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Transparency and Ambiguity in Central Bank Safety Net Operations

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Abstract

To mitigate the risks of contagion from problems arising in the banking sector, many countries operate some form of banking sector safety net. Such safety nets generally involve a judicious mixture of transparency and ambiguity. This ambiguity may be important to counter moral hazard effects but may lead to excessive forbearance in the face of banking problems. While the scope for ambiguity has been declining, some ambiguity in the handling of individual institutions remains. In any case, ex post transparency is essential for reviewing the propriety of any assistance and preserving the authorities' future reputation and policy credibility.

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SUMMARY

To mitigate the risks of contagion from problems in the banking sector, many countries operate some form of banking sector safety net. Frequently the safety net comprises the central bank as lender-of-last resort (LOLR) and a deposit insurance scheme. While such safety nets provide some benefits, they can also cause problems, in particular through moral hazard. Managers, owners, and depositors of banks may be less prudent than if they expect to bear the full consequences of bank failure. The design of these safety nets, especially the LOLR component, thus generally involves a judicious mixture of transparency and ambiguity.

The debate over the relative roles of transparency and ambiguity has parallels with that on rules versus discretion in economic policy. In the case of the banking safety net, there is some disillusion with maintaining ambiguity because of experience that this has led to excessive forbearance in the face of banking problems. In addition, with trends toward greater financial sector disclosure, the scope for ambiguity may be declining.

The paper concludes that there is nevertheless likely to be a case for some ambiguity within the scope of the financial safety net as it relates to the handling an individual institutions. Such ambiguity has to be balanced by clear "ex ante" and "ex post" transparency. Ex ante transparency requires the setting of clear rules in advance about what support will be offered and what the penalties will be. Ex post transparency requires that the provider of financial support publicly explain its actions and take responsibility for them, as soon as such disclosure can be made without causing further banking sector difficulties. Ex post transparency is essential for reviewing the propriety of any assistance and preserving the authorities' future reputation and policy credibility.

I. INTRODUCTION

It has long been recognized that a bank failure may lead to external costs beyond the costs incurred by those directly involved in the bank failure. This has provided the justification for official supervision of banks, as well as on occasion for official support to prevent a bank from failing. It has also been recognized that small depositors may not be able to assess accurately the soundness of a bank: depositor protection would help avoid irrational bank "runs" that could lead to banking failures, and protection would also provide a level of financial compensation if indeed a bank did fail.

Thus, in order to reduce the risk of a banking crisis and to protect small depositors in banks, most countries' authorities[2] operate with some form of financial safety net for banks in distress and their depositors.[3] In many countries the safety net comprises both the central bank as lender-of-last-resort (LOLR) and a deposit insurance scheme. While the arguments for such a safety net are clear, the existence of a safety net also leads to problems. In particular, there is the possibility of moral hazard—i.e., managers, owners, creditors, and depositors of banks may be less prudent in their behavior than if they expect to bear the full consequences of a bank failure.[4] This possibility becomes particularly pronounced the more the safety net implies complete protection from losses. Many central banks, in an effort to reduce moral hazard—as well as to retain some scope for discretion and confidentiality when a situation of potential failure emerges—maintain some constructive ambiguity with regard to how, when and whether they will employ their safety nets. Ambiguity is particularly an issue with regard to the provision of LOLR assistance.[5]

In monetary policy, and economic policy more generally, there are increasing moves toward transparency. In part, this derives from the rational expectations literature: economic agents will always be watching the authorities, so the effects of discretionary policy will be anticipated and offset; the best the authorities can do is to determine and disseminate clear rules, and to establish credibility by being totally open and consistent in their actions. Analogously, with regard to the authorities' policy for handling problem banks, economic

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[2]Although safety nets are in many countries not the sole responsibility of the central bank, "central bank" will be used here for ease of expression. In a later section, the paper presents some arguments why, at least for some aspects of the operation of a banking sector safety net, other agencies should be involved.

[3] See Kyei (1995).

[4]See Garcia (1996), (1997).

[5]Moral hazard as regards depositor protection is in some cases, in particular in EU countries, addressed through co-insurance, i.e., depositors have less than 100 percent protection.

agents will have some view of the likely extent of a financial safety net, so the possible existence of the safely net will have effects (both positive and negative) even if the central bank is not transparent in its intentions. Indeed, since managers, owners, creditors, and depositors must form some view as to the likelihood of the provision of a safety net, it is not obvious that ambiguity leads economic agents to believe the safety net will be *less* generous than what the central bank intends to provide—an important element in reducing moral hazard.

On the other hand, maintaining ambiguity can at times facilitate the ability of the central bank to operate in private. Since the health of a banking system depends in part on the confidence that the public has in the system, and since confidence may decline if it is known that a rescue has been mounted (since it means that the bank was otherwise in trouble), there is an argument that the most efficient application of a bank safety net—in particular, the provision of LOLR support—is one that is not seen. This may imply that it is one where the central bank has exercised discretion, and has not—at least at the time—made its interventions public.

In many countries, therefore, ambiguity—apart from times of crisis, when explicit promises of blanket coverage of bank liabilities are common[6]—has been standard central bank practice with regard to financial sector safety nets.[7] Only in a few countries have there been explicit statements as to the limited extent of assistance in cases of bank failures. Of these, among the clearest, and most restrictive, regarding the absence of government guarantees of deposits and other bank liabilities, have been those in New Zealand where an implicit guarantee has been replaced by strengthened disclosure requirements and a number of supportive measures.[8]

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[6]See, for instance, Alexander et. al (1997) and Gronkiewicz-Waltz (1997).

[7]For an example, see the statement of Corrigan (1990), which explains the policy of "constructive ambiguity" of the U.S. Federal Reserve. Also, the report of the Working Party on Financial Stability in Emerging Markets (1997) observes that, "any pre-commitment to a particular course of action in support of a financial institution should be avoided by the authorities, who should retain discretion as to whether, when and under what conditions support would be provided. In addition, when making such a decision, it is important to analyze rigorously whether there is a systemic threat and, if so, what options there may be for dealing with systemic contagion effects in ways that limit the adverse impact on market discipline."

[8]New Zealand adopted a system relying on market-based means of enforcing banking sector discipline in January 1996. A brief discussion of the New Zealand model is contained in Appendix I. Chile too has adopted some elements of this approach. In Colombia, central bank guidelines prohibit the extension of credit to insolvent institutions but other government entities are not so restricted. Argentina abolished its financial safety net when it established its currency board arrangement. However, faced with massive deposit withdrawals in 1995, it

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The debate over transparency can also be seen as an application of the argument of rules versus discretion. On the one hand, one wants firm rules, so as to tie the hands of policy-makers and prevent any bias toward forbearance. Rules, to be effective, must be known and transparent. On the other hand, it is impossible to determine in advance exactly in what form banking problems may emerge, and so it may not be possible to design effective operational rules to determine how the problems will be handled.

The aim of this paper is to examine the relative roles of ambiguity and transparency in central bank safety nets at the present time. There has been an emerging consensus in favor of transparency with regard to the operation of monetary and fiscal policy; there has been perhaps less agreement as regards its desirability in the context of the management of the banking system.

The paper concludes by suggesting a framework that reconciles the two views. Clear ex ante rules for limited central bank support to troubled banks and their depositors (particularly small depositors) can often be helpful. The possibility of providing further assistance in systemic cases[9] is in any case not ruled out—whatever the authorities may publicly say—and there is likely to be some ambiguity as to the circumstances under which it would be given. Thus, there will be ambiguity even in the handling of an individual bank in cases where problems in that bank risk leading also to systemic problems. Such ambiguity should be balanced on the one side with "ex ante" transparency by specifying clear rules for penalties attached to such assistance. Furthermore, to the extent that the central bank retains discretion in its handling of banking sector problems, this should also be balanced with "ex post" transparency providing firm rules for disclosure after the event. The intention is that balancing this form of ambiguity with ex ante and ex post transparency provides a framework that allows discretion coupled with firm rules in a way that ensures accountability and credibility for both bank managements and the central bank.

The paper is organized as follows. Section II discusses the trade off between transparency and ambiguity. Section III introduces a reconciliation of the two approaches. Section IV concludes.

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had to depart somewhat from its new approach. The government set up a US$2.5 billion fund to help banks, and in April 1995 reintroduced an explicit limited deposit insurance scheme. Subsequently, the central bank arranged a line of credit from a syndicate of foreign commercial banks that would be on lent to domestic banks with liquidity troubles.

[9]Perhaps by a separate government institution, since spending public money for this purpose is ultimately a quasi-fiscal responsibility and should not rest with the central bank.

II. Transparency versus Ambiguity: The Trade Off

Policy makers may be transparent, forthright, ambiguous, inconsistent, or dissembling. With the increased recognition of the importance of expectations, policy changes are viewed as potent largely to the extent they are unanticipated. Hence inconsistency may have some short-term appeal. The drawback however is that government policies that depend for their success on the public's belief that they will persist unchanged in the future will lose credibility and be more costly to implement when the policies are changed.[10] Arguably, the worst situation is where the authorities have pre-specified rules, but then do not follow them, since they will lose credibility, not only on issues of handling the banks, but possibly also more widely across their areas of responsibility.[11] Hence central banks must look beyond the short-term impact of a particular case and carefully assess its importance for their future reputation.

Ambiguity in rules, therefore, may be considered as preferable to being inconsistent in the application of clear rules. Ambiguity allows some discretion without necessarily a loss in credibility over time. Obviously, however, though an ambiguous rule may be more credible than a transparent rule (in the sense that the subjective probability that the rule will be obeyed is higher for the former than the latter), it is less well-specified and therefore will have less impact on market behavior than a credible transparent rule.

There are two possible simple rules. One is that no bank (owners and managers) or its depositors should ever suffer losses. The other is "no bailout" for banks or their depositors. The former rule may imply an open-ended fiscal commitment, notwithstanding that public expenditure is coming under ever-keener scrutiny, and may generate moral hazard effects that could seriously erode the proper working of market signals in the banking sector. The latter—i.e., the "no bailout" rule—on the other hand, is designed to minimize direct fiscal costs and moral hazard, and give maximum play to market forces. It is hard, however, to make such a rule credible, and those countries that have explicitly sought to introduce such a rule have made concomitant changes in a number of the practices and institutions pertaining to the banking system, so as to minimize the scope for discretion and increase the perceived likelihood that the rule will be followed. Most countries, however, operate in a different environment, where there would be considerable unease about seeking to manage a banking system without a safety net. Thus, in nearly all countries there will be a safety net of some form or other. The issue is how much ambiguity the operation of the safety net should contain.

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[10]See Stella (1984).

[11]In some cases, it may, therefore, be best for a central bank to say very little but for its actions to be visibly consistent. For instance, in the 1970s, the G-10 central banks issued a statement which simply said that Governors were confident that arrangements were in place to deal with any problems in the euro-markets, without giving any indication as to what those arrangements might be.

A. The Benefits of Transparency

The argument that policy rules are superior to discretion has a long history.[12] In one stand of the argument Kydland and Prescott, in a formal model, show that discretionary policy—namely the selection of the policy which is best given the current situation and a correct evaluation of the end-of-period position—does not result in the social objective function being maximized.[13] This is primarily because the policy maker does not take into account the effect of his strategy on the overall structure including the optimal decision rules of the affected economic agents.[14] Were an efficient means available to commit to a clear (often simple) rule, the policy maker could improve social welfare by adopting it.

One major outcome of this strand of literature is the search for commitment technologies and/or enabling institutions that would permit a credible commitment to a rule. Examples include balanced budget constitutional amendments, fiscal convergence criteria under the Maastricht Treaty, and currency boards.

Rules advocates tend to support transparency on the grounds that in order to influence expectations—crucial for their success—rules must be understood and verifiable. Credibility—i.e., the degree of belief placed on the execution of the rule—is also important. Credibility of a rule is related to the policy maker's reputation—i.e., the public's belief about the policy maker's true objective function. The implementation of a transparent rule can enhance the policy maker's reputation; conversely, a policy maker's reputation can either add to, or subtract from, the credibility associated with the particular rule. Transparency also provides a clear standard against which to assess, ex post, departures from a rule. If the rule is not clear it would be difficult to determine whether a specific action was justified.

In the context of managing the banking sector, forbearance is an application of discretion. Forbearance by supervisors allows a bank to continue operations despite an impaired capital

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[12]For discussion of the main arguments in the debate on rules versus discretion, see Guitián (1994).

[13]See Kydland and Prescott (1997).

[14]Lucas (1976) argues that since optimal decision rules vary systematically with changes in the structure of series relevant to the decision maker, any change in policy induces changes in structure. This in turn necessitates re-estimation and future changes in policy and so on. Kydland and Prescott (1977) conclude that for some structures this process does not converge, thus suggesting stabilization efforts may have the perverse effect of contributing to economic instability.

position with the hope of an eventual recovery in the condition of the bank.[15] The alternative approach to handling a problem bank focuses on clear rules regarding early identification and resolution of problems.[16] This latter model implies that the supervisory authorities should set up clear regulatory rules for intervening in financial institutions at an early stage before they become insolvent. In cases of liquidation, or where there is a need for capital enhancement, it is likely to involve also establishing a clear rule on burden-sharing arrangements among stake holders. The United States has followed this approach. In reaction to excessive forbearance, in the aftermath of the Savings and Loan Associations' (S&Ls) crisis, the U.S. Congress legislated the Federal Deposit Insurance Corporation Improvement Act (FDICIA) which entailed major changes in the supervision and regulation of depository institutions. The new legislation introduced the concept of "Prompt Correction Action" (PCA) under which supervisors are required to take prompt action without discretion when an institution's capital ratio falls below a specified level.[17]

An explanation for regulators' tendency toward forbearance rests in the argument that regulators are more directly answerable to politicians and bankers than to taxpayers. In some countries, the regulators may be subject to pressure from important groups. They may, therefore, tend more toward avoiding failures and subsidizing banks' operations than toward minimizing taxpayers' loss exposure.[18] There may also be a conflict of interest when the institution responsible for supervising a bank is responsible also for closing a bank, since carrying out the latter function may be seen as a failure in carrying out the former function. Clear rules for closure are necessary in such cases; the U.S. S&L crisis in the late eighties and the recent financial sector problems in Japan are often cited as examples of the risks associated with forbearance. Clear rules concerning forbearance can either prohibit it entirely—although in practice, the subjectivity of bank supervisors' assessments of bank net worth will always

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[15]Forbearance can be pursued, for instance, through permitting lax application of accounting standards to allow the institution to avoid technical insolvency, or by permitting an insolvent institution, for instance as regards classification and provisioning requirements, to continue to operate. See Benston and Kaufman (1997).

[16]See Lindgren, Garcia, and Saal (1996), and International Monetary Fund (1995).

[17]The effectiveness of PCA is, however, unclear, as some studies have found that formal regulatory actions tend in any case generally to occur well before a bank becomes undercapitalized according to PCA standards. On this argument, PCA is a non-binding constraint on bank supervisors. Thus discretion remains except at the boundaries specified in the PCA standards. (See Peek and Rosengren (1997)). A discussion of PCA is provided in Appendix II.

[18]See Kane (1993) on the incentive-conflict theory of misregulation.

leave some room for discretion—or at a minimum provide a clear standard against which to measure whether forbearance in a particular case was justified.[19]

B. The Benefits of Ambiguity

Arguments for ambiguity in central bank operations build on the basic arguments for discretion, and rest on the need for flexibility for a central bank in order to sustain its credibility over time. Such arguments rest on the view that a cookbook approach to problems in financial markets is likely to be inefficient, and that the circumstances associated with a particular situation and the assessment of the relative costs and benefits of action will always have to be decided upon case by case. On this view, policy makers need to determine the nature of problems and identify the factors causing them in order to decide on the appropriate policy response.[20] Also, because public confidence must be maintained in the banking system, the authorities arguably must be permitted to exercise their responsibilities outside the public gaze.[21]At a minimum, countries continue to reserve the right to employ safety nets in cases where an institution's problems could lead to a systemic crisis.[22] Hence, even where there are clear rules for the handling of an individual bank, there generally remains the possibility that the rules can be overridden at the discretion of the authorities.

As noted above, maintaining the credibility of the central bank may be a reason for reluctance to adopt transparent rules, since policymakers may wish to retain scope to abandon these rules

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[19]Overall assessment of the cost of forbearance is difficult. It is relatively easy to identify cases where inaction has proved expensive; by its nature, it would be hard to identify and quantify cases where forbearance did allow a bank to recover. Studies conducted by the U.S. General Accounting Office, with regard to the S&Ls, found that in almost all cases forbearance led the S&Ls to become much more heavily insolvent.

[20]For arguments supporting ambiguity (and discretion) in central bank policies, see FRBNY (1990).

[21]A counter argument to this position is that if a central bank has information which it does not release to the public and the public subsequently incur losses that they would not have incurred if they had had this information (for instance, if a depositor subsequently opened an account), then the central bank may be considered co-responsible for such losses. Avoidance of this form of moral hazard effect has led New Zealand, in its recently introduced arrangements, to a large extent to forego access for the authorities to any information that is not simultaneously made available to the public.

[22]This is reflected in the common presumption that the authorities may consider some banks "too big to fail." Note that, even if this general policy were made explicit, there could still be ambiguity over which banks would be considered as "too big."

when the microeconomic objectives underlying them seem to come into conflict with broader macroeconomic objectives. In order not to jeopardize their credibility in the event of such conflicts, central banks will be reluctant to set out clear rules that they believe they may need to violate.[23] Accordingly, ambiguous but credible rules are viewed to be superior to transparent rules that lack credibility.[24]

Ambiguity in the provision of LOLR is also a response to the desire to minimize moral hazard among bank owners, managers, and depositors. Ambiguity is associated with increased expected variance in outcomes, which will lead risk-averse agents to be more cautious than they would be if they were confident of being bailed out by the authorities. This in turn should reduce the risk of bank failure, and hence the expected cost to the authorities.

A related justification for central bank ambiguity is that optimal policy is a function of full information and information in banking is always incomplete or hard to evaluate. In particular, if asset classification rules are not adequate and bankruptcy procedures are very difficult to enforce, it will be very difficult to assess capital adequacy of a financial institution and its potential viability. How does one value a loan, for instance, when the borrower becomes aware that the bank is in difficulties, and might be closed or reach settlement on the basis of some partial payments? Hence, although a rule such as "no bailout for insolvent banks" appears clear and easily verifiable, it is actually quite complex to implement. In the absence of full information, and with the need to act quickly, supervisors might not be able to distinguish whether a bank is solvent, so that that the apparently-simple rule becomes subject to judgment. Therefore, to minimize the risk of unjustified bank failures and bank runs, regulators need in any case to apply discretion to determine the extent of assistance necessary.[25]

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[23]An alternative way to resolve this problem would be to separate responsibility for supervision from that for decisions on banking support. The recently-established currency board arrangement in Bulgaria, for instance, specifically separated these two functions. See Enoch, Gulde, Hardy, and Josefsson (1997). A more general discussion of the issues regarding the placing of supervision in a central bank is included in Tuya and Zamalloa (1994).

[24]Examples of ambiguous but credible rules could include the requirements that, in all closed banks, shareholders would lose their entire equity interest or that any government capital injection would have to be matched by shareholders. Such rules would not specify when or which banks would be closed.

[25]In 1984, a run on Continental Illinois' interbank deposits presented a serious risk of systemic crisis with about 10,000 other banks still owning money in its accounts. Before the run occurred it was estimated that about 97 percent of the bank' s assets were recoverable. However, when the crisis happened, the volume of recoverable assets, and the time it would

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III. Reconciling the Approaches

The above discussion sets out the main arguments concerning ambiguity in arrangements governing central bank safety net operations. The need for flexibility to bail out financial institutions when there is a risk of a systemic crisis stands out as an important argument for ambiguity. On the other hand, costs associated with forbearance provide an important argument for tough, clear rules against discretion in the application of banking sector safety nets.

In the extreme, full transparency would imply removing the authorities from any involvement in the resolution of a banking problem. Thus, they would have no proprietary information about the bank, and no means to provide finance to the bank. New Zealand has gone further down this route than other countries, although the Reserve Bank of New Zealand still has regular consultations with the banks and the power to obtain additional information, and also has an explicit role and powers in the management of a banking crisis. Thus New Zealand is to some extent issuing disclosure as a complement, rather than substitute, to other instruments.[26] Nevertheless, the heavy reliance on market discipline holds limited appeal for other countries. Arguments of asymmetric information and the public good of supervision have widespread support, and provide justification for a role for the authorities, and for giving them some discretion as to how to handle banking sector problems.

In practice, systemic risk considerations continue to be an important focus for policymakers, even in countries that have adopted clear policies against bailouts of individual banks, and even where the level of depositor protection has been made transparent. In the United Kingdom, for instance, the establishment of the Deposit Protection Scheme under the 1979 Banking Act, which is funded by contributions from member banks, made explicit the degree of protection for depositors. The Bank of England (BoE) has since stated that it will only provide assistance in cases where a bank failure would present a systemic risk. If this is not the case, the BoE is prepared to deal with bank failures by closure, with losses to depositors carried by the Deposit Protection Scheme.[27] The establishment of the Deposit Protection Scheme thus adds credibility to the BoE's commitment not to support all banks, but the Banking Act also leaves the BoE with flexibility to provide such support when it deems it appropriate.

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take to recover these assets, became unclear. This uncertainty could have triggered a much wider run if the Federal Reserve had not bailed out the bank by providing it with emergency loans. The actual recovery rate after the event was about 95 percent, very close to the original estimate.

[26]See Appendix I for more details of the New Zealand experience.

[27]See Appendix III for a more detailed account of the U.K. experience with insolvent banks.

Even in New Zealand, since one of the objectives of the market-based regulations is to minimize dislocation to the financial system as a result of problems in an individual bank, there remains the possibility of intervention if there were to be a perceived risk to the financial system. In any case, policymakers would have to decide whether or not to intervene in such circumstances—even if they are very likely to decide not to intervene. It is therefore not the case that rules necessarily preclude the flexibility of central banks to intervene when risks of systemic crisis arise. Thus appropriate rules are unlikely to be simple when they are fully specified.

Rules can be categorized in a variety of ways. For instance, rules leading supervisory authorities to support banks may be denoted as "permissive rules"; those preventing such support are "prohibitive rules." Permissive rules may risk causing "moral hazard" problems. For instance, if it is announced that large banks will not be allowed to fail, such a rule will change the behavior of those banks' managements and customers. Prohibitive rules—for instance, a statement that under no circumstances will there ever be any support for insolvent banks—will not have such an effect, as long as they are credible. The *absence* of rules may indeed also cause moral hazard problems to the extent that there are implicitly permissive rules in operation. In any case, the revealed preferences of the authorities are likely to have an important impact on market behaviors, whatever the authorities may say, and even more so if they say nothing. If the authorities have made a practice of supporting banks in the past (or if there simply is no evidence of any banks having failed), this is likely to be taken as evidence of the authorities' policy intentions for the future. Banking problems have in many countries been observed with some frequency, and there may well be a fair amount of accumulated evidence as to how the authorities will handle such problems in the future.

In any decision as to whether to support a bank with public funds, there is a risk that a bank that should be supported is not supported, and that one that should not be supported is. One clearly would wish for a system that would minimize the risk of such mistakes. A transparent rule-based system would seek to achieve that; with discretion the authorities could well have a tendency to take an over-optimistic view of each individual institution thereby justifying forbearance, at least in part, so that they themselves would not become associated with the stigma of failure.[28]

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[28]Both types of error will involve costs, but indeed both may also bring some benefits. Saving an individual unsound bank may serve to maintain confidence in a system that is fundamentally sound, and thus not risk, for instance, jeopardizing capital inflows. Closing a bank that could have survived if it had been granted liquidity support may have demonstration effects on the surviving banks, and cause them to improve their own standards, thus again raising the social welfare.

One can perhaps reconcile the different pressures by dividing transparency into "ex ante" transparency and "ex post" transparency. Ex ante transparency is the specification of rules in advance, including the specification of the objectives of policy so as to provide a coherent framework for the rules. If the rules are permissive—for instance, that some banks may under some circumstances receive support—this will need to be balanced by sanctions on those who might benefit from such permissiveness—for instance, a statement that all responsible management in any bank that receives support from public funds will be dismissed and all existing owners removed.[29] The more permissive the rules, the more important that they be balanced by sanctions—for instance statements that managers will be held individually responsible for failures to perform their fiduciary responsibilities, and subject to civil or criminal proceedings.

Mere specification of rules is not likely to give an unequivocal guide to actual policy in any individual case of a banking problem. For instance, in assessing whether a particular troubled bank should be supported, there may be questions as to whether the bank is insolvent or merely illiquid; there may be issues as to whether the bank is systemically important; and perhaps whether the bank has operated badly or was driven by factors beyond its control (for instance it may have been pressed into unwise lending by the authorities). Hence even the pre-specification of rules—i.e., ex ante transparency—will not necessarily be inconsistent with substantial operational discretion.

If the authorities are left with such discretion, it will be important to balance this discretion with "ex post" transparency—i.e., firm rules for disclosure after the event, and specified standards of accounting and auditing so that disclosure will be substantive and meaningful.[30] Thus the central bank should reveal—perhaps in a subsequent Annual Report—how much public finance was provided to problem banks, and what were the results. This information should be presented on well-specified accounting standards, and subject to external audit. As on monetary issues, central bank (or supervisory agency) operational autonomy must be matched by accountability—i.e., the provision of detailed information after the event and the requirement to explain what has been done. This is important not only to reassure the public

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[29]In principle, it might be possible to formalize a permissive rule by establishing an Emergency Financing Facility for banks in difficulty. If the penalties on its use were sufficiently onerous, one might minimize the negative moral hazard effect. Two drawbacks could, however, be identified. First, the facility might be insufficiently flexible to meet actual needs for financing as they arose. Second, there might be such a stigma attached to drawing from such a facility that any use of it (particularly, if it were known immediately) could lead to a loss of confidence in the bank, and to a run by depositors.

[30]The BoE indicates in its notes to its Annual Report that it will disclose financial assistance to troubled banks, but only when the crisis is over and the risk of contagion minimized.

that the authorities are operating competently and within the rules, but also the rest of the banking community, so that they can see what are the "rules of the game."[31]

A particular case where this is important is where the banks are themselves part of the solution—i.e., in those countries where the authorities share the provision of support for bank problems with the banking community more generally. Banks will certainly require a high degree of official transparency if they are being asked to make financial contributions, for instance through a depositor protection fund, or direct financing for a bank in difficulties. At the same time, disclosure of central bank assistance to banks might compromise the basic function of the central bank as a lender of last resort. In this context, it is clear that an untimely full disclosure of information could be costly. Central bank assistance might be viewed as a sign of a bank's distress and lead to withdrawals from that bank, and maybe more widely through the system, even in cases where the bank would otherwise be sound.[32] This is especially true in cases where banks' asset quality is obscure, as may will be the case even in advanced markets where external auditors and third-party credit ratings of borrowers are available.[33]

One can well argue that sophisticated consumers and deep financial markets, and higher standards of financial disclosure, make the case for transparency increasingly strong in today's

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[31]As one example, Section 142 of FDICIA amended the Federal Reserve Act to severely limit the Federal Reserve's discretion to lend to undercapitalized institutions. However, if the Fed does so lend, and that lending causes losses to the FDIC, the Fed must reimburse the FDIC.

[32]The marked decline in use of the U.S. Federal Reserve's discount window since 1984 has been attributed to banks' fears that they would be perceived as troubled were it to become known they were accessing the facility (Meulendyke (1992)). A recent paper by Cordella and Levy-Yeyati (1997) concludes that information disclosure may increase the probability of banking crises in cases where banks do not have complete control over the volatility of their loan portfolio (from example, under volatile macroeconomic conditions). On a related topic, in 1975, the Federal Open Market Committee (FOMC) was sued under the Freedom of Information Act to make public, immediately following each FOMC meeting, the policy directives and minutes for that meeting. The ruling was in favor of the FOMC, partly based on affidavits by FOMC members that disclosure could invoke inappropriate market reactions and could also harm the government's commercial interest (Goodfriend (1986)).

[33]External auditors of many of the failed S&Ls in the United States were successfully sued in the courts by the FDIC and by private parties that lost funds in failed banks and thrifts. The damages assessed were so heavily that the auditors (unsuccessfully) requested help from Congress.

environment.[34] At the same time, the increasing complexity of financial transactions, and of financial institutions, makes it more difficult to understand the true condition of banks and to devise fully transparent procedures for handling them. Much is likely to depend on the credibility of the authorities. If they have to make a difficult decision based on very detailed technical information—as is more and more likely to be the case nowadays—it will be absolutely critical that their decision is explained clearly to the public. Full consistency between the rules established before the event—the "ex ante" transparency—and the disclosure after the event—the "ex post" transparency—should serve to enhance the credibility of the authorities, provide a sound basis for the operations of the banking sector, and improve the authorities' standing across the range of their responsibilities.

IV. Conclusion

In some circumstances, there is a valid case for financial support for a troubled bank.[35] There may be problems in announcing in advance what that support will be, and under what circumstances it will be provided, unless it is accompanied by clear sanctions against those responsible for the institution needing to receive the support (i.e., owners should lose their equity, and management their jobs). Even with such sanctions, there may be moral hazard effects if the details of financial support are clear in advance. Traditionally, central banks have, therefore, sought to maintain ambiguity over the conditions for such support. Such ambiguity, however, nowadays seems less attractive. In the absence of any announced policy, the public will gradually work out what is the implied policy: if it is applied consistently. Also, in today's environment of ever-greater standards of disclosure—both on the banking sector and the central bank—it is increasingly difficult for a central bank to hide for very long what it is doing, and indeed for there to be much of a surprise that it is doing it.

This argues for "ex ante transparency"—the setting of clear rules in advance specifying what support will be offered. Such support has to be limited, to curtail moral hazard effects that could otherwise themselves pose systemic threats. No rules, however, can totally remove discretion—nor should they be expected to do so. In a systemic crisis, central banks may have an overriding priority to preserve the financial system whatever the policies adopted for more quiet times. However, in order that such discretion does not lead to total degeneracy from the pre-set rules, it is critical that "ex ante transparency" is matched by stringent "ex post transparency," in which the provider of financial support has to publicly explain its actions and

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[34]The benefits of privacy in operations to assist problem banks depend in part on the extent to which such privacy can be maintained. With increasing standards of disclosure both on the banks and the central bank, the extent of such privacy is declining. This trend increases the case for transparency in central bank support operations.

[35]For a discussion of best practices for the components of financial safety nets, see IMF (1997).

to take responsibility for them. Parliamentary Committee investigations into bank failures in the United Kingdom, for instance, and Congressional investigations into the handling of the Savings and Loan crisis in the United States are two examples of this ex post transparency and accountability in practice. While there may well be reasons for not explaining immediately the full extent of financial support for a troubled bank, there must be an expectation that there will be full disclosure as soon as this is feasible without causing additional problems for the banking system. If this qualification implies that a very long delay in public disclosure would be required, there may be a strong argument that the support was inappropriate in the first place. It is very unlikely that financial support to a bank can be justified if the existence of that support has to be kept secret for a long time.

ONE MODEL OF TRANSPARENCY: MARKET-BASED REGULATION IN NEW ZEALAND

Since January 1996 New Zealand has adopted a new approach to managing the banking sector.[36] Recognizing that the mere existence of official supervision creates costs as well as moral hazard, New Zealand has passed some of the responsibility for supervising the banking system to the markets. This has been done in part by requiring that all information which in many other countries would be proprietary to the supervisors is instead disclosed to the public.[37]

In New Zealand, all prudential ratios, except for capital requirements and connected lending limits, were abolished. Emphasis was put on increasing the frequency of external audits and disclosing credit ratings. Reserve Bank of New Zealand (RBNZ) makes clear that there is no official deposit insurance. Market disciple is made possible by full disclosure of information, and is ensured by personal liability and accountability of financial institutions' managers.

The New Zealand approach is designed to reduce moral hazard and limit regulatory forbearance. In the absence of deposit insurance, and as the RBNZ has only very limited involvement in bank registration, regulation and supervision, the intention is that individual depositors will recognize that they have to rely on their own assessment—and that provided by rating agencies, financial market commentators, and others in the market—as to the soundness of a bank. In addition, broad disclosure requirements, as well as transparent rules on consequences of breaching the minimum capital ratio requirements, limit the scope of regulatory forbearance, and the risks associated with it.

A number of comments can be made with regard to the New Zealand system. First, market discipline can be effective only if the parties involved (managers, investors, depositors) do not believe that they will be bailed out in the case of a failure. Here, what matters is not only making a no-bailout commitment but attaching credibility to this commitment.[38] Full credibility is likely only to be achieved if a bank failure has actually taken place. So far this is not the case.

Second, one objective of market-based regulations is to minimize damage to the financial system in the event of bank failure or financial distress. Thus, even in New Zealand, the

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[36]See Reserve Bank of New Zealand (1994, 1995a, and 1995b), Nicholl (1996), and Brash (1997).

[37]Note that in this regard New Zealand's practices are not all that different from trends emerging in some other countries. In the United States, for instance, banks now publish call reports.

[38]See Lane (1993).

authorities' response in the case of bank failure would necessarily include an element of discretion (even if the result of that discretion is a decision not to intervene to support the bank); that is, the central bank would have to exercise discretion in a case of bank failure, including forming its assessment as to the presence of, and appropriate response to, systemic risk.

Third, any residual discretion is balanced by full ex post transparency, since disclosure requirements on the RBNZ would ensure rapid dissemination of information of any assistance to banks provided by the RBNZ.

Fourth, there must be questions as to how far the New Zealand case has lessons more widely. One characteristic of New Zealand is that the major banks are all foreign owned. Thus depositors have reason to expect that, whatever the policy of the RBNZ, there would be some prospect of support for a bank in difficulties—from the parent bank, or in some cases maybe even the supervisory authorities in the country of the parent bank.

PROMPT CORRECTIVE ACTION IN THE UNITED STATES[39]

In 1991, the U.S. Congress legislated the FDICIA, which entailed major changes in the supervision and regulation of depository institutions. The main objective of the FDICIA was to limit forbearance by supervisors which was viewed as a major factor in exacerbating the losses resulting from failed banks and S&Ls in the mid-1980s. The new legislation included, among other regulatory changes, provisions for prompt corrective action (PCA) under which supervisors are required to take prompt action when an institution's capital ratio falls below a specified level. The use of capital ratios as triggers for action is based on the premises that these capital ratios are reasonably effective indicators for identifying troubled banks and that poorly capitalized banks no longer have the incentive to manage risk properly. It rests also on the premise that the resulting behavioral changes and the interventions would reduce losses to deposit insurers, both through reducing bank failures, and resolution costs for banks which did fail.

PCA may be contrasted with prior instances of regulatory forbearance, whereby banks were given extended periods of time during which to comply with regulatory requirements. In some of these cases the policies were explicit, such as the loan loss amortization program and the capital forbearance program, while others were implicit. Both types of forbearance reflected the unwillingness of regulators to take forceful action against problem banks in a timely manner.[40]

Under PCA, each bank must be categorized in one of five zones based on its regulatory capital position: (1) well capitalized, (2) adequately capitalized, (3) undercapitalized, (4) significantly undercapitalized, or (5) critically undercapitalized. Whereas in the past, certain corrective actions were up to the discretion of supervisors, PCA mandates actions for banks in undercapitalized zones. Table 1 lists both discretionary and mandatory actions required by federal supervisors depending on the degree of the institution's undercapitalization. These actions are designed to encourage the rehabilitation of undercapitalized banks and a greater reliance on bank closure as a mechanism for enforcing bank discipline. Banks that are well capitalized are subject to fewer constraints on their activities. Supervisors are required to impose various limits on the activities of banks with relatively low capital ratios, including limits on their asset growth, dividend payments, and various insider transactions. If a depository institution's capital ratio falls below a critical level, supervisors are mandated to close it promptly (subject to certain procedures). It is important to note, however, that although the trigger for action is given by how a bank is ranked in terms of its capital, bank supervisors have also the prerogative to reclassify an

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[39]This appendix is based on Gilbert (1992), Dahl and Spivey (1995), and Jones and King (1995). There is also a discussion of this subject in Appendix II of Lindgren; Garcia, and Saal (1996). See also Garcia (1995) for analysis of this subject.

[40]Dahl and Spivey (1995).

institution if despite the declared level of capital they consider that the institution is unsafe or unsound or it is operating in a manner which poses a risk to any deposit insurance fund.

Since January 1, 1995, the Federal Deposit Insurance Corporation (FDIC) has been prohibited from protecting uninsured depositors or creditors at a faired bank if it would result in an increased loss to the insurance fund. There is an exemption for banks "too big to fail" but this requires consultation with the Secretary of the Treasury, the FDIC Board of Directors, the Board of Governors of the Federal Reserve System and the President of the United States (see Benston and Kaufman (1997)).

Table 1:Supervisory Actions Applicable to Depository Institutions under Provisions of the FDICIA for Prompt Corrective Action 1/

Capital Category	
Well capitalized or adequately capitalized	**Mandatory Actions**
	May not make any capital distribution or pay a management fee to a controlling person that would leave the institution undercapitalized.
	Discretionary Actions
	None
Undercapitalized	**Mandatory Actions**
	Subject to provision applicable to well capitalized and adequately capitalized institutions
	Subject to increased monitoring.
	Must submit an acceptable capital restoration plan within 45 days and implement that plan.
	Growth of total assets must be restricted.
	Prior approval from the appropriate agency is required prior to acquisitions, branching, and new lines of business.
	Discretionary Actions
	Subject to any discretionary actions applicable to significantly undercapitalized institutions if the appropriate agency determines that those actions are necessary to carry out the purposes of PCA.
Significantly undercapitalized	**Mandatory Actions**
	Subject to all provisions applicable to undercapitalized institutions.
	Bonuses and raises to senior executive officers must be restricted.
	Subject to at least one of the discretionary actions of significantly undercapitalized institutions.
	Discretionary Actions
	Actions the institution is presumed subject to unless the appropriate agency determines that such actions would not further the purposes of PCA:
	Must raise additional capital or arrange to be merged with another institution.
	Transactions with affiliates must be restricted by requiring compliance with section 23A of the Federal Reserve Act as if exemptions of that section did not apply.
	Interest rates paid on deposits must be restricted to prevailing rates in the region.
	Other discretionary actions:
	Severe restriction on asset growth or reduction of total assets may be required.
	Institution or its subsidiaries may be required to terminate, reduce, or alter any activity determined to pose excessive risk.
	May be required to hold a new election of its board of directors.

Table 1:Supervisory Actions Applicable to Depository Institutions under Provisions of the FDICIA for Prompt Corrective Action 1/

Capital Category	Mandatory Actions
Significantly undercapitalized (continued)	Other discretionary actions (continued):
	Dismissal of any director or senior executive officer and their replacement by new officers subject to agency approval may be required.
	May be prohibited from accepting deposits from correspondent depository institutions.
	Controlling bank holding company may be prohibited from paying dividends without prior Federal Reserve approval.
	May be required to divest or liquidate any subsidiary in danger of becoming insolvent and posing a significant risk to the institution.
	Any controlling company may be required to divest or liquidate any nondepository institution affiliate in danger of becoming insolvent and posing a significant risk to the institution.
	May be required to take any other actions that the appropriate agency determines would better carry out the purposes of PCA.
Critically undercapitalized	**Mandatory Actions**
	Must be placed in receivership within 90 days unless the appropriate agency and the FDIC concur that other action would better achieve the purposes of PCA.
	Must be placed in receivership if it continues to be critically undercapitalized, unless specific statutory requirements are met.
	After 60 days, must be prohibited from paying principal or interest on subordinated debt without prior approval of the FDIC.
	Activities must be restricted. At a minimum, may not do the following without the prior written approval of the FDIC:
	Enter into any material transaction other than in the usual course of business.
	Extend credit for any highly leveraged transaction.
	Make any material change in accounting methods.
	Engage in any "covered transactions" as defined in section 23A of the Federal Reserve Act, which concerns affiliate transactions.
	Pay excessive compensation or bonuses.
	Pay interest on new or renewed liabilities at a rate that would cause the weighted average cost of funds to significantly exceed the prevailing rate in the institution's market area.
	Discretionary Actions
	Additional restrictions (other than those mandated) may be placed on activities.

Source: Gilbert (1992).

1/ This description of the mandatory and discretionary supervisory actions under PCA is derived from a proposal by the Board of Governors of the Federal Reserve System in July 1992 to implement the PCA provisions of FDICIA. Other regulations to be adopted by supervisors will make distinctions among institutions based on their capital category, including regulations on brokered deposits and interbank deposits.

DEPOSIT INSURANCE IN THE UNITED KINGDOM[41]

The Deposit Protection Scheme in the United Kingdom was established under the 1979 Banking Act, and began operating in 1982. It ensures "protected deposits" up to a ceiling of £20,000 (raised from £10,000 following the 1987 Banking Act). The scheme is compulsory, and covers all U.K. authorized banks. The ceiling reflects an emphasis on the protection of small depositors, the argument being that such depositors lack the information to assess risk when allocating savings among deposit-taking institutions. The Scheme has a coinsurance element since the payout is restricted to 90 percent of the protected deposits, yielding a maximum payout of £18,000 per depositor.

The Bank of England (BoE) continues to support problem banks when their failure could provoke contagion effects. It has, however, publicly stated that it will support institutions only if their failure poses systemic risks, and that any support given would be on onerous terms. Although this gives some guidance, the statement itself contains uncertainty as to what constitutes a systemic risk. The existence of the Deposit Protection Scheme adds to the credibility of its announcements that it will not necessarily support each bank in difficulty.

Regulatory interventions: During the 1973 banking crisis, in the absence of a formal system of deposit insurance, the BoE organized a rescue operation (the "lifeboat") in which no non-shareholding depositors lost funds despite heavy deposit withdrawals from several secondary banks and finance houses. The BoE, fearing that a confidence crisis would spread to recognized banks, approached the clearing banks and asked them to pool funds together with the largest shareholders of the secondary banks and a 10 percent contribution from itself to provide various types of credit arrangements. In addition, the BoE arranged for many of the troubled banks to be merged with healthy institutions. (The Bank of Japan has recently adopted a similar approach in seeking the help of other financial institutions, through moral suasion, to help distressed banks.) The BoE itself eventually acquired two large secondary banks; the overall operation is believed to have cost £100 million.

The BoE mounted a rescue operation for Johnson Matthew Bankers Ltd. (JMB) in October 1984, because of concern that failure would trigger problems elsewhere, particularly because of JMB's important position in the interbank gold market. It was unable to find a purchaser for JMB—moral suasion was less effective in the new, more competitive, banking environment—and purchased JMB (for £1) after persuading the parent company to inject £50 million. The BoE provided an indemnity of £150 million, and arranged for a counter-indemnity from other participants in the gold market of 50 percent of any losses. In the event, the losses were very largely recouped, and very little public money was lost.

Following the closure in mid-1990 of a number of small banks, the BoE placed a number of small banks under review during 1990-91. In 1991, fearing a systemic crisis, since the

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[41]Bank of England (1993).

problems in all these banks derived in large part from the weakness of the property sector, the BoE provided liquidity support to some of these banks in the form of indemnities against loss to the large U.K. banks that helped to fund them. Provisions for losses in this operation currently stand at £95 million. In cases where bank failures were not viewed as representing a systemic risk, the BoE did not act to prevent closure. BCCI and Barings Bank provide two such examples.

REFERENCES

Alexander, William E., Jeffrey M. Davis, Liam P. Ebrill, and Carl-Johan Lindgren (eds), 1997, *Systemic Bank Restructing and Macroeconomic Policy* (Washington, D.C.: International Monetary Fund).

Bank of England, 1993, "The Pursuit of Financial Stability," First LSE Bank of England lecture by the Governor of the Bank of England at the London School of Economics, November 18. Reprinted in *Bank of England Quarterly Bulletin*, March 1994, pp. 60-66.

_____, *Annual Report* 1996.

Benston, George J., and George G. Kaufman, 1997, "FDICIA After Five Years," *Journal of Economic Perspectives*, Vol. 11, No. 3, Summer.

Brash, Donald T., 1997, "Banking Soundness and the Role of the Market," in *Banking Soundness and Monetary Policy: Issues and Experiences in the World Economy*, eds., Charles Enoch, and John H. Green (Washington, D.C.: International Monetary Fund).

Cordella, Tito, and Eduardo Levy-Yeyati, 1997, "Public Disclosure and Bank Failures," IMF Working Paper 97/96 (Washington, D.C.: International Monetary Fund).

Corrigan, E. Gerald, 1990, "Statement Before the United States Senate Committee on Banking, Housing, and Urban Affairs," *Bulletin of the Federal Bank of New York.*

Dahl, Drew, and Michael F. Spivey, 1995, "Prompt Corrective Action and Bank Efforts to Recover From Undercapitalization," *Journal of Banking and Finance*, Vol. 19, pp. 225-243.

Enoch, Charles, Anne-Marie Gulde, Daniel Hardy, and Mats Josefsson, 1997, "Banking Sector Problems in Transition Economies," IMF Occasional Paper (forthcoming).

FRBNY, Spring (1990), "Reforming the U.S. Financial System: An International Perspective," *Federal Reserve Bank of New York Quarterly Review*, pp. 1-14.

Garcia, Gillian, 1995, "Implementing FDICIA's Mandatory Closure Rule," *Journal of Banking and Finance*, pp. 723-32.

_____,1996, "Deposit Insurance: Obtaining the Benefits and Avoiding the Pitfalls," IMF Working Paper 96/83 (Washington, D.C.: International Monetary Fund).

_____,1997, "Commonalities, Mistakes and Lessons: Deposit Insurance in Preventing Banking Crisis: Analysis and Lessons from Recent Bank Failures Worldwide," (World Bank). Forthcoming.

Gilbert, Alton R., 1992, "The Effects of Legislating Prompt Corrective Action on the Bank Insurance Fund," *The Federal Reserve Bank of St. Louis Review*, 74(4): pp. 3-22.

Goodfriend, Marvin, 1986, "Monetary Mystique: Secrecy and Central Banking," *Journal of Monetary Economics*, Vol. 17, pp. 63-92.

Gronkiewicz-Waltz, Hanna, 1997, "The Banking Sector in a Transition Economy: The Case of Poland," in *Banking Soundness and Monetary Policy: Issues and Experiences in the World Economy, eds.,* Charles Enoch, and John H. Green (Washington, D.C.: International Monetary Fund), forthcoming.

Guitián, Manuel, 1994, "Rules or Discretion in Monetary Policy: National and International Perspectives," in *Frameworks for Monetary Stability*, eds., Tomás J.T. Baliño, and Carlo Cottarelli (Washington, D.C.: International Monetary Fund).

International Monetary Fund, 1997, *Toward a Framework for Financial Stability.* (Forthcoming).

_____, 1995, *International Capital Markets: Developments, Prospects, and Policy Issues*, (Washington, D.C.: International Monetary Fund) (August).

_____, 1991, *International Capital Markets: Development and Prospects* (Washington, D.C.: International Monetary Fund).

Jones, David S., and Kathleen Kuester King, 1995, "The Implementation of Prompt Corrective Action: An Assessment," *Journal of Banking and Finance*, Vol. 19, pp. 491-510.

Kane, Edward J., 1993, "What Lessons Should Japan Learn from the U.S. Deposit-Insurance Mess," *Journal of the Japanese and International Economies*, Vol. 7, pp. 329-355.

Kydland, Finn E., and Edward C. Prescott, June 1977, "Rules Rather than Discretion: The Inconsistency of Optimal Plans," *Journal of Political Economy*, 85(3), pp. 473-492.

Kyei, Alexander, 1995, "Deposit Protection Arrangements: A Survey," IMF Working Paper 95/134 (Washington, D.C.: International Monetary Fund).

Lane, Timothy, 1993, "Market Discipline," *IMF Staff Papers*, Vol. 40, No.1, pp. 53-88.

Lucas, Robert E., 1976, "Econometric Policy Evaluation: A Critique," In Karl Brunner and Allan Meltzer, eds. *The Phillips Curve and Labor Markets*, Carnegie-Rochester Conference Series, Vol. I, Amsterdam: North-Holland, pp. 19-46.

Lindgren, Carl-Johan, Gillian Garcia, and Matthew Saal, 1996, *Bank Soundness and Macroeconomic Policy* (Washington, D.C.: International Monetary Fund).

Maude, David, and William Perraudin, March 1995, "Pricing Deposit Insurance in the United Kingdom," Bank of England Working Paper No. 29.

Meulendyke, Ann-Marie, 1992, "Reserve Requirements and the Discount Window in Recent Decades," *Federal Reserve Bank of New York Quarterly Review*, Autumn 1992.

Nicholl, Peter, 1996, "Market Based Regulations," Paper presented in the Conference on Preventing Banking Crises in Latin America, April 15-16, 1996 (Washington, D.C.: The World Bank).

Peek, Joe, and Eric S. Rosengren, 1997, "Will Legislated Early Intervention Prevent the Next Banking Crisis?," *Southern Economics Journal* (forthcoming).

Reserve Bank of New Zealand, June 1994, "Revised Proposals for Changes to Banking Supervision Arrangements," *Reserve Bank Bulletin*, 57(2), pp. 101-108.

_____, June 1995a, "Review of Banking Supervision: Reserve Bank' s Policy Conditions," *Reserve Bank Bulletin*, 58(2).

_____, June 1995b, "The Review of Bank Supervision arrangements in New Zealand: the Main Elements of the Debate," *Reserve Bank Bulletin*, 58(2), pp. 163-171.

Tuya, José, and Lorena Zamalloa, 1994, "Issues on Placing Banking Supervision in the Central Bank," in *Framework for Monetary Stability*, eds. Tomás J.T. Baliño and Carlo Cottarelli (Washington, DC: International Monetary Fund) pp. 663-90.

Stella, Peter, 1984, "Credibility and the Effectiveness of Macroeconomic Policy," unpublished Ph.D. Dissertation, Stanford University.

Working Party on Financial Stability in Emerging Market Economies, April 1997, *Report.*