



# IMF Working Paper

---

What Happens After Supervisory  
Intervention?  
Considering Bank Closure Options

*Michael Andrews and Mats Josefsson*



**IMF Working Paper**

Monetary and Exchange Affairs Department

**What Happens After Supervisory Intervention?  
Considering Bank Closure Options**

Prepared by Michael Andrews and Mats Josefsson<sup>1</sup>

Authorized for distribution by David S. Hoelscher

January 2003

**Abstract**

The views expressed in this Working Paper are those of the author(s) and do not necessarily represent those of the IMF or IMF policy. Working Papers describe research in progress by the author(s) and are published to elicit comments and to further debate.

Closures have been used to resolve problem banks in many countries in a wide range of economic circumstances, yet banking supervisors frequently defer intervention and closure. Avoiding the costs of disruption is the principal argument in favor of extraordinary measures, such as the use of public funds for recapitalization or forbearance, as alternatives to closing insolvent banks. Well-planned and implemented closure options can preserve essential functions performed by failing banks, mitigating disruption. Extraordinary measures to avoid closure should generally be avoided, but may be used in a systemic crisis to preserve some portion of a widely insolvent banking sector.

JEL Classification Numbers: G21, G28, G33

Keywords: bank supervision; weak banks; bank restructuring; systemic crisis;  
deposit insurance

Authors' E-Mail Addresses: [mandrews@imf.org](mailto:mandrews@imf.org); [mjosefsson@imf.org](mailto:mjosefsson@imf.org)

---

<sup>1</sup> The authors are grateful to Philip Bartholomew, Warren Coats, Luis Cortavarria, Olivier Frécaut, Peter Hayward, David Hoelscher, Alain Ize, Carl Lindgren, Christiane Nickel, Marc Quintyn, Steven Seelig, Hemant Shah, and Jan Willem van der Vossen for helpful comments on earlier versions of this paper.

Contents	Page
I. Introduction .....	3
II. The Decision to Close a Bank .....	4
A. Three Sources of Problems .....	4
B. Guiding Principles for the Resolution of Weak Banks .....	5
C. Supervisory Action Prior to Closure .....	5
D. Resolution After Intervention .....	8
III. The Special Role of Banks Does Not Preclude Closure .....	10
A. Presumption Against Extraordinary Measures to Avoid Closures .....	14
B. Costs and Benefits of Using Public Funds .....	15
IV. Systemic Crisis .....	16
A. Statement of Principles .....	17
B. Evaluating Banks' Financial Condition .....	18
C. Minimizing the Fiscal Burden .....	19
D. Save Only the Viable Banking Franchises .....	21
V. Conclusion .....	21
References .....	23
Text Table	
1. U.S. Prompt Corrective Action .....	7
2. Bank Closure Options Available to Deposit Insurers .....	12
Boxes	
1. Principles for Dealing with Weak Banks .....	6
2. Procedures for Supervisory Intervention and Takeover of a Bank .....	9
3. Doing It Wrong and Doing It Right .....	18
4. Assessing the Financial Condition of Banks .....	20

## I. INTRODUCTION

Debate over the closure of banks frequently runs the gamut from almost casual references to the need to immediately close and liquidate insolvent banks to impassioned arguments not to close any bank due to real or imagined systemic repercussions. One reason for the very divergent views regarding bank closure is the different meanings commonly ascribed to the term.

One narrow meaning is the immediate closing of the doors of an insolvent bank, laying off staff and repaying depositors and other creditors over time, either pursuant to a deposit protection scheme or from the realizations on loans and other assets. While having the advantage of immediately checking operating losses, padlocking the doors and only then focusing on how to repay depositors could be very disruptive if it causes a more general loss of confidence in the banking system.

Alternative approaches to closure minimize disruption using a range of options such as a merger, sale of all or part of the bank's assets and liabilities, or deposit transfer and payout. This broader approach creates a vision of an orderly exit, and underpins the arguments in favor of closure as an appropriate part of the "toolkit" for dealing with problem banks in both normal times and in a systemic crisis.

"Bank closure" is used generically in this paper to mean the act whereby the preexisting legal bank entity ceases to carry on the business of banking.<sup>2</sup> Closure in this context is a tool to achieve supervisory objectives, and should not be construed with the specific legal connotation ascribed to the term in some banking laws. A closure may be partial, with the bank ceasing to do new business and running down its existing assets and liabilities over time, or the bank may be left with a rump of bad assets to be worked out after a purchase and assumption transaction. A well-planned closure can be part of the legal process of achieving the orderly exit of a weak bank through a range of resolution options including liquidation or a complete or partial transfer of its assets and liabilities to other institutions.<sup>3</sup>

The next section of the paper provides an overview of the supervisory process that can lead to the conclusion that it is necessary to close a bank. Section III briefly reviews the special

---

<sup>2</sup> For definitions of other terms commonly used in the discussion of bank resolutions, see Basel Committee (2002, Annex 5).

<sup>3</sup> The legal framework for dealing with problem banks and effecting closure varies significantly among jurisdictions. For example, license revocation can be the key legal step in closing a bank, or it may be a routine administrative action taken at the end of a liquidation, long after the normal business of banking has ceased. Detailed discussion of the legal process in various jurisdictions is beyond the scope of this paper. For an overview of the issues, see Asser (2001).

nature of banks and the rationale for regulatory oversight, noting that these do not provide compelling arguments against closing banks, and provides an overview of experience with bank closures around the world. Section IV examines the issues of closure as part of the response to a systemic crisis. While many of the same objectives apply as when dealing with an individual problem bank, the review and assessment process will necessarily be very different than the “normal times” supervisory approach. The last section provides brief concluding remarks.

## **II. THE DECISION TO CLOSE A BANK**

Closure of a bank is not capricious action taken to punish shareholders or the bank itself, nor is the decision to close a bank generally an isolated or sudden event. Although serious problems can suddenly come to light, in the “normal times” circumstance of dealing with one or a few problem banks in an otherwise sound system, the decision to close a bank is usually the culmination of efforts over time to remedy the problems of a weak bank. The situation in a systemic crisis, when many banks may suddenly face serious financial problems, is a specific case addressed in Section IV of this paper.

### **A. Three Sources of Problems**

At a conceptual level there are three underlying causes of problem banks: microeconomic; macroeconomic; and “system related,” or structural issues.<sup>4</sup> The microeconomic causes are generally poor banking practices that lead to losses through inadequate management of credit and other risks, or fraud. While soundly managed banks can weather cyclical downturns, there can be unexpected macroeconomic shocks, such as the 1970s’ oil crisis, that threaten even the most prudent institutions.<sup>5</sup> The category of “system related,” or structural causes, includes factors that are not conducive to the development of an efficient banking industry, such as market distortions from state banks, directed credits, inadequate legal framework, and inadequate supervision.<sup>6</sup> A cyclical downturn or macroeconomic shock may bring to the surface the underlying microeconomic or structural weaknesses in a banking system.

In dealing with weak banks, it is important that the solution address the underlying problem. Only in the rare case of a macroeconomic shock “sideswiping” otherwise sound banks is the injection of capital or a period of time to rebuild capital likely to be sufficient to restore the health of the bank without taking other actions to address the fundamental problems. A period of time to obtain new capital can be a part of a broader plan to achieve a turn around, but failure to address the underlying microeconomic or structural causes of the problem

---

<sup>4</sup> Hawkins and Turner (1999, pp. 16–18).

<sup>5</sup> Lindgren, Garcia and Saal (1996, Chapter 4).

<sup>6</sup> Hawkins and Turner (1999, pp. 17–18).

makes it likely that capital injected will be at risk, and delay in supervisory action likely only serves to increase the ultimate loss.

### **B. Guiding Principles for the Resolution of Weak Banks**

The need for speed, cost efficiency, avoiding market distortions and the creation of perverse incentives in the banking markets all mean that banking supervisors have to consider closing banks when depositors and creditors face imminent risk of loss due to insolvency (Box 1). The preferred resolution of a weak bank occurs long before this need would arise. In normal times well-managed banks will themselves take corrective action to deal with emerging financial problems or prudential violations, frequently before these issues come to the attention of the supervisor. However, owners and managers hoping that a general improvement in economic conditions will solve bank-specific problems, or that the bank may grow out of its problems, may have an incentive to try to conceal the true financial condition of the bank from the supervisor. The supervisor will have to take more formal action in these circumstances or in the case when the owners and managers of the bank, acting in good faith, are unable to remedy the problems.

### **C. Supervisory Action Prior to Closure**

Specific approaches vary among jurisdictions, but there are two generic legal approaches to dealing with weak banks: (1) discretionary; and (2) rules-based. In jurisdictions with a discretionary approach, the supervisor is generally bound by broad objectives such as taking timely remedial measures,<sup>7</sup> but has wide latitude regarding specific corrective actions and the timing of supervisory actions. In part to address concerns that banking supervisors may use discretionary powers to defer decisive actions, and in part to foster greater consistency in the approach to weak banks, some jurisdictions have a rules-based approach. An example of the rules-based approach is the prompt corrective action (PCA) provisions adopted in the United States and elsewhere (Table 1). PCA requires the banking supervisor to take certain minimum actions in response to specified trigger points, usually defined by capital adequacy ratios (CARs). Even with the PCA approach, the supervisor generally has wide latitude to take steps in addition to the minimum required. Thus, when the supervisor is of the opinion that the situation requires that management and shareholders be removed, there is no need to wait until capital is depleted to the level that would trigger mandatory conservatorship or receivership.

The range of responses to a weak bank may be viewed as a continuum of increasingly intrusive actions by the banking supervisor. A break point on the continuum occurs at the

---

<sup>7</sup> This is one of the essential criteria of Basel Core Principle 22.

### **Box 1. Principles for Dealing with Weak Banks**

**Speed.** Supervisors should act promptly. Experience from many countries shows that regulatory and supervisory forbearance has exacerbated the problems of a weak bank. By not dealing with the problems promptly, they have grown rapidly making the eventual resolution efforts more difficult and more expensive, with the possibility of becoming more widespread and systemic.

**Cost-efficiency.** A least-cost criterion should guide the supervisor when making choices between alternative actions consistent with achieving the supervisory objectives.

**Flexibility.** Legislation frequently adopts a rules-based approach. However, it is also helpful if the legislation permits the supervisor to exercise discretion in the deployment and timing of supervisory tools.

**Consistency.** Consistent and well-understood supervisory actions will not distort the competitive environment. Such an approach will also minimize confusion and uncertainty in times of crisis. Similar problems in different banks, large or small, private or state-owned, should receive similar treatment.

**Avoiding moral hazard.** Supervisory action should not create incentives for banks to act in a manner to incur costs that they do not have to bear entirely. Shareholders should not be compensated for losses when a bank gets into difficulty; otherwise it will encourage other banks to behave less prudently on the expectation that they will receive a similar bailout if problems occur. Equally, supervisory action should not protect the interest of the bank's corporate officers.

**Transparency and cooperation.** Inadequate or incorrect information from the bank increases uncertainty for everyone involved. It can lead to misplaced supervisory action and add to the costs of solving the problems. The bank and the relevant authorities should aim for a high degree of information sharing and transparency about their intended actions.

---

Source: Basel Committee (2002).

Table 1. U.S. Prompt Corrective Action

Early Warning Period		Increasingly Intrusive Supervision		Intervention
Adequately Capitalized CAR < 10 percent	Undercapitalized CAR < 8 percent	Significantly Undercapitalized CAR < 4 percent	Critically Undercapitalized Equity/Assets < 2 Percent	
<ul style="list-style-type: none"> <li>• Cannot pay dividends or management fees that would lead to undercapitalization</li> </ul>	<ul style="list-style-type: none"> <li>• Close monitoring</li> <li>• Capital restoration plan required within 45 days</li> <li>• Restrictions on growth, prior approval required for acquisitions, branching and new lines of business</li> </ul>	<ul style="list-style-type: none"> <li>• Recapitalization required</li> <li>• Restrictions on transactions with affiliates</li> <li>• Restrictions on interest rates, growth and activities</li> <li>• Require new directors and officers</li> <li>• Restrictions on holding company</li> <li>• Require divestitures</li> </ul>	<ul style="list-style-type: none"> <li>• Conservatorship, receivership or other action required</li> <li>• Appointment of receiver required if other action fails to restore capital</li> </ul>	

moment of supervisory intervention.<sup>8</sup> Up until this point, the owners and managers of the bank retain control of the institution, notwithstanding specific directions or restrictions imposed by the supervisor. During the period preceding intervention the existing shareholders have their opportunity to try to solve the problems facing the bank, and should be strongly motivated by the potential loss of their investment. Thus, when intervention becomes necessary it is almost certain that existing owners did not have the financial resources or the willingness to inject capital or institute needed reforms, and probably also failed to find new investors or a merger partner. This can be viewed as a clear confirmation of the poor financial condition of the

<sup>8</sup> The nature of “intervention” varies among regimes. In this paper intervention is defined as the authorities assuming control of a bank, taking over the powers of management and shareholders. Intervention is differentiated from less intrusive supervisory action through the supervisor (or deposit insurer, or an agent appointed by the supervisor or deposit insurer) assuming full legal control of the institution. An intervened bank usually stays open under the control of the authorities, while its financial condition is better defined and decisions are made on an appropriate resolution strategy. In some regimes there is a concept of conservatorship where the supervisory authority may assume day-to-day control of a bank, but shareholder consent would be required for major decisions.

intervened bank, which while not precluding the possibility of a turnaround after supervisory intervention, makes a closure option more likely.<sup>9</sup>

#### **D. Resolution After Intervention**

Despite the best efforts of the supervisor there will be cases where it becomes evident that the bank is unable to continue its operations without jeopardizing the safety of depositors' funds. In these cases, the supervisor must intervene. While other options may be available, as outlined above there is a strong likelihood that a closure option should result. The essential functions of a bank and confidence in the banking system can be preserved through a well-planned closure. Prompt closure can preserve any going concern value that would otherwise erode through ongoing operating losses. Decisive action can actually enhance confidence in the supervisory regime and banking system by ensuring that only sound banks are permitted to continue operating.

Following supervisory intervention it is crucial that well qualified and experienced staff take effective control of the bank and immediately assess the operations and financial condition of the bank, and undertake a review of available options (Box 2). Much of this work may have been completed prior to actual intervention if there had been an extended early-warning period, but in any event needs to be completed quickly. There is a risk of a run on the bank if uninsured depositors and other creditors fear they would have to bear some losses, and even without a run the realizable value of an intervened bank is more likely to decline than to improve. Ongoing operating losses, flight of remaining good commercial customers to higher quality banks not constrained in their ability to lend, and erosion of any remaining name and franchise value is likely to occur in banks operating for any extended period following supervisory intervention.

The review of an intervened bank may indicate that restructuring is feasible, but these conclusions need to be critically examined. A willingness to undertake more radical restructuring than was palatable to the bank's owners and managers may be sufficient to achieve the turnaround that escaped the shareholders during the early warning period. It is more likely, however, that the failure to fix the bank prior to intervention is an indication that new capital, not just restructuring and reorganization, was required, and that the expected return was insufficient to attract new equity investors, or a purchaser or a merger partner.<sup>10</sup>

---

<sup>9</sup> Sheng (1996, p. 36) notes that if private buyers cannot be found for a failed bank, it is generally cheaper to liquidate than to keep an insolvent bank open.

<sup>10</sup> This is quite understandable given that the first part of an investment in an insolvent bank simply fills the hole. For example, injecting equity of 15 in a bank with a capital deficit of five results a bank with a book value of 10. The immediate effect is that an investor has spent 15 to acquire an asset worth only 10, which is unlikely to be attractive unless there are good prospects for a rapid turnaround in the performance of the bank.

## **Box 2. Procedures for Supervisory Intervention and Takeover of a Bank**

Supervisory intervention and takeover of a bank can take place with full cooperation with the existing owners and management or can be imposed against their will.

When existing owners and management accept that the best option to maintain the value of the bank is for the supervisory agency to assume control and find a solution, it normally should be sufficient if the supervisory agency appoints an administrator or management team, which will determine which of the senior staff of the bank may be retained, and which should be replaced. Depending on the legal requirements to exercise control in a specific jurisdiction, directors of the bank may be removed so the bank functions under the direct control of the supervisory agency, or the board may be replaced by appointees of the supervisory authority.

When existing owners and management have explicitly opposed the supervisory intervention, or if there is a possibility that confusion or temporary lack of full internal controls might provide an opportunity for owners or staff of the bank personally to benefit through asset stripping or destruction of records, the supervisory agency needs to take physical as well as legal control of the bank. In addition to removing the board and replacing existing management and other key persons as quickly as possible, the supervisory agency needs to secure the bank's premises and moveable assets. A summary of key steps in such an intervention follows. More detailed information, including guides to planning, staffing requirements and detailed checklists for task completion can be found in the *Closing Manual* of the Federal Deposit Insurance Corporation (FDIC). Supervisory agencies (or deposit insurers) with legal responsibility for bank intervention have (or should develop) similar generic contingency plans.

1. Appoint administrator and support team (size determined by the size and complexity of the bank). The first responsibility for the administrator and the support team is to get control of all the key functions in the bank as quickly as possible. New heads should be appointed for (i) credits; (ii) cash and vaults; (iii) accounting and reporting; (iv) computer systems; (v) external bank accounts; (vi) files and records; and (vii) staff and branches. If required, arrange for law enforcement agencies or private security firms to assist in assuming physical control. As far as possible, head office and all branch locations should be entered simultaneously.
2. Suspend authority of existing management immediately, particularly the powers to contract, sign, and move money. Advise clearing houses, payments system administrators, key counterparties, and correspondents of the change in control and make arrangements for items in transit to be either honored or returned. Staff should firmly be told to follow instructions from the administrator and the support team. All new transactions to be authorized by the administrator or persons designated by the administrator.
3. Issue statement to the press, important clients and the public. Preferably one person should be in charge of all external contacts.
4. Secure and seal swift and telex systems, dealing rooms and terminals. Locks and codes should be changed and access only allowed by a person authorized by the administrator.
5. Secure cash and vaults both at headquarters and branches and freeze all balances with correspondent banks.
6. Secure computer systems and make sure there are back-ups with off-site storage and disaster recovery provisions.
7. Secure all documents, and particularly board minutes, loan files, and collateral agreements.

All the above should have been planned thoroughly and need to be completed within a few hours after the intervention. Once the administrator and support team has full control of the bank they should start addressing more time consuming issues such as assessing the financial condition of the bank, staffing needs, auditing, and reporting.

Restructuring an intervened bank may improve its attractiveness to investors, but it may be more cost efficient to sell all or parts of the bank on an as-is basis, at a discount, or possibly by providing a stop-loss or some other guarantee to the new owner.

The supervisor, or contract management or consultants retained to manage the intervened bank may be able to make improvements, but the incremental costs of restructuring may not be fully recouped in a subsequent sale. Quickly disposing of the intervened bank has the benefit of checking ongoing operating losses and permitting a more precise estimate of the costs of resolution than a longer-term restructuring plan with uncertain results.

For even the largest banks where recapitalization or restructuring has not been successful prior to intervention, possible solutions to preserve the essential functions of the bank include:

- sale of individual businesses of the bank on a going concern basis;
- liquidation and piecemeal or en bloc sales of individual assets and business lines; and
- an outright sale of the bank to another financial institution.<sup>11</sup>

Particularly if the bank has a large share in certain business lines or regions, its assets should be attractive to purchasers. Another viable option may be to split the intervened bank's assets, liabilities, staff and branch network into perhaps one or two new banks, which would be offered for sale to potential investors. If a banking system is too concentrated and dominated by a few large banks this could be a good opportunity to split it up, increasing the number of competitors.

### **III. THE SPECIAL ROLE OF BANKS DOES NOT PRECLUDE CLOSURE**

When considering the possible closure of a bank, it is useful to recall the oft-quoted phrase: "Banking is essential, banks are not." It is the function performed, not the existence of any particular bank or group of banks, which is vital to the economy. The special role played by banks is well known.<sup>12</sup> Banks are subject to prudential supervision both because of their important function and to counterbalance the tendency to increased risk-taking that might otherwise arise from the provision of public safety nets such as the lender-of-last-resort (LOLR) facility and deposit insurance.

---

<sup>11</sup> In order to meet the requirements of specific circumstances there can be an almost infinite number of variations on the general themes of (1) purchase and assumptions and (2) deposit transfer and payout. See FDIC (1998b, pp.19–44).

<sup>12</sup> Banks provide an essential store of liquidity by providing deposits valued at par and payable on demand. They provide a mechanism to make payments that are essential to completion of financial transactions in the economy, and they play a key role in the transmission of monetary policy. Banks play the major role in intermediating savings and investment.

Reluctance to close a bank can arise from concern that the action will be seen either as a failure of the supervisors or country authorities more generally, or that the closure may lead to a broader loss of confidence. The real failure of the supervisory apparatus is not bank closure, but failure to deal on a timely basis with identified problems. Loss-making banks may use aggressive pricing to attract deposits, distorting the market to the detriment of prudently managed banks. Loss-making banks do not properly perform their intermediation function, but instead consume deposits to cover their ongoing losses. The objective of prudential oversight therefore is not to prevent the failure of a bank, but instead to identify risks and inefficiencies in a timely way and to ensure that inefficient banks exit the market in an orderly manner with minimum disruption to the real economy. In resolving problem banks the objective should be to minimize disruption to the essential functions, not necessarily to save a bank.

Reluctance to close a bank can arise from an unwillingness to impose losses on shareholders, depositors and creditors. Politicians will be concerned about the impact on the large numbers of voters who will comprise the depositor base of even a small bank. Failure to resolve a problem bank defers the crystallization of the direct resolution costs, and thus may create the illusion that these costs have been avoided. Shareholders and creditors facing losses may have political influence. A truly independent banking supervisor will be better able to withstand the political influence of special interest groups.

Deposit insurance can play an important role in mitigating the impact of bank failures. This can make closures politically acceptable, by ensuring that the vast majority of small depositors suffer little or no loss. Similar protection for small deposits can arise from the preference given in many of the former Soviet countries to household deposits in claims against the assets of closed banks, or by the more general priority given to depositor claims in countries such as Australia. The effectiveness of priority claims as a means of protecting depositors is crucially dependent on decisive action by the supervisor to intervene and resolve a weak bank while the value of the assets is still sufficient to meet depositors' claims.

Even with the challenges posed by political influence and the difficulties in imposing losses on depositors, bank closures are widely used around the world to resolve problem banks. Much of the literature and research is based on the U.S. experience with thousands of bank failures, and it is sometimes argued that nondisruptive bank closures are not possible in countries lacking the unique structure of thousands of banks, well developed markets for the sale of banking and real assets, and broad and deep capital markets. The evidence does not support this position. Bank closures have been used as a resolution technique in economies at all stages of development, both in times of systemic crisis and in dealing with one or a few weak institutions in an otherwise sound financial system (Table 2). More than two-thirds of 37 deposit insurers responding to an FDIC survey indicated that troubled deposit-taking institutions are routinely closed and liquidated or otherwise reorganized when equity capital

Table 2. Bank Closure Options Available to Deposit Insurers 1/

	Purchase and Assumption		Deposit Payoff	
	Has Authority	Used In Last 10 Years	Has Authority	Used In Last 10 Years
Belgium	Yes	Yes	Yes	Yes
Canada	Yes	Yes	Yes	Yes
Czech Republic	...	...	Yes	Yes
El Salvador	Yes	No	Yes	No
France	Yes	No	Yes	No
Germany	Yes	No	Yes	Yes
Greece	...	...	Yes	Yes
Hungary	Yes	No	Yes	Yes
Isle of Man	...	...	Yes	Yes
Italy	Yes	Yes	Yes	Yes
Jamaica	Yes	No	Yes	No
Japan	Yes	No	Yes	No
Lithuania	...	...	Yes	Yes
Mexico	Yes	Yes	Yes	No
Netherlands	...	...	Yes	No
Nigeria	Yes	Yes	Yes	Yes
Oman	Yes	No	Yes	No
Peru	Yes	No	Yes	Yes
Poland	...	...	Yes	Yes
Portugal	...	...	Yes	No
Romania	...	...	Yes	Yes
Slovak Republic	Yes	Yes	Yes	Yes
Spain	Yes	Yes	Yes	Yes
Sweden	...	...	Yes	No
Taiwan Province of China	Yes	Yes	Yes	No
Tanzania	Yes	No	Yes	No
Trinidad and Tobago	Yes	No	Yes	Yes
Turkey	Yes	No	Yes	Yes
Uganda	Yes	Yes	Yes	Yes

Source: Bennett (2001).

1/ Subsequent to completion of the FDIC survey used to compile this table, Peru undertook two assisted purchase and assumption transactions, so is shown as having used the purchase and assumption authority in the last 10 years despite not having done so at the time the Bennett article was prepared.

is exhausted.<sup>13</sup> In over 60 bank failures in non-U.S. G-10 countries since 1980 the most frequently used resolutions involved closure of the bank—sale of the whole bank or its

<sup>13</sup> Bennett (2001, p. 5).

assets, or liquidation.<sup>14</sup> In a study of measures to resolve banking crises in 24 countries, including 20 developing or transition economies, a strong correlation was observed between exit policies and progress in resolving the crisis.<sup>15</sup> Of countries making substantial progress in resolving the crises, 80 percent employed bank closures as one part of the resolution strategy, while bank closures were used in only one-third of countries making slow progress towards crisis resolution. In dealing with failing banks in 12 transition economies in the Baltic States, Eastern Europe and the Commonwealth of Independent States, literally hundreds of banks were closed in the 1990s, largely without contagion, high costs, or social problems.<sup>16</sup> In the case of the Kyrgyz Republic and Kazakhstan, the closures included the country's largest and fourth largest bank, respectively. In 1995 Latvia closed and liquidated banks accounting for about 40 percent of banking deposits, including the largest private bank. Nigeria has a notable record among African countries, having closed and liquidated 34 banks since 1993. In Uganda four banks were closed between 1998 and 2001, including the second and third largest domestically owned banks, with two resolved by liquidation and two by purchase and assumption transactions. Since 1997, 20 banks have been intervened in Turkey representing some 20 percent of total banking system assets. Of these 20 banks, 12 banks have exited the market, primarily through mergers with two transition banks that were subsequently privatized. Four banks (including the two transition banks) have been privatized while four others remain under the control of the supervisory agency.

A systematic cross-country study of bank resolutions would provide further insights, but there is already ample evidence that closure options have been effectively employed in a wide range of circumstances. Closure options have been more often used to deal with small- and medium-sized banks, which in part reflect the larger universe of small banks, but also are indicative of the greater opposition and obstacles to closure of large banks. Avoidance of closure is especially prevalent in dealing with large state-owned banks. It would appear to be easier to muster the political will to close large banks in countries where the financial system is less well developed since even if there is disruption, the actual impact on the real sector is minimal (Kazakhstan, Kyrgyz Republic, Latvia, and Uganda).

The conceptual approach to dealing with a large problem bank is the same as dealing with a smaller bank, but the resolution will be more complicated and difficult. The prospect of complications and difficulty does not mean that large problem banks should go unaddressed, or that closure options should not be among the solutions considered.<sup>17</sup> The key is that the

---

<sup>14</sup> Bartholomew and Gup (1999, pp. 78–80).

<sup>15</sup> Dziobek and Pazarbasioglu (1997, p. 14).

<sup>16</sup> Tang, Zoli, and Klytchnikova, (2000, pp. 15–17).

<sup>17</sup> Of the three generic options presented in the FDIC *Resolutions Handbook*, two involve closure of the bank, and the third, open bank assistance, is seldom the preferred choice due to the requirement to pursue least-cost solutions (FDIC, 1998b).

resolution after intervention should avoid disruptions in the essential functions of the bank, even if it becomes necessary to proceed to liquidation and piecemeal asset sales. Arranging an orderly transfer of deposits and fair treatment of other claims is essential to maintaining confidence in the system. With adequate planning, an orderly transfer can be accomplished in a closure as well as in a going concern resolution. With inadequate planning, even a going concern solution can result in disruption to depositors that could lead to a more general loss in confidence in the banking system.

#### **A. Presumption Against Extraordinary Measures to Avoid Closures**

It is quite often argued that large banks are too big to fail, or more accurately, too big to close and liquidate, due to the negative impact on the rest of the banking system and the real economy. Arguments used are that remaining operating banks would not have the capacity to provide banking services needed, would not be able to absorb assets and liabilities of the failed banks, or that the closure of a large bank would lead to a more wide-spread loss of public confidence. Another argument is that a bank with a dominant role in providing certain bank services (i.e., foreign exchange or payment services), or a bank that is the only provider of services in certain regions, cannot be closed without depriving the real economy of banking services. It is also suggested that disruption of borrowing relationships built up over time will be a crippling blow to a bank's customers. Thus, it is sometimes argued that the authorities have no choice if a large bank runs into trouble but to recapitalize the bank, at any cost.

All these arguments should be questioned. First, it is important to remember that the functions performed by the bank may be essential, but the bank itself is not. It may be cheaper to hive off the important parts of the bank rather than trying to save the entire institution. This can preserve customer relationships without the costs of maintaining loss-making operations. A second important point to consider is that the alternative to intervening is to permit the continued operation of an insolvent bank. Sale of viable parts of the bank or closure and liquidation may be less costly than continued subsidization of a bank's losses. Clearly, there is a need to take action to stem the ongoing losses to avoid diverting economic resources to an inefficient bank, and requiring other better managed banks to compete against the distortions a loss-making bank can introduce in a market.

Delay in addressing problem banks increases costs and makes ultimate resolutions more difficult. International experience has shown that bank problems can worsen rapidly if not promptly addressed, however, in many cases supervisors have tended to postpone taking timely and adequate corrective action in the hope that the problems will rectify themselves.<sup>18</sup> The "wait and hope" strategy is seldom successful. It is rare for additional information to surface after intervention that reveals the problems to be less severe than had originally been identified, or for a delay in intervention to actually reduce resolution costs. This is the case in

---

<sup>18</sup> Basel Committee (2002, p. 21).

nonsystemic situations, where “experience has shown that unsound banks are invariably in worse condition than is indicated by their financial statements, and that the lowest cost way to keep the banking system sound is to force their exit.”<sup>19</sup> Evidence is also found in cases of systemic crisis, where in almost 25 percent of cases repeated recapitalizations are required because the amount initially provided turns out to be insufficient to restore solvency.<sup>20</sup> However, each problem bank presents a unique situation and it is not possible to test and determine or predict with absolute certainty the results of alternative strategies. Thus, the judgment involved in estimating costs and benefits provides supervisory authorities with the scope to reach a determination that a nonclosure option is more cost effective. While sometimes true, the evidence is that more frequently the analysis and initial decision to provide open bank assistance or forbearance are subsequently proved incorrect, ultimately increasing the costs of resolution.

To offset this imbedded tendency to defer action and overestimate the likely success of open-bank resolutions, there should be a strong presumption against the use of forbearance or public funds to avoid closures. In normal times, the use of public funds<sup>21</sup> for bank restructuring should only be considered in the case of systemically important banks, where the disruptive effect of the closure would result in higher costs than the cost of the extraordinary measures to deal with the problem banks. The burden of proof for use of public funds or a period of regulatory forbearance to deal with problem banks should be very high, especially when dealing with one or a small number of problem banks in normal times. This burden of proof is more readily met in a banking crisis, where there is an evident need to preserve part of an insolvent banking system to provide core functions for the real economy.

### **B. Costs and Benefits of Using Public Funds**

Public funds or forbearance for troubled banks can create perverse incentives similar to those created by an ill-founded deposit insurance scheme. Depositors who have the expectation of being made whole exert no market discipline on banks. Owners and managers who expect public support in times of trouble are encouraged to undertake more risky activities and be less vigilant in managing the bank’s exposure. For these reasons, a well-designed deposit insurance scheme incorporates features like low coverage limits to mitigate the negative effects on market discipline.<sup>22</sup> Similarly, the availability of LOLR support should generally

---

<sup>19</sup> Bartholomew and Gup (1999, pp. 47–48).

<sup>20</sup> Honohan and Klingebiel (2002).

<sup>21</sup> Deposit insurance payments up to established limits may be used—this will not normally result in fiscal costs borne by the taxpayers.

<sup>22</sup> Garcia (1999).

be limited to solvent banks in normal times.<sup>23</sup> To avoid the negative consequences similar to those that can arise from the formal safety net for banks, the process of dealing with a problem bank should involve measures to ensure that it is not insulated from the effects of market discipline. In normal times these can be expected to include ensuring that shareholders lose their equity investment and depositors will not receive more than the limits of an existing deposit insurance scheme. Management found at fault need to be replaced to send a message about the negative outcomes from managing poorly.

The principal benefit of using public funds to rescue an insolvent bank is avoiding disruptive effects, the magnitude and consequences of which are difficult to predict. Fears of contagion or payment system paralysis may cause the authorities to favor extraordinary measures to avoid closure even if the probability of such widespread disruption is low. Governments may be so concerned about the costs and risks that an expensive bailout may be viewed as attractive, particularly when the costs of the bailout are uncertain and equally as difficult to quantify as the costs of disruption. The fiscal costs of government expenditures for bank restructuring or extended liquidity support can be more easily estimated, but the nonquantifiable costs outlined above may be even more significant.

#### IV. SYSTEMIC CRISIS

The assessments needed to close banks during a systemic crisis differ in a number of respects from the process leading to closure in an individual bank failure. In both cases, however, unviable banks should be closed. While the determination of viable and unviable can be difficult in the midst of a crisis, the evidence suggests that a strong exit policy for insolvent banks is an important part of successful systemic bank restructuring.<sup>24</sup> Such action serves to stem operating losses, limit the extent of needed liquidity support, and can also be important in providing markets a signal of a break with past practices of forbearance.<sup>25</sup>

A number of immediate steps are required to stabilize the system after the onset of a banking crisis. Depending on the circumstances, these may include liquidity support to ensure continued functioning of the payments system, a blanket guarantee to prevent bank runs,<sup>26</sup>

---

<sup>23</sup> He (2000).

<sup>24</sup> Dziobek and Pazarbasioglu (1997, p. 26).

<sup>25</sup> Lindgren and others (1999, p. 23).

<sup>26</sup> Blanket guarantees have a number of drawbacks, including the fiscal exposure of an open-ended government commitment to cover bank losses. Nevertheless, when faced with runs in a systemic crisis, countries with the fiscal resources to make such a policy credible have generally opted to guarantee all bank depositors and creditors.

and the prompt closure of unviable financial institutions.<sup>27</sup> In the midst of a crisis it will be difficult to quickly identify all the unviable institutions, with the result that liquidity support will likely be extended to some institutions that subsequently must exit. Thus, there will likely be an initial round of closures involving those banks that are immediately identifiable as unviable, followed by further closures or consolidation once the system has been stabilized and the immediate post-crisis period of bank restructuring takes place.

### **A. Statement of Principles**

In a systemic crisis or if a number of banks have been intervened, a clear strategy is required to avoid magnifying problems through ad hoc reactions. No decision on the use of public funds or a policy of forbearance should be taken until a strategy, which can be made public in a statement of principles, has been developed. This should lay out the process for dealing with the banking problems, including clear decision rules as to which banks will be eligible for extraordinary assistance and which banks should be closed. To be eligible for public funds, at a minimum a bank should:

- have fit and proper owners and managers;
- recognize the full extent of losses based on realistic asset valuations;
- have a business plan to achieve full capital adequacy within a realistic time frame;
- commit to necessary operational restructuring to assure future profitability; and
- involve private sector owners with sufficient capital at risk to provide a strong incentive for them to work for the survival and success of the institution.

In addition, the terms of provision of public funds should provide safeguards for the funds invested and incentives for the bank to be returned to full private ownership as quickly as possible. Such measures usually include intensive supervision and reporting requirements, restrictions on dividends, and could also involve provisions for automatic intervention or changes in management if agreed restructuring and performance targets are not met. Also, the provision of some or all of the public funds in the form of equity or convertible debt enables government to realize some of the benefits of a successful turnaround as well as providing the private shareholders with an incentive to repay the investment of public funds at the earliest opportunity.

It is important that the initial announcement of bank closures should be part of a coordinated package of actions and announcements including details of how the closures will be affected, plans to ensure smooth deposit transfer and payment, and details on the treatment of the staff of the banks to be closed. Failure to position bank closures as part of a coordinated process to

---

<sup>27</sup> There are also other key elements to a stabilization action plan, including macroeconomic policies, the possibility of capital controls, and debt restructuring. For a fuller discussion see Lindgren and others (1999, pp. 16–23). These broader issues are outside the scope of this paper, which focuses more narrowly on issues related to bank closure.

deal with the crisis and to ensure minimal depositor disruption risks a continuation rather than stabilization of the crisis (Box 3). A clear communications strategy ensuring that only predetermined individuals speak publicly and deal with the press is important to ensure that the public is not confused by erroneous or speculative statements by individual politicians or officials.

### **Box 3. Indonesia: Doing It Wrong and Doing It Right**

Intensified bank runs soon followed the closure of 16 small deeply insolvent Indonesian banks on November 1, 1997. Partial guarantees of depositors of the closed banks, the perception that other weak banks remained in the system, a loss of confidence in the government's overall economic management and currency flight all fueled the runs. This experience underscores the need for closures during a systemic crisis to be part of a comprehensive restructuring strategy that is clearly explained to the public, with sound macroeconomic policies in place.

A second round of closures was undertaken on March 13, 1999 concurrently with the take-over of seven banks by the Indonesian Bank Restructuring Agency (IBRA), the designation of nine other banks as eligible for public contribution to recapitalization, and the announcement of "fit and proper" reviews of banks viewed as viable. These actions, which resulted from assessment of the condition of private banks that began in the fall of 1998, were taken against the background of the January 1998 three-point plan of a blanket guarantee, the creation of IBRA, and introduction of a framework for corporate restructuring.

This second round of closures involving 38 banks was managed so that most deposits were transferred over the weekend of March 13, resulting in minimal disruption for depositors. The interventions and closures were well publicized through the electronic and print media, with customers getting full information about how to access their funds at banks receiving the transferred deposits. The combination of decisive action clearly communicated to the public, the existence of a credible guarantee, and evidence of a comprehensive approach to the private banks all contributed to the orderly exit of insolvent banks with minimal disruption.

---

Source: Lindgren and others (1999, Appendix I)

## **B. Evaluating Banks' Financial Condition**

An immediate review of the banking sector will likely identify some clearly unviable banks that should be closed immediately. An additional period of evaluation will be required to

determine which other banks should be eligible for public assistance, and which should be subsequently closed or exit the market through merger (Box 4). The triage process is complicated by likely uncertainty about the veracity of reported financial data, the absence of market prices for most distressed bank assets, and general uncertainty arising from volatile macroeconomic conditions.

A review of the quality of banking supervision as part of this triage process serves two purposes. First, it establishes the extent to which supervisory data and bank reports provide reliable information on which to base assessments of banks' viability. Second, a review of prudential regulations and their enforcement, with a focus on asset quality, including loan classification and provisioning requirements; accounting standards; profitability; liquidity; and solvency will identify areas that require strengthening as part of the institutional reform that is a necessary part of a longer term recovery plan.

### **C. Minimizing the Fiscal Burden**

The authorities should always pursue options that minimize the fiscal burden once the decision has been taken to use public funds to assist in the restructuring of banks. This may mean having to limit the number of banks eligible for public assistance, perhaps by requiring that banks raise new private capital in order to be eligible for public assistance. In evaluating options it is important to consider that in the aftermath of a systemic crisis recovery rates from the assets of closed banks may be quite similar to recovery rates for the assets of restructured banks. In both cases, an asset management company would likely undertake much of the collection on loan assets. In a closure there is the possibility of recoveries from other assets and deposits sold to other operating banks. The cost for closing and liquidating a bank would roughly equal the estimated net value (likely to be negative) of the bank plus liquidation costs such as severance payments for staff, and lease and contract termination costs. These costs may not vary greatly from the costs of a financially assisted merger or restructuring, as all options are likely to entail significant rationalization of both staff and facilities.<sup>28</sup>

---

<sup>28</sup> In some jurisdictions fiscal costs of closure may be lower than restructuring as a receiver or trustee may not be legally required to pay the full staff severance or lease termination costs that an operating bank might face. In these jurisdictions the authorities will have to make a determination as to whether these costs should be borne by the budget.

#### **Box 4. Assessing the Financial Condition of Banks**

In most cases of systemic banking problems there is a need to assess the financial condition of banks to determine the “hole” in their balance sheets and thus the amount of capital needed to bring the system back to solvency. Making such assessments when the banking system is distressed is difficult because typically markets cease to function in a crisis, making it hard to estimate both the repayment capacity of borrowers and realizable value of collateral. Although difficult to do, it is important to avoid being too conservative on the one hand, leading to overstated capital needs, or too liberal on the other, resulting in banks remaining undercapitalized. The following is a summary of the methodology adopted in Turkey to assess the financial condition and thereby the capital needs of private banks.

The assessments were done by the external auditors and linked to their audit of the banks’ financial statements as of end-December 2001. This did raise the issue of a conflict of interest since the external auditors, who had provided opinions on previous financial statements, might have been reluctant to provide assessments that would indicate any possible inaccuracy in historical financial statements. However, the current auditors’ in-depth knowledge of the respective banks meant that they could carry out the assessments more quickly and at a lower cost than a new firm. Moreover, the Banking Regulation and Supervision Agency (BRSA) issued detailed specific instructions on supplementary reporting requirements to be prepared by bank management and certified by the auditors. As a further check against the possibility of the auditors deliberately or inadvertently misstating the financial condition of the banks, the BRSA appointed another firm independent of both the bank and the auditor to verify for each bank that the assessments had been carried out according to regulations and guidelines issued by the BRSA.

The supplementary reporting requirements focused on the following four areas:

**Capital adequacy:** Detailed information was requested regarding all classes of asset, application of risk weightings, and verification of the source of funds for any recent injection of capital.

**Credits and other receivables:** Since this constituted the single greatest risk for most of the banks, extensive disclosure of information and assessments were required on both individual and group exposure basis, including: (i) borrowers’ performance; (ii) ability and willingness to pay; (iii) risk classification (five categories) and provisions established. In order to provide comfort that the bulk of the risk exposure had been examined in depth, auditors were required to certify that credit risk had been individually assessed for the greater of the 200 largest exposures or 75 percent of the value of the loan portfolio.

**Exposures to related parties:** Banks were required to disclose all related party balances and transactions with entities and individuals, both onshore and offshore. Auditors were required to confirm completeness and to review pricing and the economic substance of all such transactions.

**Valuation issues:** The instructions required extensive listing of transactions and testing of rates, prices and review of legal documents to assess the economic substance and legal form of transactions. Standards were given to identify and correct accidental or deliberate nonmarket pricing in the valuation of securities and foreign exchange accounts. The auditors were given specific instructions regarding detection of artificial pricing and fictitious transactions intended to window-dress the accounts.

#### **D. Save Only the Viable Banking Franchises**

Hard decisions will be required to minimize the number of banks to be saved at public expense, both to minimize the fiscal cost and in an effort to ensure that the post-crisis landscape is not populated with a large number of “banks” that only warehouse recapitalization bonds. As a general principle a bank should be closed and liquidated if there is not a very high probability that recapitalization and a short period of restructuring would result in a bank that could be easily sold to private investors. Making this determination for individual banks in the midst of a crisis will be difficult, but it is important to keep in mind that injection of enough capital could make any bank financially viable, but it will only be attractive to investors if it has a valuable banking franchise. Thus, a bank with a largely nonperforming asset portfolio, or one that loses most of its customer base through the transfer of nonperforming loans to an asset management company, will most likely not be a good candidate for restructuring. Building a new customer base on the asset side is a risky and lengthy exercise, and if built up too quickly could involve assuming a high degree of credit risk. This suggests that recapitalization and restructuring efforts should focus on those banks that retain the largest portion of unimpaired loans. For banks without a strong franchise, faster and lower cost resolutions may be achieved through the en bloc or piecemeal sale of any attractive businesses and a deposit transfer and payout.

#### **V. CONCLUSION**

Closing a bank becomes necessary when other measures have failed to resolve the problems of a weak bank. There are many reasons why supervisors often hesitate to close a bank: concerns about potential disruption to depositors, borrowers, creditors and the payment system; the possibility that closure might trigger runs at other banks; and reluctance to impose losses on depositors, especially in the absence of deposit insurance or a government guarantee. All these concerns can be mitigated by timely, well-planned closure options. There may be concern that closing a bank will be interpreted as a failure by the supervisory agency, but “bank failures are part of risk-taking in a competitive environment. Supervision cannot, and should not, provide an absolute assurance that banks will not fail.”<sup>29</sup> Avoiding disruption is an important consideration, but it is equally important that there be a mechanism for inefficient banks to exit the market.

Governments may be tempted to avoid the repercussions of bank failures by using public funds for restructuring or to guarantee bank depositors and creditors. These extraordinary measures may be required in response to a systemic crisis, but should generally be avoided. In addition to the fiscal burden ultimately borne by taxpayers, use of public funds can distort the market and create perverse incentives, ultimately weakening rather than strengthening the banking system. The disruptive effects of bank failures are better addressed through well

---

<sup>29</sup> Basel Committee (2002) p. 30.

planned and executed closures of banks, involving some form of purchase and assumption or deposit transfer to preserve the essential functions performed by a failing bank.

Despite differences in legal frameworks and market structures, bank closures have been widely used around the world to resolve problem banks. Closure of a bank is not a decision to be taken lightly or in isolation. It will almost always be the culmination of a supervisory process attempting to resolve problems before closure became necessary, or in the case of systemic crisis, part of a broader plan that will preserve part of an insolvent banking system. The best solution to a problem bank occurs before the bank reaches a level of weakness that requires supervisory intervention. However, this will not always be possible, particularly in a systemic crisis when the whole sector becomes populated with problem banks. It also will not be possible in many “normal times” situations where, despite escalating supervisory action, restructuring attempts, and a search for new private sector investors, intervention is ultimately required to limit the exposure of the deposit insurer, uninsured depositors and other creditors. When intervention becomes necessary, closure options should be considered in both normal times and systemic crisis.

## REFERENCES

- Alexander, William E., and others, 1997, *Systemic Bank Restructuring and Macroeconomic Policy* (Washington: International Monetary Fund).
- Asser, Tobias M.C., 2001, *Legal Aspects of Regulatory Treatment of Banks in Distress* (Washington: International Monetary Fund).
- Bartholomew, Philip F., and Benton E. Gup, 1999, "A Survey of Bank Failures in the Non-U.S., G-10 Countries Since 1980" *Research in International Banking and Finance*, Vol.16, pp. 45–88.
- Basel Committee on Banking Supervision, 2002, *Supervisory Guidance on Dealing with Weak Banks: Report of the Task Force on Dealing with Weak Banks* (Basel: Bank for International Settlements).
- Bennett, Rosalind L., 2001, "Failure Resolution and Asset Liquidation: Results of an International Survey of Deposit Insurers" *FDIC Banking Review*, Vol. 14, No. 1.
- Caprio, Gerald, and Daniela Klingebiel, 2002, "Episodes of Systemic and Borderline Banking Crises" Discussion Paper 428 (Washington: World Bank).
- Dziobek, Claudia, 1998, "Market-Based Policy Instruments for Systemic Bank Restructuring," IMF Working Paper 98/113 (Washington: International Monetary Fund).
- , and Ceyla Pazarbasioglu, 1997, "Lessons from Systemic Bank Restructuring: A Survey of 24 Countries," IMF Working Paper 97/161 (Washington: International Monetary Fund).
- Enoch, Charles, Gillian Garcia and V. Sundararajan, 1999, "Recapitalizing Banks with Public Funds: Selected Issues," IMF Working Paper 99/139 (Washington: International Monetary Fund).
- Federal Deposit Insurance Corporation, 1998a, *Managing the Crisis: The FDIC and RTC Experience 1980–1994* (Washington: FDIC).
- , 1998b, *Resolutions Handbook: Methods for Resolving Troubled Financial Institutions in the United States* (Washington: FDIC).
- Frydl, Edward J., 1999, "The Length and Cost of Banking Crises," IMF Working Paper 99/30 (Washington: International Monetary Fund).
- , and Marc Quintyn, 2000, "The Benefits and Costs of Intervening in Banking Crises," IMF Working Paper 00/147 (Washington: International Monetary Fund).
- Garcia, Gillian, 1999, "Deposit Insurance: A Survey of Actual and Best Practices," IMF Working Paper 99/54 (Washington: International Monetary Fund).
- Hawkins, John, and Philip Turner, 1999, "Bank Restructuring in Practice: An Overview," in *Bank Restructuring in Practice*, BIS Policy Paper No. 6 (Basel: Bank for International Settlements).
- He, Dong, 2000, "Emergency Liquidity Support Facilities" IMF Working Paper 00/79 (Washington: International Monetary Fund).
- Honohan, Patrick, and Daniela Klingebiel, 2002, "Controlling the Fiscal Costs of Banking Crises" Discussion Paper 428 (Washington: World Bank).
- Lindgren, Carl-Johan, and others, 1999, *Financial Sector Crisis and Restructuring: Lessons From Asia*, IMF Occasional Paper 188 (Washington: International Monetary Fund).

- Lindgren, Carl-Johan, Gillian Garcia, and Matthew I. Saal, 1996, *Bank Soundness and Macroeconomic Policy* (Washington: International Monetary Fund).
- Office of the Comptroller of the Currency, 1988, *Bank Failure: An Evaluation of the Factors Contributing to the Failure of National Banks* (Washington: OCC).
- Santomero, Anthony M., and Paul Hoffman, 1998, "Problem Bank Resolution: Evaluating the Options" Financial Institutions Center Working Paper 98-05-B (Philadelphia: Wharton School, University of Pennsylvania).
- Sheng, Andrew, 1996, "Bank Restructuring Techniques" in *Bank Restructuring: Lessons from the 1980s*, ed. by Andrew Sheng (Washington: World Bank).
- Tang, Helena, Edda Zoli, and Irina Klytchnikova, 2000, "Banking Crises in Transition Countries: Fiscal Costs and Related Issues" WB Working Paper 2484 (Washington: World Bank).