were provided upon an explicit request from ailing banks unable to raise funds in the interbank market or elsewhere. Beneficiary institutions were required to submit collateral in the form of government bonds, eligible private sector loans, or real assets, depending on the regulations in each country. In addition, the borrower bank was sometimes required to accept a stabilization program aimed at overcoming its liquidity problems.

Second, most central banks stretched LLR provisions to assist financial institutions suffering deeper liquidity and even solvency problems. To limit central bank discretion embedded in these extraordinary provisions, in many cases legislation required a qualified majority of votes in central bank governing bodies or demanded the executive branch to approve the extra financial assistance to troubled banks. These resources were provided in exchange for valuable collateral, and hence, they were bounded by the quality of assets that impaired banks had ready to pledge.

Third, in a number of countries, central banks injected money to support bank restructuring and resolution in the midst of financial crises. These transactions varied but they generally aimed at cleaning the troubled bank's balance sheet and easing its subsequent rehabilitation or purchase by another bank. Central banks typically issued securities and swapped them for non-performing assets of the impaired bank directly or through a bank restructuring institution (Bolivia 1999, El Salvador, Mexico, among others). They also issued securities to be used in purchase and assumption (P&A) operations (Nicaragua), or they simply extended credit to the acquiring institution to pay deposit withdrawals following P&A (Brazil).[19]

Central banks were also required to pay insured deposits on behalf of deposit insurance institutions or governments. They were required to directly pay deposit insurance and blanket guarantees (Ecuador 1999, Venezuela), advance money to deposit insurance institutions (Honduras), or simply, finance all deposit withdrawals from troubled banks (Bolivia 1994, Costa Rica, Dominican Republic 2003, Guatemala 2001, Paraguay 1995). In most cases, financial assistance aimed to support depositors and not directly bank borrowers—except in the Colombian and Mexican crises—as happened during the 1980s banking crises.[20]

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[18] Conventional wisdom says hat central banks should assist only solvent institutions facing temporary liquidity shortages.

[19] As an extreme situation, the central bank directly took over an impaired bank, which required printing money to capitalize the absorbed institution and provided open-bank-assistance to assure its continued operation (Ecuador 1996).

[20] During the 1980s crises, central banks provided long-term subsidized lines of credit to back the financial system's rescheduling of loans, sectoral lines of credit under soft financial conditions, and preferential exchange rates for foreign currency liabilities, just to mention a few. See for example Baliño (1991) on Argentina and Velasco (1991) on Chile.

Assigning this responsibility to central banks was typically specified in a deposit insurance law or under special financial legislation enacted during the crisis when deposit insurance institutions lacked sufficient resources to honor their commitment. Operationally, central bank resources were provided in exchange for government bonds, securities issued by the deposit insurance institution, or high quality assets from the failing bank.

Thus, considering these different forms of "monetization" it is evident that central banks injected sizable amounts of money during most large and systemic crises. In Argentina, the central bank provided financial assistance mainly to public banks but also to private domestic banks and a few foreign banks. Among public banks, Banco Nación and Banco Provincia de Buenos Aires (with a 28 percent market share) were the main beneficiaries of this financial assistance as they received about 4.5 and almost 3 times their net worth respectively. Among private banks, Banco Galicia, the largest domestic private institution received more than 3 times its net worth. In the Dominican Republic, the central bank granted extended LLR to three private banks reaching nearly 20 percent of GDP in 2003. In particular, the financial assistance provided to Baninter—the third largest bank in the system—exceeded 10 times its net worth or close to 15 percent of GDP. The crises in Ecuador (1999) and Venezuela followed the same pattern, except that central banks also funneled financial assistance indirectly through the deposit insurance/guarantee institution (AGD and FOGADE, respectively).[21] In Ecuador, a blanket guarantee was introduced in the midst of the crisis, which was delivered by discounting government bonds at the central bank, driving total central bank financial assistance to about 12 percent of GDP by late-1999, while in Venezuela resources to FOGADE amounted to close to 10 percent of GDP by end-1995. In all these cases, mopping up liquidity became very difficult, and hence, as central bank assistance soared reserve money also boomed aggravating financial instability (see Figure 5).

As opposed to these countries, Colombia and Peru did not pump money extensively into failing banks despite the ex-ante systemic risks they posed, and hence, they were able to sterilize excess liquidity and maintain reserve money under control (Figure 5). Instead, they applied measures of bank resolution and restructuring to cope with the banking crises based primarily on fiscal resources. Although not in the chart, other cases in point are those of the 1995 Argentinean crisis and the recent 2006 banking crisis in Guatemala. In the former country a full-blown crisis was averted by using government funds to execute P&A operations.[22] The Bank of Guatemala did not provide any financial assistance as failing banks were liquid. Alternatively, the banking authorities conducted directly P&A operations without requesting central bank cash, rather using money from the deposit insurance institution. Thus, in all these cases, the strategy of managing the crisis at an early stage and preventing the use of large amounts of central bank money heightened the chances of a successful resolution and limited ensuing macroeconomic costs.

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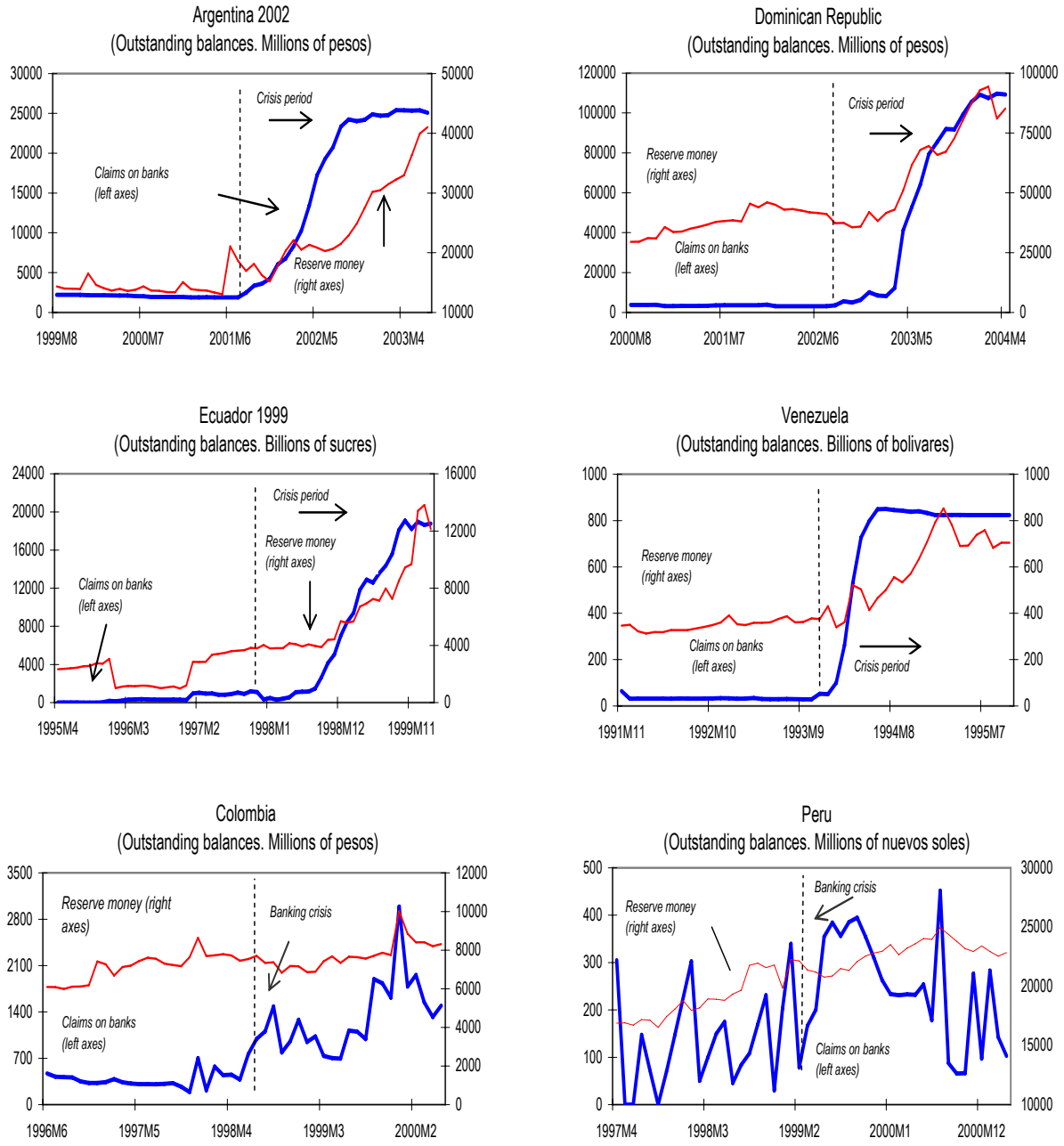
[21] In addition to delivering the deposit guarantee, these institutions were also empowered to take over and capitalize insolvent banks, provide open-bank assistance, and execute bank resolution.

[22] Argentina did not monetize the crisis because the Convertibility Law—in effect at that time—required backing the creation of money base with international reserves.

Figure 5. Large Banking Crises in Latin America—Selected Episodes
(Central bank claims on banks and reserve money in each country)



Source: *International Financial Statistics*, IMF.

The evidence in Latin America also shows that even in minor and moderate crises central bank money was used beyond limited LLR assistance (Figure 6). Thus, countries preferred to honor upfront all or most deposits with central bank money fearing the possibility of contagion. However, given the relatively small size of the crises central banks managed to mop up liquidity expansion, and hence, mitigated the effect on money base. Yet the approach followed by governments/central banks entailed a violation of market discipline while fiscal or quasi-fiscal costs were probably unnecessarily generated.

Points in case are the banking crises in Ecuador (1996), Guatemala (2001), and Paraguay (1995). In Ecuador, the central bank took over a failing bank (8.5 percent market share) restored its capital, and paid deposit withdrawals as needed. The Bank of Guatemala followed a different course of action by extending an open line of credit—as part of the intervention of three small banks (7 percent market share)—to withstand all deposit withdrawals. In turn, the Paraguayan government extended an implicit deposit guarantee to prevent a propagation of the crisis and required the central bank to honor deposit withdrawals in four intervened banks (nearly 13 percent market share). Banks were eventually closed in both Guatemala and Paraguay, while in Ecuador the central bank still runs the absorbed bank.

In the other three countries in the chart, the policy response followed a slightly different approach as they also involved private commercial banks and government resources in the resolution of the crises. In the 1995 Bolivian crisis, the central bank honored most deposits in two small failing banks but it also managed to incorporate private banks as well as government money in the resolution of the crisis. In the 1999 and 2001 crises in Honduras and in El Salvador, central banks provided financial assistance. However, the Central Bank of Honduras also financed the deposit insurance institution (FOSEDE) to honor the blanket guarantee introduced in 1999 in the wake of a small crisis.[23] In turn, the Reserve Central Bank of El Salvador facilitated the restructuring of a small impaired bank by transferring its deposits to four other financial institutions together with central bank long-term tradable securities in order to differ further cash payments.

B. The Role of the Institutional Framework

Assessing the institutional framework that countries had in place to contain and manage banking crises helps to understand the large involvement of central banks in financial crises. Institutional aspects are critical because they establish the limits and capabilities that governments and central banks face to respond to episodes of financial distress and crises. This section reviews the financial safety nets and bank resolution instruments that existed at the time of banking crises in Latin America and stresses their role in shaping the unraveling of those crises.

[23] This money was later repaid by FOSEDE using commercial banks' future insurance premia.

Figure 6. Minor and Moderate Banking Crises in Latin America—Selected Episodes
(Central bank claims on banks and reserve money in each country)

Source: *International Financial Statistics*, IMF.

There is an increasing consensus that an effective institutional framework to prevent and manage banking crises should be based on four mutually consistent pillars: (i) early corrective actions; (ii) instruments to conduct bank resolution and restructuring; (iii) deposit insurance; and (iv) central bank LLR provisions. Early corrective actions should have an undisputed legal support to empower regulators to impose timely remedial actions on financial institutions that are not observing prudential regulations, especially solvency provisions. Having the legal foundations to implement bank resolution and restructuring in an orderly fashion and minimizing the use of inflationary means—i.e., central bank money—is critical to close unviable banks without inducing further financial instability. The purpose of having in place an appropriately funded deposit insurance mechanism is to protect small depositors and to have them paid immediately if a financial institution needs to be closed.[24] In turn, central banks should be empowered to provide limited and short-term financial assistance as LLR to illiquid but solvent banks. The status of pillars (ii) to (iv) at the time of the crises in Latin America are shown in Table 3.

Most Latin American countries featured ill-designed institutional arrangements to prevent and confront banking crises. In particular, based on the results obtained from the Financial Sector Assessment Program (FSAP) executed by the IMF and the World Bank, most Latin American countries at the time of the crises were not legally equipped to effectively adopt early remedial actions. The assessment refers to the observance of the Basel Core Principle No. 22, which shows that the vast majority of countries in the region did not comply with the standard requirement.

Legal provisions for the implementation of bank resolution operations—using non-inflationary means—were not available in the majority of countries in the region at the time of the crises, in particular P&A operations.[25] Argentina was the pioneering country in introducing instruments for bank resolution—based on P&A—which helped to handle the closure of a number of banks during the mid-1990s crisis without generating further turbulence in the financial market and maintaining at the same time the existing currency board.[26] The Argentinean legislation served as a model for later reforms in other countries like Nicaragua and Guatemala in 2002. On the other hand, even when having in place bank resolution instruments, some countries were not able to use them. For instance, the Dominican Republic in 2003 failed to implement P&A operations because the required bylaws were lacking at the time of the crisis.

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[24] When designing a deposit insurance mechanism, conventional wisdom favors an incentive-compatible structure to limit possible moral hazard and adverse selection distortions.

[25] While there are a number of modalities of bank resolution, such as bank mergers and the use of bridge banks, which facilitate the market exit of failing banks, we stress here P&A operations as they provide a more effective means for a quick and timely exit strategy.

[26] See De la Torre (2000) for an explanation of main features of the Argentinean bank resolution framework.

Table 3. Institutional Framework behind Banking Crises in Latin America at the Time of the Crises

Country and crises years	Bank resolution 1/	Deposit insurance 2/	LLR 3/
	1: P&A operations authorized. 0: P&A not authorized	1: Exist 0: Not exist F: Full guarantee	1: Limited 2: Extended
Minor and moderate crises			
Argentina (1995)	1	1	1
Bolivia (1994)	0	0	2
Bolivia (1999)	0	0	2
Ecuador (1994)	0	0	2
Ecuador (1996)	0	0	2
Dominican Republic (1996)	0	0	2
El Salvador (1998-99)	1	0/1	2
Guatemala (2001)	0	1	2
Guatemala (2006)	1	1	1
Honduras (1999)	0	0/F	2
Honduras (2001)	1	F	2
Honduras (2002)	1	F	2
Paraguay (1995)	0	0	2
Paraguay (2002)	0	0	2
Large and systemic crises			
Argentina (2002)	1	1	2
Brazil (1994-95)	1	0	2
Colombia (1999)	1	1	1
Costa Rica (1994)	0	0	2
Dominican Rep. (2003)	1	F	1
Ecuador (1998-99)	0	1/F	2
Mexico (1995)	1	F	2
Nicaragua (2000-01)	1	0/1	1
Paraguay (1997-98)	0	0	2
Peru (1999)	1	1	1
Uruguay (2002)	0	0	2
Venezuela (1994-95)	0	1/F	2

1/ Based on countries' legislation and FSAP evaluations.
2/ Source: Demirguc-Kunt and others (2005) and updates from the author.
3/ Source: countries' central bank legislation at the time of the crises.

Deposit insurance institutions existed in about one half of the crises in the sample, but only a handful of these institutions were appropriately established. Some of them were not adequately funded and others featured moral hazard problems. For instance, the Savings Protection Fund (FOPA) in Guatemala had no money when banks were closed in 2001, and hence, it could not be used. Rather, the central bank paid all deposit withdrawals from the failing banks. Other countries in the sample established a deposit insurance/guarantee mechanism as part of the policy response, imposed an explicit blanket guarantee (Ecuador 1999, Honduras, Mexico), or introduced an implicit full-guarantee in the middle of the crises (Dominican Republic 2003 and Venezuela 1994). In turn, Costa Rica and Uruguay did not have deposit insurance but, in practice, the state-owned banks, which constituted more than 50 percent of the system in both countries, had full coverage of deposits.

In turn, LLR provisions were established in all countries, including an open-ended component to be used under special circumstances. Only in six countries (Argentina 1995, Colombia, Dominican Republic 2003, Guatemala 2006, Nicaragua, and Peru) did central bank LLR provisions feature a limited scope both in terms of amount and maturity; although, in practice, the Dominican Republic did not observe the restrictions imposed by law for the provision of liquidity assistance (up to 1.5 times the failing bank's capital) and, hence, it largely exceeded this cap during the 2003 banking crisis. In a number of countries the special circumstances under which LLR could be extended would generally need to be approved by a qualified majority at the central bank board or would require a validation by the executive branch.

Thus, in the vast majority of countries in the sample, the existing institutional framework did not provide the appropriate instruments to address banking crises at an early stage and to manage crises minimizing the use of inflationary means. As a result, a number of countries were left with the alternative of either closing failing banks—paying at most to small depositors—or injecting large amounts of central bank money to avoid a disorderly closure of banks. In practice, both approaches led eventually to the same outcome as traumatic closure of banks triggered contagion, which scaled up central bank financial assistance in an effort to cope with deposit withdrawals in other banks.

The banking crises in Venezuela during the mid-1990s and Ecuador in 1999 illustrate the deleterious impact of closing banks followed by large injections of central bank money. In Venezuela, the second largest bank (Banco Latino) was closed in January 1994 and depositors—not even the smallest ones—did not receive their money back for more than a month. From then on the central bank scaled up financial assistance to cope with increasing contagion, but as money poured into the system, pressures on the domestic currency mounted and, hence, central bank international reserves almost halved in six months. Moreover, the *bolívar* depreciated nearly 70 percent by end 1994, thereby contributing to sink a dozen banks in the same year. In Ecuador, the crisis started with the closure of a small bank, Solbanco (one percent market share), in April 1998. However, as most depositors did not recover their savings, the failure of this bank undermined confidence in banks until a second—medium sized—bank was closed. With a larger group of depositors losing their money, contagion gained momentum, and hence, by end-1998, the second largest bank was

taken over by the State to avoid another traumatic closure—while another six banks were requesting assistance from the central bank. Thus, more than 50 percent of the system was eventually closed or taken over by the state. The economy fell more than 6 percent and inflation reached about 100 percent year-on-year in 1999. The government finally adopted the US dollar as the country's legal tender. Thus, the banking crisis in Ecuador also illustrates how a banking crisis can start as a small event and turn over time into a full-fledged banking crisis because the country did not have the institutional powers to deal with banking crises in an orderly fashion. To a great extent, the 2002 crisis in Uruguay features some similar developments. It started with the closure of an Argentinean bank, which did not receive financial assistance from the central bank and, hence, generated a gradual contagion to other banks. As the crisis escalated, the central bank reacted by providing increasing financial assistance, which lasted until international reserves reached a minimum threshold that motivated the government to declare a bank holiday followed by a restructuring strategy of the banking system (see Box 1).[27]

Other countries like Dominican Republic in 2003, Paraguay in 1995, and Guatemala in 2001, followed the strategy of injecting large amounts of central bank money instead of closing failing banks. While in the first case—and to some extent in the second—the stability of the whole financial system was at stake because of the risks of a collapse of the payments system (see Box 1), in Guatemala the government may have preferred to use central bank money to avoid the cost of utilizing tax-payers money and assuming that central banks could sterilize liquidity injection.

By the same token, having in place—or rapidly approving—an appropriate financial institutional framework also helps to explain relatively successful episodes of banking crises containment and management. Argentina in 1995, Colombia and Peru in 1999, and Guatemala in 2006 handled financial turbulence without allowing it to turn into full-fledged financial crises (see Box 2). Brazil and Nicaragua also relied to a great extent on bank resolution measures to manage the banking crises. In the first four cases, the central bank law imposed limitations for the provision of LLR—both in terms of the amount and the maturity of the loans. Therefore, LLR provisions served only as the first line of defense when banking crises erupted and, hence, functioned as one component of a broader financial safety net, which included legal provisions that empowered the execution of bank resolution. These latter powers were already in place at the moment of the crisis in all cases except in Peru, where the government managed to rapidly pass a law that empowered it to conduct bank resolution and restructuring. The decisions adopted by this group of countries, including Brazil and Nicaragua, typically included P&A operations. In addition, in Brazil, Colombia and Peru, the government designed a comprehensive strategy to tackle not only liquidity and solvency problems, but also provided incentives to restructure debts and carry out bank mergers and acquisitions.

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[27] Banco Galicia in Uruguay had almost a 100 percent Argentinean deposit base. Other banks, mainly foreign institutions, also had Argentinean depositors.

Box 1. Large "Monetization" of Banking Crises in Selected Countries

The traumatic closure of a small bank in April 1998 sparked the banking crisis in **Ecuador** as medium and large depositors could not recover their savings. It triggered contagion and a run on other banks, and hence, in August a second medium size bank was closed. Subsequently, several other institutions fell apart representing nearly 60 percent market share. Despite a history of recurrent banking crises, Ecuador had a poor institutional framework to contain and handle them. It basically comprised two corner solutions; either to provide extensive financial assistance through the Central Bank of Ecuador (BCE) or to close banks without paying depositors, except to small depositors under a protracted procedure, with BCE money. The legal provisions supporting BCE's role as LLR allowed it to grant large amounts of money. In addition, a deposit guarantee was in place to protect small depositors, which also relied on BCE resources to be effective. As the crisis unfolded, the government offered a blanket guarantee, which initially was delivered using BCE money. The excessive reliance of financial safety nets on BCE's resources made the way for a large "monetization" of the banking crisis, which reached 12 percent of GDP by September 1999. As the crisis escalated the government "froze" deposits to avoid a meltdown. However, as the government lifted the controls, the crisis regained momentum until the BCE loosened monetary policy control and the government adopted the dollar as the country's legal tender.

The 2003 banking crisis in the **Dominican Republic** started with the intervention of the third largest bank—with a market share of 10 percent. Deposit withdrawals had already started by mid-2002 following allegations of fraud resulting from the discovery of hidden liabilities recorded in a "parallel bank." Immediately after the intervention of this bank, the crisis extended to two other institutions—with an additional 10 percent market share—featuring similar inappropriate accounting practices. The crisis of these three banks was managed using exclusively resources from the Central Bank of the Dominican Republic (BCRD), in particular, using cash at the early stages of the crisis and later utilizing central bank certificates to pay depositors. While the Law of the BCRD established a limit to the provision of emergency loans of 1.5 times the capital of the impaired bank, the largest bank received more than 10 times its capital in financial assistance from the BCRD and the other two banks received 8 and 6 times their capital.

The banking crisis in **Venezuela** started when Banco Latino did not meet its clearing house obligations in early-1994. The closure of this bank triggered contagion to other institutions, but the Central Bank of Venezuela (BCV) decided to provide financial assistance both directly and indirectly via FOGADE to avoid closing another bank, an action that could have exacerbated financial instability. As BCV's assistance mounted this approach proved to be unsustainable because ailing banks ran out of adequate collateral, and hence, another 12 institutions were either nationalized or closed by end 1994. As financial instability increased, so did pressures on the domestic currency until the government imposed controls on the capital account and fixed the exchange rate, following a nominal depreciation of about 70 percent. In this environment, inflation soared to more than 70 percent by end-1994 and three digit rates during 1996, and the economy contracted more than 2 percent.

As the Argentine banking system collapsed and enforced the so-called "corralito financiero," **Uruguay** was hit by a systemic crisis in 2002. The crisis started with runs on the Argentine Banco Galicia, which was eventually closed without receiving financial assistance from the Central Bank of Uruguay (BCU). The closure of this bank and the deepening of the Argentine crisis sparked a gradual contagion. Although banks initially withstood deposit withdrawals with their own resources, domestic banks resorted eventually to central bank money. Legislation did not envisage bank resolution and rather allowed the BCU to provide financial assistance mostly against government paper but also against high quality commercial paper up to the impaired bank's capital. Since these measures did not contain the crisis, the government declared a bank holiday, while Congress approved new legislation empowering the BCU to conduct bank resolution and restructuring. Eventually, three local commercial banks were closed, time deposits were reprogrammed to longer periods, and the government extended a deposit guarantee to checking and saving deposits in public banks.

Box 2. Effective Episodes of Bank Restructuring and Resolution in Selected Countries

The end-1994 Mexican devaluation triggered a wave of uncertainty on the sustainability of the currency board in **Argentina**, leading to widespread deposit runs and large capital outflows. As a result, from end-December to January 1995, peso deposits fell more than 15 percent. From December 1994 to late 1996, about 40 small and medium-size banks failed or were acquired or merged (almost one third of total banks). To cope with the instability created by the "Tequila" shock, the Argentine government passed a law in May 1995 that allowed the central bank to get involved in the resolution of distressed banks. The new legislation created the basis for conducting bank mergers, acquisitions, purchase and assumption operations, as well as other resolution procedures to replace the straight liquidation of an impaired bank. To favor the viability of the new operations, a temporary Capitalization Trust Fund—funded by international and government resources—was created to inject capital into impaired institutions via a subordinated loan or by buying non-liquid assets. A third reform was the creation in April 1995 of a deposit insurance system to be fully funded from the private sector. Based on this new legal framework, from December 1994 to end-1995, out of 137 banks, 9 financial intermediaries failed and over 30 were either acquired or merged into a single institution.

In the midst of an adverse international financial environment in 1999, the government intervened, closed, or took-over a large number of financial institutions in **Colombia**, while others were receiving liquidity support. As a first line of defense, the Bank of the Republic (BoR) provided limited financial assistance by facilitating access to rediscount facilities, up scaling repo transactions, and easing access to longer-term liquidity support. The bulk of the official support was provided by the Government. It approved debt relief programs using government resources and, based on the institutional strength of the deposit insurance institution (FOGAFIN), it provided additional liquidity support, took over large private banks, conducted P&A operations, and introduced recapitalization plans based on credit lines to shareholders of the impaired institutions. In addition, the Superintendency of Banks allowed temporary regulatory forbearance to encourage debt restructuring with financial institutions, while Congress passed a law that suspended traditional bankruptcy procedures for five years in order to promote agreements between creditors and debtors.

The late-1990s international financial turmoil also hit **Peru**. Capital outflows triggered a domestic credit crunch, which unveiled solvency problems in a number of banks, including Banco Wiese, Banco Latino (16.7 and 3 percent market share, respectively), and other smaller financial institutions. The official response was tailored before the crisis turned into a systemic problem. It was conducted by the government with minimum central bank involvement and aimed at restructuring failing banks and consolidating the financial system. The key element of the government response was the approval by Congress—in a fast track—of a reform to allow the supervisory authority to execute P&A operations, and the Deposit Insurance Fund (FSD) to capitalize and take-over impaired banks to prepare them for future privatization. In practice, the government provided support through: (i) capitalization of banks to favor bank mergers; (ii) issuance of bonds to facilitate P&A; (iii) swaps to restructure assets, issuing non-interest bearing treasury bonds in exchange for troubled loans to be repurchased over a four-year period, and for liquidity purposes issuing negotiable US dollar bonds in exchange for performing loans, with a repurchase commitment over a five-year period; and (iv) debt rescheduling programs to the private sector. Public sector financial institutions (COFIDE and Banco Nación) also participated in: (i) taking-over impaired banks through capital injections and the assumption of liabilities; (ii) restructuring debt and converting foreign currency debt into domestic currency debt; and (iii) providing liquidity to troubled banks. The FSD also increased the coverage per depositor to US$18,500 and indexed it to the wholesale price index with the financial support of a government contingency line of credit of up to US$200 million.

As opposed to the full monetization executed during the small banking crisis in 2001, **Guatemala** successfully managed the 2006 crisis of Bancafe (9 percent market share) and the subsequent closure of Banco del Comercio (1 percent market share). Under the provisions of a new legislation approved in 2002, P&A operations were implemented without central bank injection of money, but using alternatively resources from the deposit insurance fund.

Admittedly, there are also some episodes in which banking crises were of systemic dimension from the start. Cases in point are the 2002 Argentinean crisis and the Mexico crisis during the mid-1990s. In the former episode, the fiscal crisis had a systemic impact from the outset—as all banks were more or less exposed to sovereign and currency risk. In addition, the uneven "pesofication" hit all banks driving some institutions close to or into insolvency. In Mexico, the currency crash damaged banks' balance sheets as financial institutions were widely exposed to unhedged borrowers, who were badly hit as a result of the *peso* devaluation. Despite the good institutional framework in place in Argentina and the broad bank restructuring program implemented in Mexico, it was very difficult to handle crises at low costs.[28] The experience of these two countries highlights how adverse macroeconomic developments can have a devastating effect on financial institutions.

IV. MACROECONOMIC REPERCUSSIONS

When central bank money was intensively used, like in most banking crises in Latin America, it inevitably generated undesirable adverse macroeconomic effects. As an immediate repercussion, it constrained central banks' ability to conduct monetary policy and, in the long-run, in a number of cases, central banks' operational autonomy was inhibited. In general, the more central banks injected money the greater was macroeconomic instability.

A. On Monetary Policy

Large central bank assistance to problem banks disturbs the conduct of monetary policy and may potentially compromise central banks operational autonomy in the long-run. Banking crises relegate to a secondary place central banks' objective of fighting against inflation, and rather, they put at the forefront the objective of preventing an escalation of financial distress. In the short-run, injecting large amounts of money makes opaque the relationship between monetary instruments and operating and intermediate targets, and the link between these and the central banks policy goals. Moreover, if the assets received as collateral—in exchange of the credit provided to troubled banks—are not recovered enough over time, the central bank's capital may be exhausted, which may restrict its ability to tighten monetary policy when needed because of its adverse impact on the central bank balance sheet (see Box 3).

Assessing the impact on monetary policy from central banks involvement in banking crises is an empirical issue. This type of analysis has received little attention in the literature and the existing studies do not provide a conclusive answer.[29] While a rigorous analysis based on the experience of banking crises in Latin America is beyond the scope of this paper, we show here its impact on money demand via the money multiplier.

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[28] These crises have been widely documented before. See for example Perry and Serven (2003) on Argentina, and Mishkin (1999) on Mexico.

[29] Garcia-Herrero (1997) and Martinez Peria (2002) investigate this issue but their conclusions point in different directions. While the former finds significant implications for money demand stability in a sample of developing countries, the latter finds no such evidence in a sample of developing and industrial countries.

Box 3. Banking Crises and Monetary Policy

Depending on the severity of financial crises central banks will be inclined to change their policy objective in the short-run to focus on maintaining the stability of the financial system. When central banks face financial distress they try to preserve the functioning of money markets—such that illiquid banks can access resources they need—without sacrificing their policy objective of maintaining price stability. However, if financial distress worsens central banks may also need to inject large amounts of money to preserve the functioning of the payments system and avoid a systemic collapse until bank resolution measures can be adopted.

With a view to handling banks' severe liquidity problems and crises, central banks may either stick to a tight monetary policy or adopt an accommodative stance depending on the severity of the crisis. In the first scenario central banks mop up all the liquidity assistance provided to banks, raising interest rates high enough to preserve the stability of banking system liabilities. This policy, however, probably hits those banks already facing liquidity shortages, which are borrowing in the interbank market, thereby eventually accelerating their failure and escalating the banking crisis. At the other extreme, a full accommodative approach entails no central bank sterilization, leading initially to a downward trend on interest rates. However, the decline in interest rates creates potential pressures on the domestic currency and the central bank's international reserves. In this environment, the exchange rate depreciation tends to harm banks' asset portfolios—and therefore the solvency of banks—at a systemic level as it hits unhedged consumer and corporate bank debtors.

In practice, none of these options is sustainable for more than a short period, unless efficient bank resolution is adopted and fiscal adjustment or foreign financing make room for less aggressive central bank sterilization or for an increase in international reserves. An intermediate route, one of partial sterilization, may give the central bank some breath but will not last either if other complementary measures are not adopted. Thus, coping with banking crisis exclusively through monetary policy, especially in the event of prolonged financial assistance, makes monetary policy ineffective and prone to macroeconomic instability.

Policy restrictions increase under high financial dollarization as central banks seek not only to preserve the value of bank liabilities but also try to prevent a highly damaging currency crash. Given the widespread availability of financial contracts in foreign currency, market participants are more inclined to reallocate portfolios toward dollar assets in light of uncertain financial developments. Thus, the increase in interest rates needs to be sufficiently high to discourage a dynamic increase in foreign currency demand that inevitably will result in a decline in international reserves and/or a currency depreciation. This, in turn, may eventually turn into a currency crisis that further impairs banks' financial condition. On the other hand, a sizable increase in interest rates accelerates the failure of illiquid banks, in a situation where financial safety nets are less effective to provide a liquidity buffer as central banks cannot print foreign currency.

Banking crises may also inflict lasting effects on monetary policy. As central banks provide credit to impaired institutions, they receive collateral in exchange. However, central bank losses may arise if the value of the central bank's loans (including interest) are not covered by the present value of the revenues obtained when the central bank realizes the assets pledged as collateral, or if the resources provided by the central bank to deliver deposit insurance are not repaid either by the government or by future contributions by financial institutions. From then on, central bank balance sheets may become impaired as interest bearing assets are smaller than interest bearing liabilities and, eventually, central bank capital may be depleted. This may reduce the room for maneuver in conducting monetary policy as central banks fear that the costs associated with monetary operations can erode even more their already weak financial position—assuming the government is not likely to promptly restore the central bank's capital.

Figure 7 suggests that money demand became unstable in the midst of large episodes of banking crises. The money multiplier initially increased, which can be associated with pressures on banks' liquidity leading to a gradual drain of bank reserves at the central bank or to a reduction in the rate of reserve requirements. Later, the money multiplier fell as a result of increasing holdings of cash by economic agents in reaction to an enhanced perception of banks' unsoundness. In some cases, the money multiplier collapsed as the appetite for dollars increased or when freezing of deposits was adopted as part of the government's response package. In addition, the transmission mechanism of monetary policy became distorted and, in general, monetary policy lost effectiveness. As banking crises unfolded, typically a number of banks became illiquid, leading short-term interest rates to increase and the interbank market to become segmented between groups of banks (the solvent banks in one group and those perceived as insolvent in another group). Under these conditions, the connection between central bank monetary impulses and the real sector weakened.

Central bank participation in banking crises also inflicted long lasting adverse effects on monetary policy. Unproductive or low performing assets acquired by central banks in the midst of banking crises became a financial burden leading to losses and eventually exhausting their capital.[30] When governments did not restore central bank capital—a fairly common outcome in Latin America following banking crises—financial losses hindered central bank ability to conduct monetary operations.[31] In particular, central banks' capacity to mop up liquidity became restricted as they feared to raise interest rates or issue securities as needed when conducting open-market-operations to avoid exacerbating losses and deteriorating further their negative capital position. The Dominican Republic, Guatemala, Nicaragua, Paraguay, and Venezuela are relevant cases in point to illustrate central bank financial weakness resulting from their involvement in banking crises.[32] In general, average central bank losses from a sample of 10 Western Hemisphere countries were 1 percent of GDP in 2005.[33] To enable financially weak central banks to fully resume their monetary policy function, governments should effectively restore central bank financial strength.[34]

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[30] In some countries, central bank transactions associated with banking crises were improperly accounted—contrary to sound practices of transparency and governance. The collateral received in exchange for the liquidity assistance provided as LLR was not always marked-to-market. As a result, the value of central banks' assets was inflated, which made room to artificially post a positive equity.

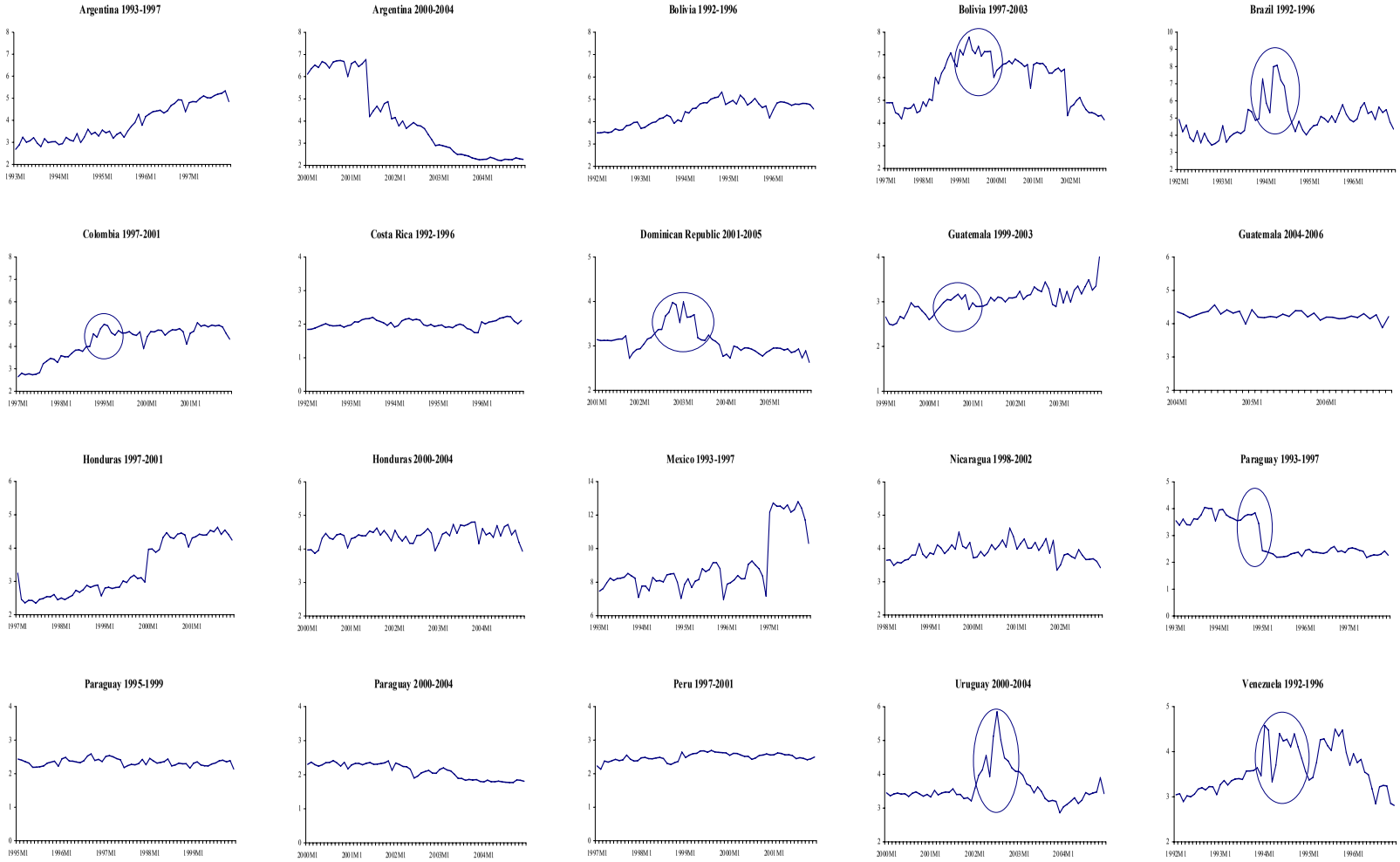
[31] Admittedly, central banks do not require a specific amount of capital. However, they should enjoy a financial strength that is sufficient to credibly commit to their policy goals.

[32] To restore the central bank's capital integrity, Congress in the Dominican Republic recently passed a law which allows the government to issue marketable securities in favor of the central bank.

[33] See Stella and Lönnberg (2008).

[34] The modality of recapitalization should be consistent with the prevailing monetary policy regime and taking into consideration dynamic scenarios of cost and revenue streams (see Stella, 2008).

Figure 7. Performance of the Money Multiplier in the Midst of Banking Crises in Latin America



Source: IMF's International Financial Statistics: row 35L / row 14.

B. On Macroeconomic Stability

As central banks inject money in the wake of banking crises and loose monetary policy gains momentum, the chances of exacerbating macroeconomic instability increase, which potentially backfires on the financial system. The following analysis checks for preliminary evidence on the link between "monetization" and macroeconomic instability. It focuses on 25 episodes in our sample, excluding the Brazilian banking crisis.[35]

As a first approximation to the dynamics of banking crises in Latin America we check for pair-wise correlations between relevant variables. Table 4 relates the ex-ante size of the crises (measured by the market share of the impaired banks at the beginning of the crises), with two measures of how much money central banks pumped into the banking system (the percentage increase in central bank claims on commercial banks and the percentage increase in reserve money), and two measures of balance of payments crises, namely the largest accumulated currency devaluation and the largest fall in international reserves in a three-month period following the beginning of the crisis. All coefficients have the expected sign and are statistically significant. A first outcome is that large crises were indeed associated with sizable injections of central bank money and with currency crises. Second, it is clear that growing financial assistance to impaired banks inevitably led to currency crises as increases in central bank money appear significantly correlated with demand for foreign currencies. Third, it seems that central banks used intensively international reserves to limit the impact of growing flows of central bank money on the exchange rate. These conclusions are validated when assessing the combined impact of banking crises on currencies and international reserves by using an index of financial turbulence (not reported).[36]

[35] The sample excludes the Brazilian crisis to avoid introducing a distortion in the analysis since, at the time of the crisis, Brazil was still coming out of hyperinflation, which complicates the comparison of the performance of nominal variables across countries.

[36] Calculations were made based on Kaminsky and Reinhart (1999) index of market turbulence that measures the volatilities of nominal exchange rates and central bank international reserves.

Table 4. Pair-Wise Correlations between Selected Variables
Sample: 25 Countries (excluding Brazil)

	Size of the crisis	Δ in central bank claims on banks [a/]	Δ in reserve money [b/]
Size of the crises		0.627 *	0.439 *
Nominal devaluation [c/]	0.816 *	0.535 *	0.408 *
Δ in international reserves [d/]	0.567 *	- 0.587 *	- 0.480*

*/ Coefficients are statistically significant at the 5 percent level.
a/ Measured by the ratio of the average change in central bank claims to financial institutions during the first year of the crisis relative to the previous 12 months.
b/ Measured by the ratio of the average change in base money during the first year of the crisis relative to the previous 12 months.
c/ Largest percentage depreciation of the domestic currency accumulated over a 3-month period during the crisis.
d/ Largest percentage fall in international reserves accumulated over a 3-month period during the crisis.

Additional conclusions are obtained when these correlations are broken down by crises events. We check first the relationship between the size of the crises and the increase in central bank assistance to impaired banks—although we should not lose sight that many systemic crises started as idiosyncratic episodes, which however grew over time into a systemic crisis. Making this link is relevant to test the hypothesis that the larger a crisis, the higher are the chances of having central bank money involved—by supplying the resources needed to withstand deposit withdrawals or bank restructuring. Figure 8 confirms the positive correlation between those two events. The chart also shows that there are large crises like those in Peru, Colombia, and Paraguay (1997), where the central bank did not inject large amounts of money. In turn, Argentina (2002) and Ecuador (1996) are outliers. The former because the "corralito" greatly restricted deposit withdrawals, and hence, stifled the need of perpetuating central bank assistance, whereas the latter seemingly made a large "monetization" but this reflects primarily a statistical effect as it is compared with a very small base.

Plotting—on a crisis basis—the relationship between the use of central bank money in banking crises and currencies' depreciation, and with respect to the loss of international reserves, give some additional insights about the dynamics of the crises. Figure 9 shows that the larger was the involvement of central bank money in handling banking crises the higher were the chances of having a currency depreciation. Specifically, as the value of central bank claims on the financial system multiplied by a factor of 2 or more, local currencies depreciated more than 30 percent in most cases thereby triggering a currency crash (Dominican Republic, Ecuador 1996 and 1999, Mexico, Uruguay, Venezuela, and in particular Argentina 2002, where the peso depreciation was almost 140 percent in a three-month period as the currency board collapsed).[37] As to small "monetization" episodes, they

[37] A nominal depreciation entails an increase in the ratio of peso per dollars.

were generally sterilized, thereby avoiding pressures against the domestic currency. As exceptional events, it is worth stressing that the large depreciation of the currency in the 2002 banking crisis in Paraguay took place in the wake of the Argentinean and Uruguayan crises, which had already featured a rapid shift from pesos to dollars.[38]

Figure 8. Banking Crises and Central Bank Money

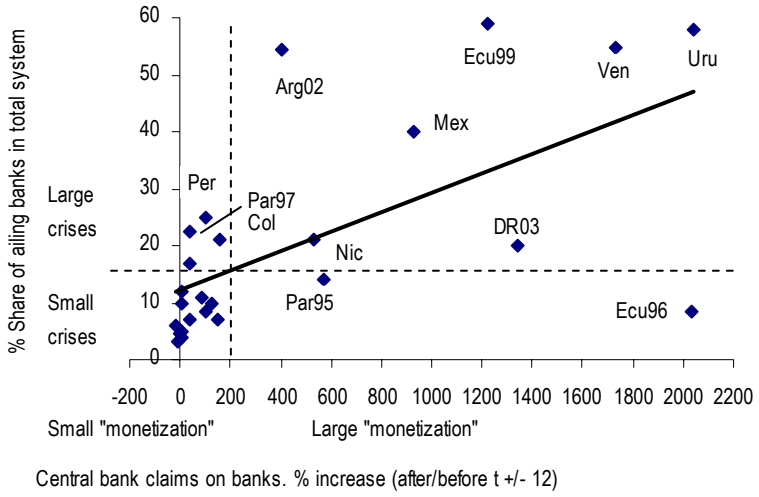
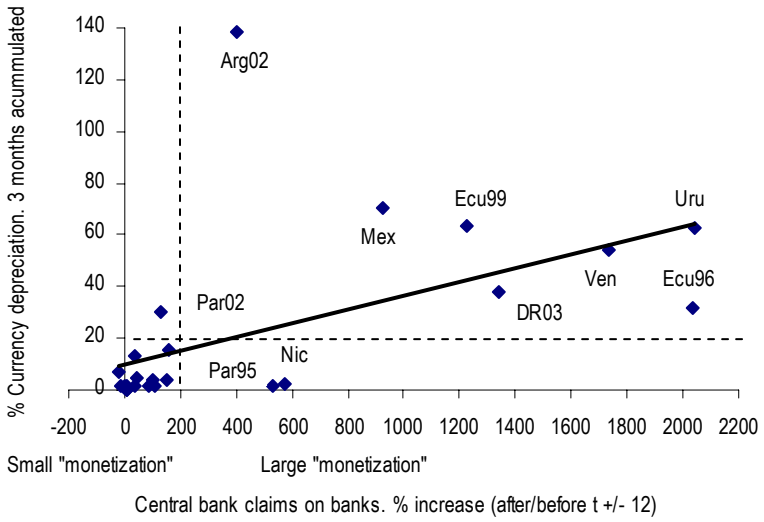


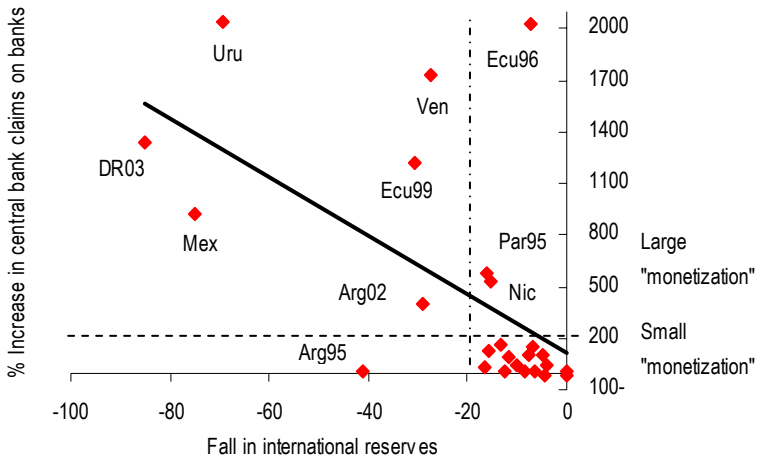
Figure 9. Injection of Central Bank Money and Currency Depreciation



[38] Moreover, Banco Aleman in Paraguay—the failing bank—was owned by the main shareholder of Banco Montevideo in Uruguay, which had been suffering a major run of deposits and was later closed.

The relationship between the use of central bank money in banking crises and changes in international reserves mirrors the former relationship. An increase in central bank claims on banks spurred the demand for foreign currency, which was satisfied by selling dollars from central bank international reserves. Specifically, increasing central bank claims on banks by a factor of 2 or more induced inevitably a drain in international reserves of 15 percent or more, and in excess of 50 percent in Dominican Republic (2003), Mexico, and Uruguay (Figure 10). In the 1995 Argentinean crisis international reserves dropped sharply as the central bank defended the existing currency board.

Figure 10. Injection of Central Bank Money and Fall in International Reserves */



*/ Largest percentage fall in international reserves accumulated in a three month period.

The large use of central bank money in handling banking crises also boosted inflation. In small and open economies like those in Latin America, the transmission mechanism from money to prices is generally the exchange rate. Therefore, when exchange rates depreciated rapidly an increase in prices followed. In particular, in those crises where central bank claims on financial institutions increased by a factor of 2 or more, inflation generally accelerated by more than 5 percentage points in a one year period—and in systemic events inflation soared. As expected, there is no country in the sample where a limited involvement of central bank money fueled inflation (see Table 5).

In addition, involving central bank money in managing banking crises adversely hit economic growth in a large number of countries, including some where central bank money was injected in small amounts (Table 5). There are at least two channels through which injecting central bank money could have affected growth in the short-run, namely an exchange rate depreciation and an increase in interest rates. The exchange rate channel is particularly relevant in countries featuring financial dollarization given that exchange rate devaluations/depreciations hit immediately unhedged bank borrowers and they suffered a sudden and sharp decrease in net wealth. In turn, the increase in interest rates reflects stress

in the money market and an associated credit crunch, as banks accumulate extraordinary liquidity to avoid a possible contagion effect. In the specific case of Argentina (1995), the impact on growth was the result of the sizable increase in interest rates that took place as market participants ran into dollars in the midst of the banking crisis fearing a traumatic exit from the currency board.

Table 5. Monetization of Banking Crises, Inflation, and Economic Growth

	Small use of central bank money*/	Large use of central bank money
Moderate surge in inflation	Argentina (1995), Bolivia (1994, 1999), Colombia, Costa Rica, Ecuador (1994) Dominican Rep. (1996), El Salvador, Guatemala (2001, 2006), Honduras (1999, 2001, 2002), Paraguay (1997, 2002), Peru.	Ecuador (1996), Nicaragua, Paraguay (1995).
Significant increase in inflation **/		Argentina (2002), Dominican Rep. (2003), Ecuador (1999), Mexico, Uruguay, Venezuela.
Moderate or no impact on growth	Bolivia (1994), Dominican Rep. (1996), Ecuador (1994), El Salvador, Guatemala (2001, 2006), Honduras (2002), Peru.	Ecuador (1996), Nicaragua.
Major impact on growth ***/	Argentina (1995), Bolivia (1999), Colombia, Costa Rica, Honduras (1999, 2001), Paraguay (1997, 2002).	Argentina (2002), Dominican Rep. (2003), Ecuador (1999), Mexico, Paraguay (1995), Uruguay, Venezuela.
*/ Central bank claims on financial institutions increased by less than 200 percent. **/ Inflation accelerated more than 5 percentage points in t +12. ***/ Economic growth declined 3 percent or more during the first or second year of the crisis.		

Summarizing, a large injection of central bank money during banking crises encouraged market participants to demand foreign currency rather than local currency to protect their savings from an imminent acceleration in inflation. This became, however, a self fulfilling expectation because the market's behavior put pressure on the domestic currency and central bank international reserves, which induced a rapid currency depreciation and, in some countries, forced an exit of the peg. Eventually, inflation increased and economic growth decelerated and even collapsed.

V. LESSONS AND CONCLUDING REMARKS

The environment in which central banks operate in Latin America has changed. The economies of the region are now more incorporated to the rest of the world and, thus, financial institutions are increasingly integrated to global financial markets, in particular in emerging markets. However, this integration makes these economies vulnerable to external shocks and, hence, prone to recurrent events of financial distress and crises. In this environment, it is relevant to ask what should be the role of central banks in financial stability and, in particular, what should be their degree of involvement in coping with financial disruptions and handling banking crises.

This paper reviewed 26 episodes of financial turmoil and banking crises from 1990 onward with the aim of distilling lessons that may be applicable to the design of central banks' response to future episodes of financial distress and crises. The analysis provides factual information about central bank involvement in banking crises in Latin America.

The main lesson extracted is that, when central banks injected significant money in managing banking crises—beyond their role as LLR—it exacerbated macro-financial instability, triggering in some cases a simultaneous currency crash. On the contrary, when central bank assistance was limited, it played a positive role in helping to contain and prevent systemic crises, provided governments implemented appropriate bank resolution measures on a timely basis. In other words, the Latin American experience suggests that confronting banking crises using exclusively monetary policy was not effective to avert a major financial disruption. Rather, a comprehensive action was required, with central banks playing an ancillary role in a comprehensive strategy of bank restructuring and resolution.

The excessive use of central bank money was, to a great extent, associated with inappropriate institutional arrangements to cope with banking crises. A review of our sample of crises reveals that many Latin American countries lacked legal provisions to effectively adopt early corrective actions, deposit insurance mechanisms were inexistent or poorly funded in most countries, and the possibility of implementing bank restructuring measures had no legal support, with very few exceptions. Against this background, most countries ended up injecting central bank money in an effort to contain financial instability, which eventually served primarily to finance capital outflows and foster currency depreciations.

Looking forward, financial distress and banking crises should be tackled at an early stage—involving limited central bank money. Imposing corrective actions before liquidity and capital shortages become chronic and implementing bank resolution measures before the crises unfold should be the roadmap for governments and central banks facing financial distress. On the contrary, postponing the official response, in particular, the implementation of cost-effective resolution measures generally exacerbates macroeconomic instability, elevates the cost of the crises, and may risk a systemic impact. The resulting macroeconomic effects may include a simultaneous currency crisis and even a sovereign debt crisis—in countries where high dollarization also involves government debt. From a microeconomic perspective, the lack of an early response and a disorderly unraveling of the crisis, may be

conducive to the adoption of actions that entail breaching of contracts—like freezing deposits, reprogramming their maturities, imposing capital controls, and granting blanket guarantees—that undermine confidence in the financial system and weaken market discipline for years to come. Nonetheless, if crises inevitably materialize, governments and not central banks should assume directly the costs. And when central banks do initially bear the costs of the crises, they should be compensated by governments in order to restore their financial strength, thereby preserving central bank operational autonomy to exercise future monetary policy and credibly commit to monetary policy goals.

In addition, Latin America should make additional strides to strengthen financial regulation and supervision keeping the pace of the permanent innovation of financial instruments. While emerging markets in the region have made significant progress more efforts are needed, especially in light of the recent events of financial instability in mature markets. Progress has taken place through the introduction of risk monitoring techniques, the development of derivative markets to hedge risks, and the approval of legislation to apply prompt corrective actions and bank resolution measures. However, regulations and surveillance should monitor more closely the likely multiplication of structured financial instruments, which tend to be recorded as off-balance sheet transactions—in the same country or in cross border jurisdictions.

Finally, improved financial regulation and supervision should be supported by strong macroeconomic underpinnings. This is probably even more important for emerging markets because they are more closely integrated to global financial markets, which makes them more vulnerable to the effects of sudden changes in capital flows associated with the vagaries of international financial markets and episodes of financial distress worldwide. Thus, in order to prevent the deleterious effects of external financial shocks, emerging countries need to build more resilient economies, in particular, maintaining flexible exchange rates and strong public finances, consolidating the development of money and capital markets, and, if necessary, reducing financial dollarization.

Appendix I. Sample of Episodes of Banking Crises in Latin America from 1990 to 2006—Stylized Facts and Policy Response

	Stylized facts	Policy response
Minor and moderate crises		
Argentina (1995)	The end-1994 Mexican devaluation triggered a wave of uncertainty as to the sustainability of the currency board, leading to widespread deposit runs and large capital outflows. As a result, from end-December to January 1995, peso deposits fell more than 15%. From December 1994 to late 1996, about 40 small and medium size banks failed or were acquired or merged (almost one third of total banks) representing about 12% of the system.	The Argentine government passed a law in May 1995 that empowered the central bank to get involved in the resolution of distressed banks. The new legislation created the basis for conducting bank mergers, acquisitions, P&A operations, as well as other resolution procedures to replace the straight liquidation of an impaired bank. To favor the viability of the new operations, a temporary Capitalization Trust Fund—funded by international and government resources—was created to inject capital into impaired institutions via subordinated loans or to buy non-liquid assets. A third reform was the creation of a deposit insurance system in April 1995 to be fully funded from the private sector. The central bank did not provide monetary assistance except in the limited amounts allowed by the currency board.
Bolivia (1994)	In the wake of the international financial turbulence triggered by the Mexican crisis, two banks (with a market share of 11% of assets) were closed in late-1994.	Initially Central Bank of Bolivia (CBB) provided LLR support but later it ceased committing to fully guarantee deposits. The CBB paid cash to small depositors and compensated partially large depositors by giving them non-interest bearing certificates with maturities ranging from 3 to 18 months.
Bolivia (1999)	Banco Boliviano Americano, BBA (with a market share of 4.5% of deposits) was intervened and resolved in May 1999.	BBA had been receiving support through FONDESIF funds—a rescue-fund created to increase capital in weak banks—since 1995. It was finally intervened as a result of liquidity and solvency problems. The bank was immediately sold to Banco de Crédito, including a provision to swap any undesired assets with CBB medium term bonds paying slightly below market interest rates.
Ecuador (1994)	A medium size bank, Banco de los Andes (with a market share of 6% of deposits), was intervened.	The bank was intervened because of money laundering charges. The bank administration was removed and the bank purchased by another private bank.
Ecuador (1996)	A large bank, Banco Continental (with a market share of 8.5% of deposits), was intervened and taken-over by the central bank. A number of financial companies were also intervened.	Following a period of capital inflows and credit boom, an exogenous shock triggered capital outflows. As the Central Bank of Ecuador (BCE) defended the exchange rate band raising interest rates a number of institutions were hit because of maturity mismatches. Banco Continental received liquidity assistance from the BCE up to the point in which insolvency was detected after consolidating off-

	Stylized facts	Policy response
		balance sheet transactions. In absence of bank resolution instruments, the BCE provided a subordinated loan and acquired the failing bank to avoid a traumatic closure of the bank. From then on, the BCE provided open-bank assistance until deposits stabilized.
Dominican Republic (1996)	The third largest commercial bank, Banco del Comercio (with a market share of 7% of assets), was intervened.	The central bank provided a sizable amount of financial support, before and after the intervention of the bank. As a result, central bank claims on the financial system increased by about 52% in a period of six months.
El Salvador (1998)	After a sharp stop in economic growth in 1996 associated with a terms of trade deterioration (decline in coffee prices), the financial system got into stress from 1997 onwards. A small to medium size institution (Banco Credisa), with a 5% market share was closed.	The government had no major participation in the solution of Credisa crisis, but a comprehensive reform of the financial system law was sent to Congress and approved, including the creation of a limited deposit insurance system, the IGD, with coverage of US$6,250. The IGD was originally funded by the BCR and then started to be fully financed by the commercial banks It was also entitled to conduct banking resolution activities, mainly to recapitalize and restructure insolvent banks—in the event that this solution is less costly than liquidating the bank, or should its liquidation pose a systemic risk—after writing-down shareholders capital.
Guatemala (2001)	Three small banks (Banks Empresarial, Promotor, and Metropolitano), with a market share of 7% of deposits were intervened and later closed for not observing solvency requirements.	While the banking crisis was small, the Bank of Guatemala (Banguat) ended up monetizing the crisis amid fears of contagion to other institutions. Banguat had provided ample emergency assistance to these banks to cope with liquidity and solvency problems since 1998. LLR provisions in the Law of the Bank of Guatemala, encompassed various mechanisms including: (i) liquidity loans (for idiosyncratic events); (ii) emergency loans (for systemic liquidity shortages); and (iii) loans to facilitate bank restructuring. When failing banks were intervened, Banguat also provided contingency loans to withstand deposit outflows. The recently created Savings Protection Fund (FOPA) was to cover the first US$2,500 of saving deposits exclusively, but was not operational due to a lack of funding. In addition, the FOPA Law incorporated some instruments of bank resolution, including the removal of administrators and write-off of shareholders' equity, and the application of restructuring programs, but P&A operations were not envisaged. The law also authorized Banguat to inject capital or to buy assets to impaired institutions.

	Stylized facts	Policy response
Guatemala (2006)	The third largest bank, Bancafe (9% of deposits), was closed followed by another small bank, Banco del Comercio (1% of deposits), a few months later.	As opposed to the full monetization of the small banking crisis in 2001, Guatemala successfully managed the 2006 crisis of Bancafe and the subsequent closure of Banco del Comercio. Under the provisions of a new legislation approved in 2002, P&A operations were executed without central bank injection of money, and rather with a contribution from the deposit insurance fund and a trust created to finance bank resolution.
Honduras (1999)	A small bank, Bancorp (3% of deposits), was closed in September 1999.	The Bancorp crisis required the Central Bank of Honduras (BCH) to inject liquidity to cope with deposit withdrawals, until the bank was closed. In the wake of this crisis, the demand for foreign exchange increased in the BCH auctions from a daily average of US$6.5 million in July to US$8.3 million in September. At the same time, interest rates increased in the interbank market since early September from 13 percent to 17 percent. The initial fiscal cost was estimated at about 0.8% of GDP. The National Commission of Banking and Insurances (CNBS) and the BCH issued an emergency financial law, the "Ley Temporal de Estabilización Financiera," which included a blanket guarantee for a period of three years and, for "only this occasion," a partial guarantee for the liabilities of Bancorp trust funds. In addition, the law established the benchmark for a forced liquidation of banks in terms of its level of capital adequacy. The BCH was empowered to deliver guarantee of deposits.
Honduras (2001)	A small bank, Banhcreser (with a 3% market share) was closed.	While a major crisis was averted, the bad quality of Banhcreser's assets and the lack of expertise of the CNBS in conducting P&A operations entailed fiscal costs, as a very limited amount of assets were purchased whereas deposits were fully transferred to other banks.
Honduras (2002)	Two small banks, Banco Sogerin and Banco Capital (accounting together to a 5% market share) were intervened and taken-over by the deposit insurance institution.	The two banks were taken-over by the deposit insurance institution (FOSEDE) under the "extraordinary mechanism" rather than implementing P&A operations. After writing-off shareholders equity and restoring capital, FOSEDE appointed new administrators in each bank with the mandate of preparing both institutions for their future re-privatization. Since FOSEDE lacked own resources at that moment, the two banks were capitalized with government bonds, which then were discounted at the BCH. FOSEDE paid back the BCH over time with the proceeds of the privatization of the two banks and with insurance premiums paid by the member institutions of the deposit insurance system in later years.

	Stylized facts	Policy response
Paraguay (1995)	Four banks, Bancopar, Banco General, Bancosur, and Banco Mercantil, with a market share of about 14% of total assets were intervened and closed.	In absence of bank resolution instruments the Paraguayan government decided to intervene initially two banks, which had received central bank financial assistance but had failed to restore its financial strength. Later, other two banks—as well as a number of finance companies—were intervened. During the intervention period, the four banks continued operating with financial support from the Central Bank of Paraguay (BCP), which provided financial assistance for more than 4% of GDP in 1995. When the banks were closed on December 1995, the government recognized payments to depositors up to US$21,500. The Congress expanded the coverage of this guarantee to benefit off-balance sheet deposits up to US$15,000 in the closed institutions. The deposit guarantee was delivered with BCP money.
Paraguay (2002)	The third largest bank, Banco Aleman, with almost 10% market share, was intervened and closed.	The fall of Banco Alemán was triggered by the intervention of Banco Montevideo in Uruguay, as they were part of the same financial group. This crisis was solved with little money from the BCP. The system's base of deposits stabilized shortly after the closure of Banco Alemán.
Ex-ante large and systemic crises		
Argentina (2002)	12 private and public banks (40% of deposits) received liquidity assistance, and bank resolution was applied to three foreign banks that exited the market.	As a result of falling economic growth, rising interest rates, fiscal crisis, and uncertainty about the stability of the currency board, all public and domestic foreign and private banks alike suffered deposit runs. In addition, banks were hit by the asymmetric *pesoization* that converted foreign currency loans to the private sector at a one to one exchange rate and loans to the public sector and bank liabilities at a rate of 1.4 pesos per US dollar. To contain deposit withdrawals, the government established the so-called "corralito" and "corralón" to limit the flow of deposits out of the banking system and limiting payments within the banking system. In addition, time deposits in the banking system were reprogrammed. The banking crisis took a high toll on the Argentinean economy as economic activity tanked more than 10% and inflation surged to more than 25% year-on-year in 2002.
Brazil (1994-95)	As hyperinflation came to and end in 1994, banks lost significant inflationary revenue—associated with inflation-protected government securities—which in 1993 had exceeded 4 percent of GDP.	To cope with financial distress, the Central Bank of Brazil (CBB) provided extensive financial assistance. To provide a more lasting solution, a vast program of bank resolution and restructuring was designed and implemented. This included: (i) The Program of Incentives for Restructuring and Strengthening of

	Stylized facts	Policy response
	As a result of the "remonetization" of the economy, bank credit boomed until the economy in a slowdown phase due to the effects of the Mexican crisis. During 1994 and 1995, 18 financial institutions with a market share of about 35% were intervened, liquidated, or place under the Regime of Special Temporary Administration. A comprehensive program of bank restructuring was adopted mainly until 1997.	the National Financial System (PROER), instituted in 1995 with the aim of protecting depositors and restructuring the banking system. The PROER created a deposit insurance agency and established a differentiated treatment for large banks (using a "good bank/bad bank" approach) and small and medium banks would be acquired by another sound bank. PROER benefited from Government and BCB resources to support bank restructuring transactions; (ii) The Program of Incentives for Restructuring and Strengthening of the State Public Financial System (PROES), which was aimed at reducing the State participation in the financial system and also served as an instrument of fiscal restructuring at the state level. As a result of PROES implementation, the number of banks owned by the states declined from 35 in 1996 to 12 in 2002; and (iii) The Program for Strengthening the Federal Financial Institutions (PROEF), which aimed at strengthening the capital position of four public banks. Today, these institutions face stricter capital requirements than Basel standards.
Colombia (1999)	In the midst of an adverse international financial environment in 1999, the government intervened, closed, or took-over a number of financial institutions, while others were receiving liquidity support. Eventually, 2 small financial institutions were closed and 7 medium institutions were put under FOGAFIN control. Mortgage banks were the most badly affected.	As a first line of defense, the Bank of the Republic (BoR) provided limited financial assistance by facilitating access to rediscount facilities, up scaling repo transactions, and easing access to longer-term liquidity support. The bulk of the official support was, however, provided by the Government. It approved debt relief programs using government resources and, based on the institutional strength of the deposit insurance institution (FOGAFIN), it provided additional liquidity support, took over large private banks, conducted P&A operations, and introduced a recapitalization plan based on credit lines to shareholders of the impaired institutions. In addition, the banking authority authorized temporary regulatory forbearance to encourage debt restructures with financial institutions, while Congress passed a law suspending traditional bankruptcy procedures for five years to promote agreements between creditors and debtors.
Costa Rica (1994)	Banco Anglo Costarricense (BAC), a state-owned institution with a 17% market share was intervened and closed.	The banking authority intervened BAC in June 1994 after detecting abnormal transactions and without having experienced liquidity problems. Given the condition of state-owned institution, the government announced a full coverage of deposits. Notwithstanding, total deposits shrunk one third during the first three months of the intervention, which were paid with money from the Central Bank of Costa Rica (BCCR). In September, the government announced the liquidation of BAC but all remaining deposits were transferred to the other pubic sector banks. The BCCR continued supporting deposit withdrawals in the recipient

	Stylized facts	Policy response
		banks and, hence, by end-1994, it had extended financial assistance equivalent to 3.5% of GDP, which was partially compensated (nearly 50%) by the government with long-term securities (TUDES) paying below market interest rates. The BCCR was able to mop up liquidity only partially by increasing reserve requirements and scaling up open market operations. The crisis of BAC may have fueled a significant increase in inflation (from 13.5% to 23% between 1994 and 1995).
Dominican Republic (2003)	The banking crisis started with the intervention of the third largest bank (10% market share). Deposit withdrawals had already started by mid-2002 following allegations of fraud from the discovery of hidden liabilities recorded in a "parallel bank." Immediately after, the crisis extended to two other institutions—with an additional 10% market share—featuring similar inappropriate accounting practices.	The crisis of these three banks was managed using exclusively resources from the Central Bank of the Dominican Republic (BCRD), in particular, using cash at the early stages of the crisis and later utilizing central bank certificates to pay depositors. While the Law of the BCRD established a limit to the provision of emergency loans of 1.5 times the capital of the impaired bank, the largest bank received more than 10 times its capital in financial assistance from the BCRD and the other two banks received 8 and 6 times their capital. The three banks were intervened and closed or sold, after the central bank granted to them abundant liquidity assistance.
Ecuador (1998-1999)	A lax banking supervision that allowed bad banking practices in an environment of financial liberalization, were the underlying reasons behind the banking crisis in Ecuador. 60% of the banking system was intervened, taken-over, or closed.	It basically comprised two corner solutions; either to provide extensively financial assistance through the Central Bank of Ecuador (BCE) or to close banks without paying depositors, except to small depositors under a protracted procedure, with BCE money. The legal provisions supporting BCE's role as LLR allowed it to grant large amounts of money. In addition, a deposit guarantee was in place to protect small depositors, which also relied on BCE resources to be effective. As the crisis unfolded, the government offered a blanket guarantee, which initially was delivered using BCE money. The excessive reliance of financial safety nets on BCE's resources made the way for a large "monetization" of the banking crisis, which reached 12% of GDP by September 1999. As the crisis escalated the government reprogrammed deposits to avoid a meltdown. However, the government eased controls the crisis regained momentum. Eventually, the government adopted the dollar as the country's legal tender.
Mexico (1995)	12 small and medium size banks were intervened during 1995-1997 and a group of banks hovering 80% of the system received government support.	In addition to existing bank support mechanisms (FOBAPROA) and CNBV intervention, the government established a temporary recapitalization program (PROCAPTE), by which FOBAPROA bought subordinated debt issued by undercapitalized banks. The government also created a program to recapitalize

	Stylized facts	Policy response
		banks through the purchase of nonperforming loans, where by the government bought 2 pesos worth of non-performing loans for every 1 peso of new capital. To facilitate capitalization, the authorities liberalized the rules of foreign ownership of banks. To contain the evolution of NPLs, the government facilitated the restructuring of loans into real units (UDIs), taking on the interest rate risk, and initiated a debtor-support program (ADE).
Nicaragua (2000-2001)	4 out 11 banks (representing about 21% market share by end-1999), Interbank and Bancafe in 2000 and Bamer and Bainc in 2001, were intervened and sold to other financial institutions.	In 2000 there was no deposit insurance, and hence, the government announced that it would guarantee bank deposits to be paid with central bank money. Applying P&A, both banks were purchased by other institutions. To secure the success of these transactions, the Central Bank of Nicaragua (BCN) issued own securities (CENI) to match the value of the assets acquired by the purchasing banks. Although a deposit insurance institution was created (FOGADE), previous financial instability undermined confidence in banks, and hence, deposit withdrawals hit another two institutions in 2001. These two banks were intervened and immediately purchased using similar P&A procedures as before.
Paraguay (1997-1998)	In 1997, the banking crisis reignited. Six banks (Desarrollo, Corfan, Busaif, Bipsa, Union, Trabajadores) with a market share of about 22% market share were intervened and closed between this and the following year.	The banking system had remained fragile following the 1995 crisis. As weak banks started to suffer problems, the government took the decision of tackling financial distress by submitting problem banks to rehabilitation programs with financial support from the Central Bank of Paraguay (BCP). The Government also required the social security institution (IPS) to deposit money in these banks. Rehabilitation programs eventually failed and all six banks were closed between 1997 and 1998. The IPS lost about 3% of GDP in deposits at the closed banks, which were partially made up with a long-term government bond yielding 1% interest rate. Congress passed a law that increased the deposit guarantee from 10 to 100 minimum wages. Deposits were covered with BCP money spaced over time to minimize the impact on monetary policy. As opposed to the 1995 crisis, there was significant "flight to quality," which benefited primarily foreign banks.
Peru (1999)	Capital outflows triggered a domestic credit crunch, which unveiled solvency problems in a number of banks, including Banco Wiese, Banco Latino (15.1% and 3.2% market share, respectively), and other smaller financial institutions. .Bank resolution was applied these	The official response was tailored before the crisis turned into a systemic problem. It was conducted by the government with minimum central bank involvement and aimed at restructuring failing banks and consolidating the financial system. The key element of the government response was the approval by Congress—in a fast track—of a reform to allow the supervisory authority to execute P&A, and the Deposit Insurance Fund (FSD) to capitalize and take-over

	Stylized facts	Policy response
	two banks. Instability also affected another 6 small banks (6.5% of deposits).	impaired banks to prepare them for future privatization. In practice, the government provided support through: (i) capitalization of banks to favor bank mergers; (ii) issuance of bonds to facilitate P&A; (iii) swaps to restructure assets, issuing non-interest bearing treasury bonds in exchange for troubled loans to be repurchased over a four-year period, and issuing negotiable US dollar bonds in exchange for performing loans, with a repurchase commitment over a five-year period for liquidity purposes; and (iv) debt rescheduling programs to the private sector. Public sector financial institutions (COFIDE and Banco Nación) also participated in: (i) taking-over impaired banks through capital injections and the assumption of liabilities; (ii) restructuring debt and converting foreign currency debt into domestic currency debt; and (iii) providing liquidity to troubled banks. The FSD also increased the coverage per depositor to US$18,500 and indexed it to the wholesale price index with the financial support of a government contingency line of credit of up to US$200 million.
Uruguay (2002)	Due to the collapse of the Argentinean banking system and the enforcement of the so-called "corralito financiero," Uruguay suffered deposit runs in 2002. The crisis involved all banks, domestic and foreign alike. Four private banks were temporarily intervened, closed, and merged in a single bank, two large public banks received financial assistance from the central bank, and one large foreign branch was closed, all of which accounted for about 60% market share.	Although banks initially withstood deposit withdrawals with their own resources, domestic banks resorted eventually to central bank money. Legislation did not envisaged bank restructuring provisions and rather allowed the Central Bank of Uruguay (BCU) to provide financial assistance with the following characteristics: (i) discount excess securities issued by the BCU to constitute reserve requirements; (ii) Solvent banks had access to advances from BCU in pesos for up to 90 days on the basis of adequate collateral and not exceeding in total the equity of the bank; (iii) banks which are solvent may sell to or rediscount at BCU in pesos. BCU may also purchase or rediscount high quality (i.e. Category one) commercial paper and securities up to a total of the bank's capital.
Venezuela (1994-1995)	The second largest bank (Banco Latino) collapsed in early 1994. 12 banks were closed or taken over by the State in 1994 and another 4 in 1995, totaling 56% market share (measured by deposits).	Direct disbursements for financial crises were approximately 17% of GDP during 1994-95. After two months of the Latino crisis, FOGADE quadrupled the coverage of the deposits insured. It also offered substantial financial assistance to troubled institutions. The government nationalized several banks and issued bonds to pay deposits transferred to nationalized banks. The new banking legislation upgraded procedures for handling bank problems, but it was approved when the crises had already gained momentum.

Source: Various IMF Staff Reports.

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