

## Transition to a Functional Financial Safety Net in Latin America

by

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September 16, 1996

Paper prepared for the Inter-American Development Bank  
Conference on "Safe and Sound Financial Systems: What Works  
for Latin America?", Washington, DC, September 27-28, 1996.

**Summary**

The basic architecture worldwide of financial safety nets provides for a system of similar institutions: a lender of last resort, deposit insurance, and prudential regulation. The nature of the banking systems, resolution methods, and prudential regulation that the safety nets backstop does differ across important banking markets, but prudential regulation is converging as a result of the crises of the 1980s and 1990s to the model of consolidated regulation, strict capital requirements, and similar accounting principles. The safety nets and the detailed mechanisms of their operation can be functional in those banking systems whose banks have value in that they enhance existing incentives to reduce excessive risk-taking resulting from moral hazard. In countries whose banking systems suffer seriously from negative capital positions and overbanking such as in some Latin American markets, these formalisms of the safety net may not be functional in reducing excessive risk taking because of the strong incentive to banks to double their bets for survival. Thus, the first order of business has been to eliminate the negative capital positions of the banks through capital injection, liquidation, and merger. The hole has been filled for now with the injection of government paper, part of which is expected to be financed through the rising revenues of anticipated economic recovery. A recovery would also restore some value to non-performing assets and thereby reduce the problem.

Pending a recovery, the role of the safety net has been to restrict growth in the troubled banks to prevent an echo of the crisis in the next few years until the public finances and the courts can eliminate the problem. In the meantime, some financial safety nets and banking industrial organizations have been adjusted to account for the lessons of the recent crises. These changes are two-edged swords.

In many markets, restrictions have been removed on the entry of foreign banks to bring more capital and liquidity into the system and to improve risk control methods. The downside may be to force domestic banks to take riskier positions to maintain market share. In one country, a private deposit insurance scheme has been implemented to calm small depositors; the downside may be to create more moral hazard and increase the likelihood that small depositors will test their banks. Finally, efforts are underway to make interbank markets more liquid, thereby making it easier to operate the lender of last resort service; as a negative effect this may allow banks to mobilize newly liquid securities as collateral in the construction of risky leveraged positions. **I. Goals of a Financial Safety Net and Basic Safety Net Architecture**

A financial safety net is a government orchestrated set of principles and operating policies aimed at preventing large disturbances from propagating through the system of financial intermediation between savers and investors. Such disturbances can arise because many claimants on the financial system lack information about the quality of investments backing their claims and hold claims in a highly liquid form relative to assets.

The nature of the financial system can, in extraordinary circumstances, lead to runs on troubled institutions, contagion effects on other institutions, problems in making payments, losses to third parties, and other externalities that can be prevented, in theory, at relatively low cost. Disturbances external to the financial system can also be magnified if they adversely affect the solvency of the system. Thus, over the course of time, institutions of a financial safety net--lenders of last resort, prudential regulation, deposit insurance, and resolution schemes--have emerged to protect the capital of financial institutions and to avoid sudden disintermediation.

The financial system is in the business of efficiently allocating the savings of a society to profitable investment whose payoffs are sufficient to back the promises of the financial institutions in most economic outcomes. To assure the proper allocation of investment over the course of time, institutions that fail to invest well enough to service their liabilities while generating adequate returns to shareholders should be removed from the financial industry through failure or liquidation, leaving the liability holders to bear the consequences as in any other industry. In this way, owners and management will most likely make proper investment decisions.

Of its nature, a financial safety net tends to undermine the accountability of the owners, managers, and other claimants on a financial institution by generating moral hazard: owners, managers, depositors, and borrowers from financial institutions can gain from taking riskier positions than they would otherwise, unless the safety net is cleverly constructed. The financial system can then become more prone to crisis than in the absence of a safety net, requiring frequent costly interventions.

To accommodate this tension between moral hazard and avoidable externalities, financial safety nets are carefully crafted mosaics whose pieces, in the best of worlds, should subtly fit together to push banks to behave ideally as if there were no safety net while still eliminating the externalities from the financial system.

Thus, we see very detailed prudential regulations that accompany lender of last resort facilities and deposit insurance and that are designed to constrain the outcome of portfolio decisions of financial institutions to what they would choose without subsidized liquidity support or deposit insurance. No system, however, is perfect; and the system that emerges in a particular country can be interpreted as a reflection of an assessment of and balancing between the likely costs from the negative externalities of a collapsed system and the long term mis-allocation of capital in an overly protected system. The consensus view on which type of loss is worse tends to depend on the outcome of the most recent crisis.<sup>1</sup>

In practice, in a broad spectrum of countries, we can observe that prudential regulations have either been weak on paper or poorly enforced, most often because of the political power of the parties associated with the financial system. Troubled institutions have often been bailed out or resolved without visiting the costs as promised on the principal decision-makers and claimants on the institutions. Thus, political infeasibility makes the carefully structured mosaic of regulation and resolution more of a fiction than a reality as a means of establishing proper incentives.

However damaging they may be, incomplete or weakly enforced regulations are not sufficient to lead to systemic financial problems. Problems occur when management of financial institutions generally has a strong incentive to take unusual risk. Such incentives exist when there is little actual capital or little franchise value in an institution. Especially in eras of liberalization and financial innovation, financial institutions tend to lose value because of increased competition, and there is a need to rationalize the system through closures or mergers. If these changes cannot be arranged, aggressive institutions will expand in contests for market share. It is no coincidence that difficulties in establishing effective financial safety nets have been so widespread--the need to rationalize the financial system of each country is a natural outcome of the globalization of markets. Given the incentive, financial institutions readily have found ways to circumvent the spirit of prudential regulations, leading to the sequence of banking failures observed across numerous economies in the 1980s and 1990s, regardless of the level of economic development. Banks without value are a locus of expansion and collapse.

## **II Restructuring the Safety Nets in Latin American**

The catastrophic Latin American exchange market and financial crises of the 1980s, which resulted in underinvestment and slow or negative growth for most of the decade, brought to the forefront of economic policy-making a much more conservative, technically oriented leadership by the early 1990's. These were committed to several basic principles: that the inflationary finance that had been utilized was in itself a devastating problem rather than a useful expedient and to be avoided even at large cost and that the

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<sup>1</sup>For example, Calomiris (1996) argues that losses from bailouts are very large: the cost of the U.S. S&L bailout exceeded in real terms the direct costs of bank failures during the Great Depression, the Venezuelan bailout cost 16 percent of GDP in 1994, the Hungarian banking bailout cost 10 percent of GDP, and in Finland and Norway the bailouts cost 8 percent of GDP. He takes the position that the costs of a financial safety net generally exceed the gains from having it. However, it is usually the fear of the potential for a big depression that provides the ultimate economic rationale for an extensive safety net rather than the calculus of the direct losses in the banking systems.

institutional structure of private and fiscal finance had to be radically changed. Furthermore, the ongoing government deficits, to the extent that they were not funding clearly profitable infrastructural investment were to be eliminated. This view led to the market liberalization and privatization that was the remarkable feature of many LA economies in the first half of the 1990s.

In concrete implementation, these principles were not prominent in the 1980s in most developing and industrial countries and still are not used in many important financial centers. The Latin American experience, however, indicated that the cost of not adhering to these principles, at least in the context of the 1980s, was immense. Thus, we have seen some implementation of them in the crises of 1994 and 1995.

The ultimate goals for a safety net are not controversial, and the methods of operating a financial safety net are generally understood. Most countries are converging to formally similar systems of deposit insurance and prudential regulation. However, in the Latin American context-- Argentina, Brazil, Mexico, and Venezuela in particular-- the effectiveness of a movements toward internationally standard systems is problematic because of the difficulty in filling the negative capital positions in the financial institutions.<sup>2</sup>

This paper will examine several aspects of this convergence. To establish a baseline, the paper will review the current status and transitional plans of financial safety nets in countries that have recently experienced financial crises--Mexico, Argentina, and Brazil--but it will concentrate on analyzing some effects of various efforts to establish soundly financed safety nets and soundly capitalized banks. It will also consider whether reforms themselves may lead to increased efficiencies and sources of profit that may finance at least part of the transition cost and the extent to which financial systems open to international competition on a retail level can themselves make up for past losses without losing business to foreign competitors. Part of the exposition will be devoted to the pitfalls that will emerge as a result of efforts of insolvent entities to avoid the tightening prudential regulations and as a result of efforts to adjust various aspects of the safety net.

### **III. Interior Decoration of the Architecture: Type 1 vs. Type 2 Errors in Bank Resolution**

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<sup>2</sup>Unfortunately, I will focus on these squeaky wheels rather than on those systems that did not pass through crises in the 1990s, such as Chile or Colombia. Rojas-Suarez and Weisbrod (1995) discuss how non-inflationary macro policy coupled with a priority of resolving the problem banks from the crisis of the early 1980s established a sound banking system in Chile in comparison to those of Mexico and Argentina.

Inside the general architecture of the safety net, decisions must be made about what to do with institutions that do get into trouble. In this context two errors of policy can occur. The first can be labelled a Type 1 error--the liquidation of a bank when it is basically solvent, has franchise value, and should remain open. In a Type 2 error, an insolvent bank with no franchise value is not liquidated. As part of the interior design within the basic architecture of the safety net, supervisors must establish the operating principles for the resolution of troubled banks depending on their perceived probabilities and tastes for each type of error. They can establish principles under which they will quickly intervene and close insolvent banks to avoid type 2 errors at the cost of closing many solvent institutions. Excessive zealotry in closing down institutions can lead to an exacerbation of the problem, even causing sound institutions to collapse in the standard liquidity crisis fire sale. Alternatively, they can operate so that they rarely liquidate a solvent bank at the cost of keeping open the doors of many misbehaving, insolvent institutions. Indeed, the resolution principles may in turn dictate the basic architecture of the system.<sup>3</sup>

Resolutions of banking problems have varied in nature across countries, especially in terms of their ultimate costs. In most cases, however, the resolution process has been protracted, even in countries where banks have been rapidly closed, for even in those cases the process has still to play itself out in the courts.

In the interim, most countries have implemented policies of rolling the problem into the future on the assumption that part of the problem is a liquidity issue associated either with a business cycle or with an excessive pessimism on the part of the banks' creditors. Delaying resolution has the benefit of separating by hindsight those banks for which the problem is temporary from those that are effectively insolvent--i.e. of avoiding a type 1 error. The cost is that insolvent entities continue to function and to run up additional losses, and this type 2 error effectively subsidizes the insolvent banks, perhaps generating capital problems for the previously solvent institutions. The incentives then drive even the solvent banks to take increased risk.

This tension causes authorities to take a stand on one side or the other on the rapidity of bank closures. Each authority develops its own sense of what its operating principles should be, depending on its own experience. If the results of past banking crises indicate that the banking system was forced to consolidate excessively, then the operating principal will be to keep the banking system from shrinking too rapidly in the next crisis. Thus, the system will have extensive deposit insurance schemes, capital injection schemes, and heavy regulation of the banking and financial system to protect it from competitors from either onshore or offshore and also to prevent it from taking excessively risky positions.

If there was no protracted economic downturn associated with a previous banking crisis or if the financing to carry the banking system into the next growth phase is difficult to obtain, then the operating principal will dictate less of an intervention into the banking system, perhaps even an extensive closure and consolidation of the banks with depositors bearing the costs.

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<sup>3</sup>For example, the pre-Tequila Argentine system was a signal that troubled banks might have difficulty finding liquidity support or protection against bank runs that a deposit insurance scheme might have offered. This reflected the priority of preserving the exchange parity, but it also indicated a willingness to sacrifice even potentially solvent banks.

This sort of solution is most palatable to free market economists who take a dim view of government intervention because of the moral hazard issues. Therefore, one can readily place oneself on the side of virtue by espousing such principles.<sup>4</sup>

What might be interpreted as permanent and universal principles of safety net operation really stem from the ephemera of the moment, but they establish themselves in the operation of the regulatory system for years or decades after the initial crisis. Nevertheless, they may be unsuitable for the next crisis.

#### **IV. The Industry Standard Safety Net**

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<sup>4</sup>Typically, though, the embrace of virtue stems from necessity and the difficulty of finding a lender.

The most common structure for a financial safety net is to assure extensive facilities for liquidity provision, to provide deposit insurance with relatively high limits per account, and to allow insured banks to undertake a wide range of potentially risky business.<sup>5</sup> The system that existed in Argentina at the time of the Tequila crisis--with limited liquidity provision because of the currency board nature of the foreign exchange policy and no deposit insurance--is a counter-example to the basic model.<sup>6</sup>

Within the standard safety net structure, supervision and regulation and intervention strategies differ radically. Before the 1990s, supervisory intervention was not triggered until a troubled bank's capital fell to zero, which, in practice meant that the bank was seriously insolvent because of lax enforcement of the categorization of non-performing loans and loan loss provisions. Taking Basle-type capital standards seriously has meant

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<sup>5</sup>At the time of the banking problems in the U.S. in the late 1980s, the old Chicago school prescription of narrow banking--in the guise of the provision of deposit insurance only to institutions that hold essentially riskless, short maturity paper--was briefly resurrected. The idea was to insure only those institutions with direct access to the payment system and inform depositors in all other institutions that their deposits were uninsured. An immediate objection is that the uninsured part of the banking system would be returned to being prone to bank runs by depositors and the associated credit contractions, a problem that was so severe in the Great Depression that it generated the current system of extensive deposit insurance. Indeed, Friedman and Schwartz (1963) praise the provision of deposit insurance as a key institutional change in the stabilization of the supply of money. A second problem is that the banks at the heart of the payment system are the key providers of daylight and overnight credit to the financial system. Barring them from credit provision to private borrowers would significantly raise the costs of many liquidity-hungry institutions such as futures markets and perhaps eliminate the business.

<sup>6</sup>With its provision in 1995 of limited deposit insurance--albeit private--Argentina has moved closer to the standard structure.

that regulatory intervention will now occur at an earlier stage of insolvency.<sup>7</sup> Of course, the definition of the amount of regulatory capital on a bank's balance sheet depends on the power and determination of supervisors and on the nature of the prudential regulations in effect, and these also differ across countries.

Many systems lack explicit deposit insurance, although it is clear that depositors expect either bailouts of the banks or ex post insurance protection in the event of a liquidation. Alternatively, very limited deposit insurance may be explicitly offered. Most often, such systems impose lifeboat schemes in which solvent banks are organized to take over insolvent institutions by Ministries of Finance or supervisory authorities, with the cost distributed among the remaining banks according to some formula that the regulators may determine on an ad hoc basis. Sometimes the costs can be made up later to the acquiring party through quiet regulatory forbearance on competitive or other matters. In France and Japan, such resolution methods were commonplace until recently.

#### **V. Prudential Regulation: The Architecture's Mechanicals**

Prudential regulations are well-accepted as a method to avert the moral hazard problems that arise in the operation of most financial institutions. These institutions need certain guidelines and supervision to protect their claimants. The ultimate claimant in many banking institutions is a deposit insurer, whether implicit or explicit, which itself leans on the fiscal authority to back its guarantees. The fiscal authority must protect itself against excessive risk-taking by the insured institution.

Prudential regulations may take several organizational forms. They may be rigid, effectively consisting of a code that bars any operation of the financial institution that is not explicitly allowed. Alternatively, authorities may work from a different principle in which financial institutions can do anything that is not explicitly prohibited, subject to taking reasonable precautions to avoid excessive risk. This is generally a more liberal environment, but it imposes on the authorities a responsibility to assure, by mounting an extensive supervisory operation, that banks are not taking on an overly risky exposure. Rather than a simple regulatory operation that determines whether or not a bank's activity conforms literally to a particular set of rules, supervision in a liberal environment must make quantitative assessments of the nature of bank risks.

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<sup>7</sup>For example, the powers granted to U.S. regulators under FDICIA allow them to intervene strenuously while bank capital is still positive. Whether they will do so in practice and not be deterred politically has yet to be tested because fortuitously banks have been highly profitable since the law's passage. For example, the powers granted to U.S. regulators under FDICIA



Regardless of how rigid the rules are or how close the supervision is, however, it is always true that certain banks will fail. The failures may occur one at a time, based on idiosyncratic bank behavior; or they may occur simultaneously throughout the banking system. Almost always, bank failures signal a failure of prudential regulation. The ability of regulators to carry out their task is regularly undermined by an inadequate allocation of resources to the supervisors. Problems may emerge for technical reasons such as a lack of a good accounting or legal system that can see through complicated corporate structures and force a consolidated accounting to prevent the hiding of bad assets in subsidiaries. They may occur because there is a lack of resources that limits on-site inspections or because the enforcement powers of the supervisor are weak.<sup>8</sup> Often, the regulators are familiar with the details of the problems in the banks, but they are deterred from exerting their formal powers by political pressure.

Various restrictions can prevent the growth of the balance sheets of banks--reserve requirements, capital requirements, direct regulation of the types of assets that banks can hold and the liabilities they can offer, and prohibitions of excessive concentration of assets or risks in particular sectors. Thus, for instance, a rule might prevent lending to the real estate sector in more than prescribed multiples of bank capital. Also, individual banks may be prevented from growing excessively fast. To set the general culture of a bank and to foster competence and honesty, fit and proper rules governing senior management and controlling owners are imposed. To assure adherence to minimum capital requirements, rules governing loan classification, provisioning, and accounting standards are also established.

Such restrictions aim to avoid the standard trouble spots in a banking system. It is usually considered an early warning of bank problems for a bank to expand too fast. There is a limited amount of risk management capacity in the bank--sudden expansions of loans must surely outstrip the ability to expand risk management, especially because the bank is probably taking on riskier clients. It is usually regarded as an early warning of bank problems when a bank lends in excess to a single borrower or sector of borrowers. It is generally regarded as a signal of a problem when management and owners self-deal. All such activities can be proscribed through regulation. Nevertheless, the proscription of particular activities, of itself, is not adequate to prevent problems in banks from arising from those very activities.

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<sup>8</sup>de Juan (1995) provides an extensive list of how the methods that supervisors possess to contain insolvency can readily fail. All the failures revolve around a lack of political will to enforce the regulations. See also de Krivoy (1995) on the requirements for supervision and regulation.

Modern banks can readily avoid regulations either in a straightforward manner or by going offshore or engaging in off-balance sheet activities, which violate the intent, if not the letter, of regulations. To prevent this kind of avoidance requires a stringent regulatory environment in which the supervisor can, through consolidated supervision, reach through the bank and all corporate affiliates, onshore and offshore, to prevent the circumvention of regulation. In this regard, banks may be precluded from owning entities not engaged primarily in activities related to banking, from owning insurance companies, or from being owned by non-financial industrial corporations. Regulations can be circumvented in an extremely sophisticated manner, which requires a sophisticated supervisor.<sup>9</sup> The supervisor must have the power to prevent various activities from being undertaken and to remove officials and penalize or even close a bank before the bank has generated a negative capital position.

All these requirements for successful prudential regulation are truisms, and very frequently they appear in the statutes authorizing the activities of bank supervisors. The problem, of course, lies in the application of these powers. Closing down or stringently disciplining a bank is inherently a political act in all countries. It is usually relatively easy to close a small bank; to close a large bank requires much more assent from the political authorities. Political authorities tend to avoid closures and overregulation of banks because they rely on the banks, first to undertake investment projects that are politically beneficial to them and second to use the banks as funding mechanisms for their own activities. The banks can be used as a means of providing unappropriated expenditures to a particular region or sector from the fiscal authority. Regardless of the nature of the benefits or costs emanating from the banking system, this means that the banks have powerful political protection that can subvert actions of the regulators.

Ideally, the banking sector should channel its resources into that lending that is suitable for a banking sector--relatively low risk, relatively liquid investment that can be made to generate cash in a short time to meet cash demand from the liability holders. If the claimants have cash demands denominated in foreign currency, the investments must be able to generate quick payoffs or unlock credit lines in the foreign currency to meet these demands. In that way, an exchange crisis can be separated from a banking crisis rather than be closely linked to it.

How do the various restrictions in the arsenal of prudential regulation channel capital? Liquidity requirements on banks define those liquid securities that qualify; if binding, this forces an increase in demand for securities of those institutions whose paper is defined as liquid and reduces their funding costs. Such institutions then can increase their overall investment activity and shorten the maturity of their liability structure.

If such institutions themselves are prudently run, they will indeed concentrate on projects that can be liquidated quickly, so that the regulation will be effective in enforcing a greater liquidity on the banking system. If not, the liquidity position of banks will prove to be a mirage in a crisis when the issuers of the securities cannot produce quickly the demanded cash. If the securities that satisfy liquidity requirements are government securities, this lowers the cost of government funding. Nevertheless, if the securities are to be mobilized in a liquidity crisis, as is the purpose of a liquidity reserve, there must be a ready secondary or repurchase market for the securities; otherwise, their purpose will be defeated through deep discounts.

Reserve requirements force the banking system to hold demand claims on the central bank in an amount equal to some fraction of on-balance sheet deposits. Together with a limitation on the expansion of bank reserves, reserve requirements control the on-balance sheet expansion of the banking sector. Because deposits at the central bank generally pay zero or below market interest rates, an increase in reserve requirements widens banking product spreads. The increase in spreads leads either to a disintermediation to financial institutions not subject to the requirement or to offshore banks, often affiliated with domestic banks. Also, domestic banking institutions can avoid reserve requirements through the use of derivative products.

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<sup>9</sup>See Folkerts-Landau (1995), p.3.

Risk based capital requirements directly restrain the expansion on bank balance sheets of those assets classified as risky; simultaneously, however, they tend to increase the riskiness of those assets that are held in this category in order to cover extra capital costs.<sup>10</sup> When capital requirements are imposed, banks tend to work against them through the definition of what constitutes capital. This leads to a resistance to the classification of loans as non-performing through restructurings or the capitalization of interest payments due on old loans. In turn, the funding of these rollovers forces deposit rates to be bid up and funds to be channeled into losing projects. Problem banks will then expand at the expense of sound banks. Banks will also strive to avoid marking losing securities to market through market manipulations--for example, assets of the banks will be held off the market so that market prices need not be recorded. Activities that draw a risk-capital requirement will also be driven off-balance sheet where they attract a lower requirement. For example, an on-balance sheet holding of equities might be converted into a swap or a structured note that is highly leveraged but that has a relatively small capital requirement.

A ban on holding securities on margin or on short sales will mean that equities holders will not be forced to join the general scramble for cash in a liquidity crisis and thereby reduce the potential magnitude of the demand for cash. Such a ban reduces the liquidity of securities markets, thereby forcing up yields and reducing their desirability as a source of funding. This is desirable in economies that are essentially illiquid--security yields should reflect the degree of illiquidity. Nevertheless, bans on margin buying tends to push such activity offshore, through over the counter derivative markets.

#### **VI. Who Should Pay to Fill in the Negative Capital in Banks?**

The list of candidates for covering the losses of failed banks is short: the taxpayer, the equity holders and managers, the borrowers, and the depositors. Inevitably, the taxpayer will directly pay for much of the loss to the extent that the government bonds and other paper injected during the crisis and not repaid in the liquidation of the insolvent banks are not monetized. The exigency of the crisis dictates that public credit initially must paper over the problem, but the government can then reach out to recover part of the loss. Who bears the loss and who escapes are crucial determinants of expectations of what will happen in the next crisis and therefore shape the nature of the moral hazard that will build up over the several years after the immediate crisis is resolved.

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<sup>10</sup>The Basle-type risk categories can also be used to determine varying risk-based premia for deposit insurance.

The equity holders are natural candidates, having been best placed to determine the risk position of failed bank.<sup>11</sup> In the absence of fraud, however, it is difficult to do more than strip the owners of their equity in the bank. This may be a poor disincentive--a risky bank can book high profits for years, thereby richly rewarding its owners through dividends. By self-dealing through complicated corporate structures, owners can take even more from the bank, which they can send abroad. It is notoriously difficult to recover much in civil proceedings. Especially with too-big-to-fail institutions, there often is an effort to bail out the bank with capital injections, loan purchases, preferential access to central bank foreign exchange, or other concessions, which leaves the original ownership in place.

Smaller depositors are rarely forced to pay directly for the losses in the banks when there is deposit insurance.<sup>12</sup> Thus, they have little incentive to act to control the behavior of banks through the withdrawal of retail deposits. Larger depositors generally can remove their funds before the collapse of a bank. Indirectly,

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<sup>11</sup>Rojas-Suarez and Weisbrod (1995) provide a set of principals by which resolutions should be undertaken in order to avoid inflationary finance. They propose three basic principals for such resolution: insure that parties that have benefitted from the risk-taking in the loss generating institutions bear a large portion of the cost of restructuring, take prompt action to prevent the expansion of problem institutions through credit expansion to risky borrowers and capitalization of interest due on outstanding loans, and give priority to the bank restructuring by dedicating public revenues to extinguish the problem without inflation.

<sup>12</sup>Exceptions are the Mexdollar deposits of 1982 and the resolution of Argentine banking problems at the end of the hyperinflation.

however, depositors can be made to pay for past losses if they are kept captive to the banking system through restrictions on the provision of competitive products.<sup>13</sup> Banks can then widen their spreads and pay below market rates on deposits: this will increase the profitability of banks and perhaps bring them back to solvency.

Alternatively, it will allow them to pay the high insurance premia that may be required to restore deposit insurance funds to solvency. Finally, to the extent that depositors are captive to the banks, inflation can reduce the real value of the loss to the system. Going after depositors through forced restructuring of deposits or inflation, however, creates a problem for the next crisis: instead of being passive bystanders, depositors will run the banks and perhaps prematurely precipitate a liquidity crisis.<sup>14</sup>

Efforts can be launched to make borrowers, whose defaults trigger the credit problems, repay their debts. In many countries, however, it is legally difficult to force payment or to seize the property of the borrowers. Even if it can be taken, the property serving as collateral will obviously have fallen below the amount of the loan, although experience has shown that the eventual disposal of such property can pay for much of the cost of resolving a bank. The problem with collecting from borrowers is that their loss of collateral and inability to acquire more credit will generally be associated with a severe economic downturn that may worsen the current banking crisis.

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<sup>13</sup>Efforts to liberalize financial systems and encourage competition imply that customers are now much less tied to their banks, thereby releasing them from the ex post burden of paying for an insolvency.

<sup>14</sup>Small depositors, of their nature, aggregate to a large number of votes. In the Rhode Island banking crisis of 1991, the state initially resolved not to pay off depositors of the closed institutions. This resolve crumbled when large numbers of well-dressed octogenarian ladies were shown regularly on the news broadcasts hurling themselves in protest in front of the politicians' limousines at Democratic Party rallies.

The resolution of a systemic crisis generally involves mergers and consolidation of what previously had been an overbanked system. Thus, two additional potential sources of bank revenue can emerge in the restructured banking system. One arises from a reduction in competition that allows a widening of spreads for borrowers and lenders, so that future bank depositors and borrowers can pay part of the cost of the resolution. The other arises from a rationalization of the production of bank services that permits a closure of branches and a reduction of bank personnel. To the extent that the increased revenue of the remaining banks can be tapped, it can serve as an additional source of finance for the resolution costs.<sup>15</sup>

#### **VI. The Status of Banking Systems and Safety Nets in Mexico, Argentina, and Brazil Mexico**

The reprivatization of the Mexican banking system from June 1991 to July 1992 was accompanied by financial liberalization--removal of credit controls and reserve requirements, the free setting of interest rates, and permission to offer US dollar denominated accounts and new financial products.<sup>16</sup> The reprivatization of 18 commercial banks raised 38.6 billion new pesos (about \$12 billion). Banks were purchased at prices 2.2 to 3.1 times book value.

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<sup>15</sup>One of the requirements for the injection of Norwegian government capital into the troubled banks was that they reduce their operating costs. See Drees and Pazarbasioglu (1995) for details on the Nordic banking crises.

<sup>16</sup>For an analysis of the competitiveness of the Mexican banking system at the time of reprivatization, see Garber and Weisbrod (1993).

Buyers reportedly borrowed heavily to finance their purchases, and this launched the reprivatized banks as revenue-hungry institutions.<sup>17</sup> Loans by Banamex grew by 40% in 1992, 48% in 1993 and 18% in 1993. Loan growth for the other two large banks was similar, except that Serfin's loans grew by 27% in 1993, a recession year. For smaller banks like Banco Mexicano, loans tripled in the two year period, 1992-3. The expanding loans were accompanied by increasing fractions of mortgage and consumer lending in the loan portfolio. In addition, foreign currency loans amounted to 22% of the loan book.

Even before the crisis, the expanded loan book had been performing poorly. The percentage of past due loans in September 1994 was 9.1%, 7.5%, and 9.7% for Banamex, Bancomer, and Serfin, respectively. Loss reserves for these banks were 46%, 37%, and 31%, respectively. In addition, the Mexican banks had taken large, unbalanced positions in the over-the-counter derivatives markets that would generate massive demands for liquidity and further major losses in the crisis.<sup>18</sup>

Prior to their sale, banks had been mainly lenders to the government, with their allocation of assets decided through directed lending and through strict reserve requirements. After reprivatization, there was a strong growth in private lending. An ever-tightening supervisory system played catch-up with the banks with the adoption of the Basle capital requirements and stricter loan loss reserve requirements. While Mexico was

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<sup>17</sup>The three largest Mexican banks are Banamex, Bancomer, and Serfin, with shares of the deposit markets of 21%, 20%, and 13%, respectively, and similar shares of the loans markets. Risk weighted capital in the three largest banks was 11.7%, 10.5%, and 8.9%, respectively, in September 1994.

<sup>18</sup>See Garber (1996) for details of these products.

moving rapidly toward stronger supervision and regulation, the problems in the banks that became visible after reprivatization led to speculative behavior that further weakened them.<sup>19</sup> Supervision and regulation was in the midst of updating when the crisis overwhelmed it. Apparently, the attempt to liberalize the system and simultaneously to construct a regulatory apparatus to control it was too ambitious.<sup>20 21</sup>

In previous banking crises, Mexico had protected both depositors and bank ownership, and the 1995 crisis was no exception. The first response to the crisis was the program of January 1995 to provide temporarily some capital injections (PROCAPTE) to bring bank capital back to the Basle minimums, operated by FOBAPROA, the deposit insurance fund. In addition, a program to restructure some of the loans in the banks was begun, and a part of the loan portfolio of the banks was bought by FOBAPROA, also with the intent of recapitalizing the banks. Losses from the purchased loans will be shared with the banks. These recapitalization and restructurings were funded through Banco de Mexico loans to FOBAPROA or with government bonds. FOBAPROA passed through the funds to the banks; and the funds were then redeposited in frozen accounts in the Banco de Mexico. Thus, to the extent that these loans are not repaid as the economy recovers, they presumably will eventually be a charge on Hacienda.

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<sup>19</sup>Liquidity ratios in the six largest banks were 9.3 percent at the end of 1993 and 14.4 percent at the end of 1992. For Bancomer and Serfin, the end-1993 liquidity ratios were 6.4% and 4.3%, respectively, while for Banamex the ratio was 23%.

<sup>20</sup>The Banco de Mexico and the Comisión Nacional Bancaria supervise the banking industry, engaging in surveillance of credit institutions, formulation of regulations, supervision, and the approval of banking officials. The Comisión Nacional Bancaria has now merged with the Comisión Nacional de Valores, the regulator of the securities markets.

<sup>21</sup>The required capital ratios are the Basle ratios of 8%. As a departure from the normal Basle standards, 80% of revaluation reserves of fixed assets and real estate subsidiaries could be included in Tier 1 capital. This constituted 45% of total equity in 1994.



By the end of 1995, non-performing loans in the banking system amounted to about 98 billion new pesos, about 12.2% of the loan portfolio. Adding the 38 billion new pesos of loans acquired by FOBAPROA in the last half of 1995, the amount of non-performings would have been 17 percent of the portfolio. Six banks have been intervened--five of them from the reprivatized banks of 1992; five banks had made use of PROCAPTE; and 13 banks had undertaken loan sales to FOBAPROA. The total fiscal cost of these programs was put at about 84 billion new pesos, about the dollar value of the proceeds from the reprivatization, or 5.5 percent of GDP by the end of 1995.<sup>22</sup>

In the face of this as yet unresolved problem, it is difficult to impose radical restructurings of the financial safety net to address the failings that emerged in the crisis. Nevertheless, even as the programs to restore the capital of the banks have been implemented, some efforts to restructure the banking system have been launched. It is clear that the banking will have to be consolidated, so that within a few years only six to nine of the eighteen reprivatized banks will remain.<sup>23</sup>

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<sup>22</sup>See Hacienda, "Consideraciones sobre la Evolucion del Sistema Bancario Comercial durante 1995", July 1996.

<sup>23</sup>The real value of loans in the portfolios of the commercial banks to the private sector fell by about 40 percent from December 1994 to April 1996. The banks basically are in the business of trying to collect on old loans, and there has been a disintermediation as commerce has resorted to an expansion of trade credit.

A much less restrictive attitude vis-a-vis foreign banks has also emerged through regulatory and legal changes. Foreign banks were encouraged to increase their equity positions in Mexican banks in order to ease the recapitalization problem. For example, Probusa became an affiliate of Banco Bilbao Vizcaya, and the Bank of Nova Scotia took a 55 percent controlling interest in Inverlat. Also, the Bank of Montreal bought sixteen percent of the shares of Grupo Financiero Bancomer, the second largest banking group, and thirteen large foreign banks were authorized to open banks in Mexico in 1995. Legal changes were implemented allowing foreign banks to increase their equity holdings in larger Mexican banks to 49% of equity, and foreign banks can acquire Mexican banks whose capital is less than six percent of the system's capital.<sup>24</sup>

The lesson absorbed by Mexican authorities is that, although it was rapidly coming to grips with a highly risky banking system prior to the crisis, the regulatory structure did not evolve quickly enough in its powers or in its information gathering ability to stem the crisis. Thus, there is a movement to tighten the grip of supervisors to prevent excessive risk-taking in the future. Notable in this movement is the requirement that the banking system transition to the more stringent categories of GAAP accounting by 1997. Furthermore, the use of value-at-risk methods to determine market risks and proper capitalization of such risks will be required in the second half of 1996.

These are the sorts of supervision and regulation changes that one would expect if the basic outlines of the financial safety net prescribe full deposit insurance and bailouts to banks and borrowers. Tight supervision is then the only way to avoid moral hazard. Nevertheless, the presence of dead banks walking serves as a continual threat that banks will circumvent regulations; those institutions that have poor future prospects should be severely restricted in their ability to expand, on- and off- balance sheet.

#### **Argentina**

At the time of the Tequila crisis, the Argentine safety net was formally the least protective of bank owners and depositors of the major financial systems in Latin America. There was no deposit insurance and the liquidity facilities that might be provided by the Banco Central de la Republica Argentina were limited. Furthermore, Argentina had a history of making depositors pay part of the cost of insolvent banks. The high capital requirements and the actual capital in the banks meant that the banks generally were strong enough to withstand the liquidity test and high subsequent interest rates, at least initially. The high liquidity requirements provided banks a source of ready cash to pay off depositors.

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<sup>24</sup>See Hacienda, "Consideraciones sobre la Evolucion del Sistema Bancario Comercial durante 1995", July 1996, p. 20.

The institutional organization of the safety net was such that the Argentine banking system responded in a crisis in a manner reminiscent of the behavior of the pre-Federal Reserve US banking system. Distrustful depositors ran the weaker banks to pull out about \$8 billion, about 18% of the deposits in the system. The financial system as a whole, orchestrated in this case by the central bank rather than a private clearinghouse, had to mobilize the limited amount of available reserves and distribute them among the banks. For example, the BCRA offset about \$5 billion of the run through rediscounts and repurchase agreements to release its excess foreign exchange holdings and by reducing reserve requirements. The large liquidity holdings of the banks themselves accounted for the rest of the cash withdrawals. Some of the weaker small banks were forced to close and were merged with the surviving banks.<sup>25</sup> <sup>26</sup> Ultimately, the fiscal cost of the banking crisis

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<sup>25</sup>Forty five institutions were either merged or suspended, and new laws were passed to ease the takeover of troubled institutions. Also, two funds were created, one with funding from multilateral lenders to privatize provincial banks and one with funding from the sale of Bonos Argentinos to support private banks and encourage mergers.

<sup>26</sup>BCA (1996) has argued that some of the mergers were somewhat precipitate. Stronger banks purchased heavily discounted loan portfolios from the weaker banks so that they might have liquidity during the runs. In the classical manner, the heavy discounts in some cases changed a liquidity problem to a solvency problem.

was small, amounting to no more than one percent of GDP.<sup>27</sup> <sup>28</sup> Nevertheless, the banking system is still having severe problems.<sup>29</sup>

Argentines have expressed satisfaction with the behavior of their banking system and safety net in the crisis, at least relative to the experience of the Mexican system. Nevertheless, the subsequent sharp economic downturn of the sort that is typical of the aftermath of a pre-Fed banking crisis has been quite severe and has been followed by the resurgence of a large fiscal deficit and an increase in non-performings. This has been interpreted as a bad equilibrium resulting from a liquidity crisis.

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<sup>27</sup>The solvency of provincial banks is still problematic, but this was a recognized issue before the crisis.

<sup>28</sup>The Argentine banks may have been relatively stronger than the Mexican banks in part because they had had less time to expand their balance sheets after the macroeconomic stabilization and because Argentine legal and tax restrictions had not yet been reformed. Therefore, Argentine banks had not moved into heavy use of the sort of derivative products that added to the losses and liquidity problems of the Mexican banks.

<sup>29</sup>While there has been a recovery in central bank reserves and bank deposits, the banking system is still weak, with merged institutions still showing losses. Depositors have lost confidence due to the large amounts of remaining problem loans. Banks are staying liquid by placing funds into governments or large corporate securities. See IBCA (1996).

Thus, in a sort of *deja vu*, there has been some effort to move away from this most *laissez faire* of systems through institutional changes aimed at ameliorating some of the harshest features of the system and at reducing the chances of a similar crisis. The changes amount to finding additional sources of liquidity for a lender of last resort and providing some deposit insurance. Since May 1995, banks have been required to provide deposit insurance through a private, non-government guaranteed fund for sight deposits up to \$10,000 and for deposits maturing in more than ninety days up to \$20,000. Risk premiums charged banks are determined according to Basle-type risk classifications. To the extent that it is credible, this system is intended to keep small depositors from participating in a bank run.<sup>30</sup> In addition, liquidity requirements have replaced reserve requirements, with requirements at 16 percent against sight accounts and at lower percentages depending on the maturity of the deposit claims.<sup>31</sup> Finally and most recently, the BCRA has invited high quality international banks to offer it contingent repurchase agreements for Argentine dollar denominated securities--that is, collateralized lines of credit--and has received offers for a total of about \$7 billion of possible repos. This would allow the BCRA to mobilize Argentine government securities received from banks in reverse repurchase agreements to generate dollar liquidity.

### **Brazil**

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<sup>30</sup>It is recognized that the deposit insurance fund will be insufficient to pay off large failures. It is intended to keep depositors in small institutions quiescent.

<sup>31</sup>The liquidity instruments can take the form of reverse repurchase agreements with the BCRA with Argentine government dollar denominated bonds, *letras de liquidez*, which are government obligations placed in accounts maintained by the BCRA, or private liquid securities held in custodial accounts managed by Deutschebank, New York, and domestic liquid securities along with a put option for those securities on a high-quality foreign bank.

The Brazilian banking problems are direct results of the distortion of the financial system during the hyperinflation. The implementation of the Real Plan in 1994 had served either to unmask the insolvencies that had accumulated in the system or to launch banks into risky operations to make up for lost inflation revenue.<sup>32</sup>

Thus, the Brazilian bailout and restructuring schemes primarily have been aimed retrospectively at liquidating the distortions of inflationary finance, including the distorted industrial organization of the banking system. Welch and Armstrong (1996) estimate the negative net worth of the system at about R\$90 billion, of which about R\$45 billion has already been funded by the Brazilian authorities through bond sales and injections.<sup>33</sup> The restructuring of the system has involved the closing of many smaller banks and the takeover of some of the larger ones by stronger institutions, although strong political pressures have delayed the resolution process.<sup>34</sup>

In the recent period of relative price stability, banks lost a major source of revenues from their float operations, which they attempted to offset with a rapid growth in lending instead of their previous intermediation of government debt. As in Mexico and Argentina, there was a lack of a risk management culture in the banks, which had yet to shift their human capital skills and systems to the problems of the new environment. Thus,

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<sup>32</sup>The discussion in this section is based on Welch and Armstrong (1996) and on various IBCA reports.

<sup>33</sup> Most of the remaining problem is associated with the Caixa Economico Federal, a hole in the system that was generated during the hyperinflation. While this institution, part of the system of funding housing construction has not done new business for 10 years, the loss cumulates at the rate of interest. An ongoing difficulty stems from provincially owned banks, which have strong political protection.

<sup>34</sup> Welch and Armstrong provide several examples of how difficult it is politically to impose such restructurings on the banking system, a phenomenon also discussed in Rojas Suarez and Weisbrod (1995) and Calomiris (1996).

loans in the banking system grew by about 50 percent in the second semester of 1994. The credit squeeze of 1995 triggered illiquidities in the weaker banks, which the authorities took as the opportune moment to consolidate the system.

In response to the banking insolvencies, the Banco do Brasil acquired increased power to lay the costs of future problems on bank owners beyond simply the loss of invested capital. In addition, to address the problem of the excess capacity of the banking system, it developed a strategy of pushing for consolidation of the system through merger and acquisition.<sup>35</sup> The central bank developed the PROER program for the restructuring and strengthening of the financial system. The subsidization of consolidation through this program can strongly encourage expansion by small banks, which can suddenly become almost too large to fail. This may create a future environment of excessive risk-taking.<sup>36</sup>

This points to a general problem in the industrial structure of those banks involved in the merger and acquisition process. Who will do the mergers and acquisitions? Will it be the biggest banks, which already are systemic in their risk, too big to fail, and the source of potential future problems. Or will it be the medium sized banks, whose managements see themselves as those that will be allowed to fail in the event of a solvency problem. If there is a benefit from being too big to fail, there will be a scramble by medium sized banks to grow into too large to fail institutions, and they will pay excessive premia for the banks and assets thrown on the markets. Also, while the old management of the moribund banks may have been relatively conservative and not inclined to play double or nothing, the management of acquiring banks will, of their nature, be much more aggressive, a phenomenon observed in the early stages of the U.S. S&L crisis.

## **VII. Some Steps toward Functional Safety Nets**

### **Foreign Bank Capital**

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<sup>35</sup>While there are many small banks, the banking industry is concentrated: the five largest banks control 55 percent of bank assets. The next five largest banks control an additional fifteen percent.

<sup>36</sup>See Welch and Armstrong (1995), pp. 6-7, who point to the case of the Banco Excel, which became large purely through the acquisition of the assets of Banco Economico.

Once the initial problems of the banks are addressed so that the banking system at least reaches a zero capital level, one can recapitalize the banks by allowing and encouraging foreign acquisition.<sup>37</sup> Even if the acquisitions take the form of subsidiaries, typically there will be a close association of the parent with the subsidiary. Ideally, the parent bank will take steps to assure that the subsidiary will not run into solvency or liquidity problems to preserve the reputation of the parent bank<sup>38</sup>. If a foreign bank appears in the form of a branch, its own national deposit insurance may cover the risk to depositors. Finally, an additional set of regulators, uninfluenced by local political concerns, will appear on the scene to examine the bank. Of course, the principal concern of these regulators is with the parent bank and not necessarily with the subsidiary; they worry about the subsidiary only to the extent that it is excessively connected to the parent bank. Indeed, foreign regulators have the incentive of reducing excessive ties with the parent bank, so that the subsidiary might have to subsist on its own access to the market.

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<sup>37</sup>Mexico has encouraged foreign banks to take over some of the smaller Mexican banks and has increased the amount of equity in the larger banks that foreign banks may acquire. Peru has privatized some large banks through foreign acquisition, and foreign banks have also bought some of the private banks. Although not driven by the recent crisis in other countries, Colombia privatized some of the banks acquired during the crisis of the early 1980s into the hands of Venezuelan banks, and controlling shares in other private banks were bought by international banks. See e.g. Garcia-Cantera (1994, 1996).

<sup>38</sup>Liquidity is not necessarily readily available, however. During the Mexican crisis, some foreign private investors pulled funds from Citibank, Mexico to reduce their Mexico exposure and forcing Citibank to sell the assets backing the deposits as they came due. Citibank, NY could have lent funds to carry the position until maturity, but it decided that it had already lent enough to its subsidiary, and so forced a liquidation loss from a maturity mismatch. Citibank, NY required its Mexico subsidiary to acquire liquidity on the market and not through its parent. Thus, Citibank, Mexico had to pay up to get funds. On the other hand, short term funds were readily available in Mexico to Citibank, Mexico because it was perceived as a higher quality, lower risk entity. It could pay 4 percent less than Banamex or Bancomer on deposits, but it actually discouraged deposits because it did not perceive proper lending opportunities, even



With immediate knowledge of the domestic banks, foreign subsidiaries may channel extra liquidity in times of crisis.<sup>39</sup> In addition, through their competitiveness and international experience, they can impose an upgrade in the risk control systems and business practices of domestic banks.

On the downside, foreign banks may be less subject to domestic political pressures in their lending and investment decision making. It is a classic view that foreign banks tend to be cherry-pickers and leave the more difficult retail markets to domestic banks. Thus, they will strip the profitable wholesale domestic market, to the extent that it still exists onshore, from the domestic banks and leave the risky lending to the domestic banks.<sup>40</sup>

Also, foreign banks, once in a market, are adept at using their international connections and expertise to pick apart the domestic prudential and tax regulations to earn their profit. They both push domestic banks into the risky and speculative markets while simultaneously providing the operating tools for the domestic banks to engage in such operations. Of course, it is difficult to stop foreign banks from providing these tools--they can always operate offshore and provide the same services to domestic banks while taking much of the wholesale business of domestic banks in any case.<sup>41</sup>

A further view of foreign banks is that they will often not channel capital toward those sectors that may domestically be regarded as vital to the development of the domestic economy. The domestic banking system, by virtue of regulators' control over charters and the possibility of regulatory abatement offered in return for compliance, can encourage domestic banks to undertake such lending. Foreign banks may be excessively conservative and thereby reduce the amounts and direction of investment. Domestic banking systems often fall into problems because they have a wider ranging field of investment. It may be better to have an occasional crisis as long as capital can move in a direction that is more preferred by the national polity.

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<sup>39</sup> More likely, the risk control programs at corporate headquarters may require the foreign subsidiary to cut off liquidity lending to domestic banks in a crisis--cutting back direct lending and even repos in a scramble to reduce counterparty risk.

<sup>40</sup> Foreign banks often serve the large domestic companies with significant international names. Foreign banks generally take such customers to the Euromarkets in medium term notes and Euro commercial paper. Trade finance and foreign exchange business with large domestic corporates is also done offshore. A foreign bank might have a small onshore balance sheet, but its operation in the host country may support an offshore balance sheet that is four or five times larger. Thus, staffs at foreign banks will generally be large relative to their onshore balance sheets.

<sup>41</sup> See Garber and Weisbrod (1994) for an expansion of this argument.

Capital injections from foreign banks into the banking system may be neither easy to obtain nor benign. In the presence of widespread insolvencies, foreign banks may fear that they will be assessed after their investment to pay for past failures along with the rest of the banking system.<sup>42</sup> Thus, they may hesitate to undertake an onshore investment, preferring instead to operate their business with domestic institutions from offshore.

Finally, a sudden admission of foreign banking competition into a system with low capital can further reduce the franchise value of domestic banks and lead later to a secondary crisis within a few years as domestic banks compete to retain market share. A drive for market share generally implies an underpricing of products. Only through a strict control on the expansion of the domestic banks can this secondary crisis be avoided.<sup>43</sup> Supervisors will then appear to favor the newly arrived foreign banks, so control of the domestic institutions may be problematic politically.

### **Developing Secondary Markets**

A lack of liquid secondary markets for banking assets has severely restricted the operation of the safety net. Secondary markets do not function well for several reasons: a lack of legal standing for some market operations, slow clearing and settlement systems for securities, and legal encumbrances on taking collateral on defaulted loans.

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<sup>42</sup>For example, in 1992, a ABN Ambro, having just set up a subsidiary in Paris was unexpectedly assessed by French authorities according to an obscure formula, along with the rest of the banking system, to pay for the resolution of a failed French bank.

<sup>43</sup>We can interpret the relatively strict system of Argentina as inviting a movement of business from tightly restricted onshore banks to offshore foreign owned banks or offshore subsidiaries of domestic banks. The high liquidity requirements will serve to drive wholesale business offshore, especially because of the unique ability to use dollars in payment of inter-business obligations. All that is required is a well-functioning payments channel to New York. This will leave only middle market firms and small depositors in Argentina. Banks would then need only to do essentially cash business onshore.

Rojas-Suarez and Weisbrod (1995) argue that the institutional development of secondary markets in assets and claims held by the banking system is desirable as a backstop to the resolution of troubled banks and as a means to transition to a permanent safety net.<sup>44</sup> Making available the ability to market the assets of failed institutions reduces the cost of the resolution and, indeed, makes more credible ex ante prescriptions to resolve rapidly troubled institutions through liquidation. Ready secondary markets imply that the supervisor can finance much of the cost of resolution through quick asset sales and therefore needs to place less pressure on scarce financial resources while liquidating the portfolios of closed institutions. The actual closing of institutions then becomes a viable threat and reduces the probability that troubled institutions will be merely bailed out through capital injections. Costs can also be reduced because foreclosed assets in the hands of supervisors tend to depreciate rapidly.

Although liquidity in many secondary markets cannot suddenly be created, hindrances to the development of such liquidity can be removed. For example, arranging for same day systems of settlement of government and other securities can foster an overnight interbank repurchase market and smooth the liquidity requirements of individual banks. Same day settlement is also vital for the performance of a lender of last resort role--central banks can receive instant delivery of dematerialized securities and can themselves engage easily in repurchase operations with foreign banks to complete the chain of liquidity. This is the rationale behind the recent Argentine initiatives to streamline settlement and arrange credit lines with foreign banks. It is a logical fine tuning of the Argentine safety net architecture and makes less likely autonomous runs in the Argentine banking system.

Liquidity in markets, however, is a two-edged sword. Making assets readily available for liquidation in an emergency also makes them available as good collateral in normal times. Thus, banks can more easily mobilize their liquid assets in establishing leveraged positions through offshore over-the-counter derivative products. Adverse market price movements can then trigger margin calls that quickly wipe out the liquidity reserve.<sup>45</sup> The surveillance capacity of consolidated prudential regulation must then be augmented to detect such operations. This is not a trivial expansion, however; appropriate personnel may be difficult to obtain at other than prohibitive cost because of the ever-evolving nature of such operations.

### **Private Deposit Insurance**

In fine tuning its financial safety net, Argentina has introduced a private deposit insurance scheme for small deposits in which banks are required to participate. Private deposit insurance schemes have a long and fairly uniform history--they eventually fail. A primary reason for their failure is that such schemes are generally launched in limited geographical markets or in situations in which the insurance principle cannot function. For example, most banking systems are heavily concentrated, with a few large banks and several dozen or more smaller banks. If any large bank fails, the insurance fund will be inadequate to cover the losses, so the deposit insurance is not credible for depositors in the large institutions. If a regional economic downturn occurs,

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<sup>44</sup>They recommend the establishment of the legal structures necessary for secondary markets to develop in the principal assets held by banks.

<sup>45</sup>See Garber (1996) for a description of such a phenomenon in the Mexican crisis of 1994.

numerous small banks may become insolvent, so the insurance is also not credible in this context. Only in the case of an idiosyncratic failure of a small number of small banks will the deposit insurance pay off.

Thus, the small banks have an incentive to take risk, unless they are controlled by the supervisor. In this context, the deposit insurer--i.e. the larger banks--will want to have the power to supervise the insured institutions and to take regulatory action. Thus, the large banks must have a strong voice on the board of the insurer and in its management. This means that the large banks may be able to use the insurance scheme to thwart competition from the small banks. Depositors in the large banks, in turn, must be implicitly guaranteed by the government for the scheme to work in the event of a large bank failure.

Most private deposit insurance schemes provide for the assessment of remaining solvent members in case the insurance reserves are exhausted. This power often turns out to be illusory as members refuse to deliver their liquid assets in the teeth of what surely will be a liquidity crisis.

Finally, a legal requirement to have deposit insurance in order to conduct a banking business may itself cause a seizing up of the banking markets and a forced closure of the banks if the insurance fund is declared insolvent. To prevent this, the government must inevitably intervene with funding.

For the scheme to be at all credible, it must involve a belief that the government will not permit the insurance fund to become insolvent, which effectively makes it public deposit insurance. The benefit of the private scheme is that the government need not reveal explicitly the extent of the guarantee that the depositor may have. Thus, small depositors may be less likely to precipitate a run than in the presence of no insurance at all. Alternatively, knowing that there is more moral hazard than in an uninsured system and knowing that they may take large losses, depositors may be more likely to test the system.

### **VIII. Conclusion**

The basic architecture worldwide of financial safety nets provides for a system of similar institutions: a lender of last resort, deposit insurance, and prudential regulation. The nature of the banking systems, resolution methods, and prudential regulation that the safety nets backstop does differ across important banking markets, but prudential regulation is converging as a result of the crises of the 1980s and 1990s to the model of consolidated regulation, strict capital requirements, and similar accounting principles. The safety nets and the detailed mechanisms of their operation can be functional in those banking systems whose banks have value in that they enhance existing incentives to reduce excessive risk-taking resulting from moral hazard. In countries whose banking systems suffer seriously from negative capital positions and overbanking such as in some Latin American markets, these formalisms of the safety net may not be functional in reducing excessive risk taking because of the strong incentive to banks to double their bets for survival. Thus, the first order of business has been to eliminate the negative capital positions of the banks through capital injection, liquidation, and merger. The hole has been filled for now with the injection of government paper, part of which is expected to be financed through the rising revenues of anticipated economic recovery. A recovery would also restore some value to non-performing assets and thereby reduce the problem.

Pending a recovery, the role of the safety net has been to restrict growth in the troubled banks to prevent an echo of the crisis in the next few years until the public finances and the courts can eliminate the problem. In the meantime, some financial safety nets and banking industrial organizations have been adjusted to account for the lessons of the recent crises. These changes are two-edged swords. In many markets, restrictions have been removed on the entry of foreign banks to bring more capital and liquidity into the system and to improve risk control methods. The downside may be to force domestic banks to take riskier positions to maintain market share. In one country, a private deposit insurance scheme has been implemented to calm small depositors; the downside may be to create more moral hazard and increase the likelihood that small depositors will test their banks. Finally, efforts are underway to make interbank markets more liquid, thereby making it easier to operate the lender of last resort service; as a negative effect this may allow banks to mobilize newly liquid securities as collateral in the construction of risky leveraged positions.

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