

**AN INCENTIVE BASED REGULATORY SYSTEM: A BRIDGE TOO  
FAR**

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## **Abstract**

This paper argues that the operation of the financial sector as a whole will not be as effective if market discipline is relied upon as the only tool of financial regulation. Before enacting any incentive mechanisms, there must be adequate built-in measures to prevent the exploitation of information asymmetries as well as greater harmonisation and co-ordination of regulatory standards between countries. The paper considers the "incentive problem" in regulation using a principal-agent framework and the design of an incentive compatible regulatory system which encourages prudent behaviour and efficient financial intermediation. The discussion continues by assessing the nature of the trade-off between incentive and rule based regulation by analysing the interaction between regulatory and agency incentives. The paper concludes by considering the challenges in designing appropriate incentive mechanisms to regulate financial markets.

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# **THE ROLE OF INCENTIVES IN FINANCIAL REGULATION: REGULATORY CHALLENGES FOR THE FUTURE**

## **1. Introduction**

The regulatory environment for the financial sector of any economy includes laws governing financial institutions, securities market regulations, and other regulations and agreements. These laws and regulations direct the set of permissible activities for financial and non-financial institutions, control the different degrees of competition and contestability in the financial sector, and define in a significant way the incentive framework under which financial intermediation takes place by providing the necessary enforcement and exit rules. In the end, it is design and implementation of these laws which to a large degree can determine the stability and efficiency of financial markets both on national and international levels. However, as theoretical and empirical evidence has long indicated, there is a trade-off between assuring safety and soundness of financial institutions and fostering an efficient allocation of resources. The design of a well functioning safety net is one example of an important trade-off in this regard which can simultaneously minimise regulatory forbearance as well as provide the appropriate incentives for banks to act prudently while promoting systemic stability.

This paper argues that the operation of the financial sector as a whole will not be as effective if market discipline is relied upon as the only tool of financial regulation. If this is the case, there needs to be at least an incentive compatible framework in place a priori. Moreover, before enacting any incentive mechanisms, there must be adequate built-in measures to prevent the exploitation of information asymmetries as well as greater harmonisation and co-ordination of regulatory standards between countries. The recent allowance by the 1999 Basel Proposals for financial institutions to use external assessments of private credit rating agencies as well as their own internal ratings models to determine capital standards is an example of an incentive mechanism which has been used to promote the idea of market

discipline. An appropriate incentive framework, as outlined in the proposal, includes a regulatory and supervisory framework, accounting rules and practices, and disclosure requirements. However, better information disclosure alone will not suffice as long as the incentives for excessive risk taking remain. That is, without the appropriate design for enforcement albeit through market disciplinary measures, the use of internal ratings models and external assessments could be subject to strong incentives for manipulation through excessive risk taking. The paper begins by briefly considering the “incentive problem” in regulation using a principal-agent framework. The following section considers the design of an incentive compatible regulatory system which encourages prudent behaviour and efficient financial intermediation. The discussion continues by assessing the nature of the trade-off between incentive and rule based regulation by analysing the interaction between regulatory and agency incentives. A detailed analysis of some specific incentive problems from the 1999 Basel Proposals and possible solutions follows in the next section. The paper concludes by considering the challenges in designing appropriate incentive mechanisms to regulate financial markets.

## **2. Background**

Two crucial characteristics of the regulator’s problem are: (a) the opportunity for the firm to improve its economic payoffs by engaging in unobserved, socially costly behaviour or “abuse” (b) the inferior information set of the regulator relative to the firm. These characteristics are related since abuse would not be unobserved if the regulator had complete information. The basic idea – that the firm has an information advantage and that this gives the firm the opportunity to take self-interested actions – is the standard *principal-agent* and *moral hazard* argument. The more interesting issue is how this information asymmetry and the resulting inefficiencies are played out in a regulatory setting.

Does the firm have better information? Perhaps the best evidence that regulators possess inferior information to the firm is the fact that they

employ incentive mechanisms rather than relying completely on explicit directives. For example, governments have tried to promote security by reducing abusive practises in different environments not only through direct quantitative limits but also through bonus schemes. For example, states have attempted to promote energy conservation which is thought to benefit society by reducing pollution and slowing the consumption of fossil fuels. Although regulators could rely solely on direct orders, often they offer a bonus to any firm investing in energy conservation. Regulators believe that the firm has better information about the costs and benefits of conservation and the technology for achieving it, and a better result can be obtained by providing incentives rather than directives. A similar analogy could be made for containing systemic risk in capital markets through incentive based financial regulation.

Systemic risk is to financial markets what dirty smoke is to the environment. In calculating the cost of production, the factory owner fails to account for the costs which the smoking chimney imposes on society. The dirty smoke is an externality. Its production has an impact on the welfare of society, but that impact is external and it is not priced through the market. The factory owner does not pay for the extra costs of laundry or for the medical bills the smoke precipitates. This failure introduces a fundamental shortcoming into the workings of the market so that the costs to the factory do not reflect the costs of the pollution to society as a whole. The result is pollution. The factory produces more smoke than would be the case if all society's costs were accounted for in the factory's balance sheet. Similarly, financial firms do not always price the costs that their losses might impose on society as a whole into their activities. Taking risks is what financial institutions are for, but markets in reflecting only the private calculation of risk, underprice the risk faced by society. Consequently, similar to pollution, investors in free markets may participate in excessive risk taking. (Eatwell and Taylor, 2000). As with environmental pollution, financial regulators could choose to limit the financial activities of firms through direct controls. However, as with the firms which invest in energy conservation, financial firms have

better information about the costs of their activities than the regulator and are probably more knowledgeable about the risks they face. Moreover, given the highly dynamic and innovative nature of today's financial markets with their various instruments, regulators might even be at a greater disadvantage than their counterparts who regulate the natural environment. Thus, given the greater information asymmetries in this setting, incentive mechanisms might be significantly more effective than using explicit directives on their own.

The aforementioned conditions exist to some extent due to the inferior quality and quantity of information received by regulators about the circumstances of any regulated firm relative to the firm's own information resources. This is true because the firm is the source of virtually all the regulator's information, and the firm can effectively filter much of that information. The firm's managers are likely to have better information despite the best efforts of regulators to stay informed, and the asymmetry is deliberately exacerbated by the choice of a judicial-type process for making regulatory decisions. It is not that regulators are unaware of what it is they regulate especially as they collect much information about firms over time. However, although the regulator is better informed compared to the consumers, his/her information about a firm will always be inferior relative to the information which a firm itself possesses.

Regulation itself is an incentive mechanism. The regulator and the firm are engaged in a strategic game in which each party tries to maximise the benefits of its re-actions relative to the other party's actions. Every aspect of regulation including accounting rules, management standards, etc., has an effect on the incentives of the firm to be efficient. In many ways, it is not that regulators are ever offered the decision of whether to use incentives, but rather how to use them to promote the public good, or systemic stability in this case.

### **3. An Incentive-Based Environment**

The extent to which excessive risk taking is restricted through regulation and penalised by the supervisory authority as well as by the market greatly affect the behaviour of financial institutions. There are three potential groups which can monitor the management of banks: owners, market, and supervisors. The main question and the focus of this paper is what the government can do to ensure that each exerts sufficient pressure on managers to avoid excessive risk taking. In more developed financial markets, authorities use several measures, including erecting entry barriers, enforcing modest capital requirements at or above the minimum 8% BIS capital to risk-weighted assets ratio, facing market discipline in money and capital markets which are usually uncovered by explicit government guarantees, and being supervised by one or more of the supervisory agencies. The same risks encountered by supervisory authorities in emerging markets are even greater due in some part to the small and often more concentrated nature of their economies, where shocks are often are larger and more volatile, and where the market's ability to monitor banks is hampered by poorer information. Thus, in both industrialised and developing markets, governments need to enhance the incentive mechanisms to encourage each of the potential monitoring groups to curb excessive risk taking activities by banks.

#### **3.1. The Role of Incentives for... Owners and Creditors**

Investors or owners who own equity in a bank in principle have both the ability and the incentive to monitor the actions of their bank. As rational agents, they tend to provide effective self-regulation when they have much at risk either in the form of capital and/or future expected profits. Moreover, well capitalised banks are usually better monitored by their shareholders. On the other hand, small shareholders might tend to free ride, so it is important that government make sure that there are large stakeholders or strategic investors who will bear greater responsibilities. Inside and outside investors need to face the loss of their investment, and they and their

managers need to realise the very real possibilities of bank failure or exit from the industry to discourage excessive risk taking activities. In this light, some emerging markets have raised their minimum capital ratios above that for many industrialised countries to account for the riskier environments in which they operate. For example, in Argentina the minimum capital adequacy ratio is 11.5%, with even higher requirements for banks engaging in riskier activities and weaker risk management capacity. Moreover, banks in most countries with 8% capital adequacy requirements usually have capital ratios in excess of the minimum criteria, e.g. the U.S. has an average capital ratio of almost 12%. Even then, capital adequacy ratios are by nature backward-looking accounting indicators of the solvency of financial institutions. The demise of banks with high measured capital ratios has not been an uncommon occurrence (Dhumale, 2000). The increased incentives to engage in excessive risk taking when the capital adequacy position is weakened makes it even more important not to rely on capital adequacy alone. As Table 1 indicates, countries have relied on various measures, from limiting entry to enhancing the liability of directors and shareholders to the issuance of subordinated debt. While some of these methods may be relatively blunt, the costs of not using them can be quite high. Owners of financial institutions will behave more prudently, i.e., more risk aversely, if they have more to lose in the form of capital, future expected revenue, profits, etc. Similarly, supervisors need to have the appropriate incentives to both monitor and enforce any discrepancies they reveal through their evaluations. Finally, deposit holders tend to provide better market discipline if they are not always fully covered by implicit or explicit deposit insurance schemes.

### **3.2. ...Market Participants**

Given the appropriate incentives and the abilities, market participants who enter into creditor relationships with banks could serve as monitors. Their ability to monitor would depend on the quality and quantity of information they receive which, in turn, would depend on the quality of accounting standards and practices. To solve the



information requirements, some countries have recently enacted extensive disclosure requirements supported by greater liabilities, mandatory ratings by at least two private ratings agencies, and an online credit reporting system as in New Zealand, Chile, and Argentina respectively. In addition to information, creditors need the appropriate incentives to monitor market practices such as the possibility that they will be allowed to suffer losses. Although small depositors are unlikely to be good monitors of banks, large debt holders are better equipped to fulfil this role. One example of using such incentives has been the mandatory issuance of subordinated debt by banks so that if the current owners of a bank fail in ensuring a safe and sound bank, the subordinated holders can take over the bank. A more detailed discussion of this type of proposal will follow in the next section.

### **3.3. ...Supervisors**

In the early years, bank supervision mostly involved ensuring compliance with government directives on credit allocation and other issues. Today, however, most regulatory authorities have moved to engage in prudential supervision as their main task. The question still remains of providing the appropriate incentives both to monitor and to take actions based on the observations of the supervisors. To begin, supervisors need sufficient compensation to attract qualified personnel so that they are not lured into moving to the private sector. Moreover, the temptation of such high-paying private sector jobs might lead to possible corruption where one may accept lower pay now in exchange for a lucrative salary later. The disincentive for effective supervision can only be reduced by raising supervisory pay at least close to private sector limits. Similar efforts have been made to create “bonded regulators” so that some portion of a supervisor’s compensation is deferred and held as a bond from which deductions can be taken depending on the outcome in the financial sector.<sup>1</sup> Another measure might be to limit the possibility of supervisors switching to the private sector for a certain period following their employment with the supervisory agency, e.g., in the U.S. bank

supervisors above a certain level cannot take a job with a commercial bank they have supervised for a period of at least 12 months.

Finally, recommendations have also been made to commit supervisors to a certain course of action in advance such as “prompt corrective actions” and “structured early intervention approaches.” Such intervention includes higher capital; structured and pre-specified publicly-announced responses by regulators triggered by decreases in a bank’s performance below established criteria; mandatory resolution of a capital-depleted bank at a pre-specified point when capital still exists; market value accounting and reporting of capital. The main problem with the establishment of such pre-fixed rules is that governments may be tempted to re-write them during difficult times as witnessed even in highly industrialised countries, e.g., Japan in 1997-98 (deferred scheduled deregulation) and the U.S. in the 1980s (replacing the GAAP for S & Ls with less stringent accounting standards).

#### **4. Incentive vs. Rule Based Regulation: Is there a trade-off?**

In regulating market risk exposure of financial institutions, the approach taken to date has most often been a rule based regime which sets a relation between exposure and capital requirements exogenously. Recent discussions have included suggestions for a managerial based incentive approach which has some appeal not only because it is endogenously determined so that managers themselves are allowed to set their adequacy levels, but also due to its less prescriptive stance to market regulation. However, there is a trade-off. To begin with, rule based regulation makes inefficient use of managerial expertise whereas an incentive based approach uses the insights of managers and market participants to gain an informational advantage in setting regulatory standards. But, incentive based regulation is not without its problems, especially the large number of issues arising from the strategic interactions among the different decision making agents within financial institutions.

In general, incentive based regulation promotes a more “hands off” regulation and gives financial institutions greater freedom to choose the amount and level of risk they wish to undertake. The flexibility of an incentive based approach derives from the fact that it is not directly prescriptive but creates incentives through other means such as penalties. In more general terms, an incentive based system tries to solve what is known as a “mechanism design” problem by specifying a framework, e.g., a penalty device, which financial institutions take into account while choosing risk and committing regulatory capital. Ideally, the design of this mechanism makes it incentive compatible for financial institutions to choose the socially desirable risk profile. The success of such a programme depends on how well the regulator anticipates the strategic opportunities which such a mechanism might create. Therefore, while an incentive based system is less intrusive, it creates a host of strategic issues. In addition, even more serious are the problems which arise as a result of conflicts of interest within the financial institutions.

Similar to other large institutions, an integral feature of modern banks is the separation of owners from day-to-day decision making. The ownership is diffuse, as there are numerous small shareholders who have little impact on most decisions. In the end, in many cases it is the incentives of the traders of the bank, for example, which determine what specific strategies the bank might adopt on that particular day. Therefore, the extent to which the owners can control the actions of their agents, their traders in this case, becomes very important. However, as most rule based regulation takes the form of exogenous specification for capital for a given level of risk as well as some form of inspection, the effects of such agency problems on the success of regulatory mechanisms have often been ignored. Indeed, this agency problem to which a rule based system is mostly immune is the central issue in determining the success of an incentive based regulatory system.

Herein lies the trade-off between setting the appropriate regulatory incentives under a rule based system and agency problems under a

managerial based incentive system. Although a rule based system avoids the agency distortions, it does not take into account the diversification benefits of holding different types of risks. As a result, banks are forced unnecessarily to retain regulatory capital in excess of the risks they are undertaking. However, under a managerial based incentive system, the owners and shareholders need to be assured that their interests are aligned with those who actually make the strategic decisions, i.e., managers or traders, lest they over expose themselves. Moreover, the costs of such over-exposure can have systemic implications. Therefore, to understand the effectiveness of an incentive based regulatory system, it is important not to consider the bank as a single entity whose actions are directly influenced by the regulatory incentives alone. Rather, to evaluate such a scheme, there needs to be a full understanding of the effects of regulation on the agency incentives within the bank.

## **5. The 1999 Basel Proposals: An Incentive Problem**

In June 1999, the Basel Committee proposed several reforms to their 1988 Capital Accord which suggested greater reliance on private credit rating agencies and internal bank ratings. These proposals specifically tackled issues of credit risk which it felt the 1988 Accord dealt with inefficiently. The reformed proposal of the Basel Committee specifically recommended replacing the existing system of credit weightings by one which would use private agencies' credit assessments to determine the risk weights. There is also a proposal to allow some sophisticated banks to use their own internal ratings of loans as a basis for calculating capital adequacy ratios. Unfortunately, there are some serious problems which arise by using outside agencies, namely, the issue of providing these agencies with the appropriate incentives to consider the full implications of their ratings on overall systemic risk. One risk in using these private economic agents to set prudential standards is the creation of incentives for them to act either in their own interests or that of the borrower in hopes of maximising their own gains through favourable ratings. These issues also then call into question the quality of each rating agency as well as

the standards they apply. Consequently, there needs to be some mechanism to reduce such perverse incentive effects for both private credit agencies and their client banks so that they are unable to ignore the costs of increasing systemic risk when maximising their short run profits – in economic terms, the public good problem.

The other concern from the recent Basel proposal is the use of an internal ratings model in the absence of any documented consensus on capital accounting standards at an international level. If the internal ratings method is adopted, it needs to be scrutinised and up to standards which are acceptable in all jurisdictions. Differences in financial innovations and technological advances in recent years could play a role in providing market participants with an incentive to engage in regulatory arbitrage. If financial regulation is too restrictive in one jurisdiction, both providers and users of financial services can simply move to a less restrictive and less costly jurisdiction. Competitive pressures could result in financial centres becoming engaged in competitive deregulation. This could lead to a bare essential approach to financial regulation as authorities compete to have firms locate within their jurisdictions resulting in a less than socially optimal level of regulation overall. If financial institutions engage in regulatory arbitrage, it is important for different national authorities to co-ordinate the regulatory policies in order to avoid not just the risks inherent in competitive deregulation, but also the dangers of lax rules in one country having an adverse effect on the ability of other countries to enforce financial regulations. Furthermore, to the extent that regulatory laxity represents a higher level of risk, the possibility of systemic spill-over effects on more conservatively regulated jurisdictions needs to be considered. Therefore, although different regulations to some extent will expectedly exacerbate distortions between markets by providing certain advantages and disadvantages to different participants, they should all uphold at least certain minimum standards.

If capital requirements are to meet minimum standards, there is first a need for the co-ordination of regulatory policies at an international

level. In this regard, national authorities will have to find a balance between national autonomy and co-ordination with other authorities. Since the economic case for international policy co-ordination in capital requirements is based on the presence of cross-border transactions and spill-over effects, these could be used as points of reference in determining the boundaries of co-ordination efforts on regulation. This raises questions of whether the regulatory framework should be focused on the organisation of markets rather than institutions. Systemic stability regulations tend to be institutionally focused and this follows directly from the nature of systemic risk which is assumed to be triggered by institutional insolvency. However, one of the features of financial markets today is the increasing blurring of distinctions between different types of financial institutions. The evolving nature of their various roles means that regulations which are too narrowly focused will be rendered obsolete very quickly. Thus, the importance of institutional focus within an international context is further highlighted within an incentive based regulatory framework to manage systemic risk in capital requirements.

One solution to this problem might be mandating member banks to become direct shareholders in the equity of other banks. The financial exposure created by one bank to another in this system would provide strong incentives for banks to monitor each other. Moreover, private financial institutions may have better access to information on other banks than is possible for regulators or other banking supervisors. One natural advantage in such decentralised multilateral monitoring arrangements is the mitigation of the free rider problem. By increasing the costs specifically for the defaulted bank as well as that bank which failed as an effective monitor through higher capital requirements, all members would recognise that any losses they create would not be left to the public and would bear upon themselves. Such is the basic idea in Calomiris' recent scheme for banks to police themselves by requiring every bank to finance a small proportion of its assets by selling subordinated debt to other institutions – namely, foreign banks – with the stipulation that the yield on this debt cannot

be more than 50 basis points higher than the rate on corresponding riskless instruments.<sup>2</sup> The yield cap guarantees that banks cannot compensate these debt holders with large spreads when they participate in high risk activities. As the essence of Calomiris' recommendation is to reduce these very risks, investors would only buy subordinated debt when they were sure that the bank's activities are low risk. If in fact a bank were unable to convince other banks of their aversion to risk, they would not be allowed to function. In this way, Calomiris proposes to exploit the access to greater and better information which other fellow bankers rather than supervisors are believed to have. Such direct shareholding by member banks could reduce cosmetic adjustments and align the incentives of private banks and regulators alike by mandating that the social costs of high risk activities are not borne only by the public at large.

## **6. The Road Ahead**

The analysis in this paper has been motivated mainly by the interest of financial regulators and the institutions which they regulate. However, regulators are not the only ones in government who worry about incentives. Much government activity involves the motivation of private interests to further the public good. When government taxes, it weighs the public good from tax revenues against the incentive effects of the tax. In many cases, the purpose of the tax is its incentive effect rather than the revenue generated. Similarly, when government seeks to limit the level of systemic risk within the financial environment, many of its actions affect the incentives of private financial institutions. This problem has been evident in the recent proposals by the Basel Committee which faces difficult challenges in the future. The Committee has recognised the possible distorted incentives of some of their original mandates, the increased competition in the financial services industry, and the notable effects of market risk on bank portfolios. In finding solutions, it not only has to address each of the former issues, but it needs to account for the differences amongst potential clients. Clearly, a need exists for a risk assessment framework which not only avoids the problems of cosmetic

adjustments to capital ratios but also is easily adaptable to different macroeconomic, institutional, and financial conditions. By allowing financial institutions to play a greater role in setting their own capital requirements, the 1999 Basel proposals have recognised the information advantages of the market. However, before these reforms can be put into practice, they require at least the setting of appropriate incentives for private agencies and internal ratings models, in addition to better co-ordination of international regulatory standards.

This paper has argued that the operation of the financial sector as a whole will not be as effective if market discipline is relied upon as the only tool of financial regulation. If this is the case, there needs to be at least an incentive compatible framework in place a priori. Moreover, before enacting any incentive mechanisms, there must be adequate built-in measures to prevent the exploitation of information asymmetries, as well as greater harmonisation and co-ordination of regulatory standards between countries, as evident in the 1999 Basel proposals. An appropriate incentive framework includes a regulatory and supervisory framework, accounting rules and practices, and disclosure requirements. However, better information disclosure alone will not suffice as long as the incentives for excessive risk taking remain. That is, without an appropriate design for enforcement even through market disciplinary measures, strong incentives for manipulation through excessive risk taking remain. Therefore, before designing any incentive based regulatory mechanism, the trade-off between regulatory and agency incentives must be recognised and addressed. A better understanding of these various costs and benefits will only result in a more resilient regulatory structure for the future.



## Notes

1. For further information, see the Suffolk banking system in the U.S. between 1820-1850 (Rolnik, Smith, and Weber [1998]; Calomiris and Kahn, [1996]).
2. Although there are many difficulties in Calomiris' argument, he suggests some solutions from the outset, e.g., to avoid "cronyism" and collusion within a specific market, buyers of such subordinated debt would have to be outsiders, i.e., foreign banks (*Journal of Banking and Finance*, October 1999).

## **TABLE**

**Table 1: Regulatory Framework for Selected Countries**

Country	Minimum Capital Adequacy Ratio (Tier 1 + Tier 2)		Loan Classification Requirements (# of days before loan is NPL)	Limit on Risk Exposure (% of FOREX assets to be held)	Single Exposure Limit (% of capital)
	Tier 1	Tier 2			
<b>G-10</b>					
Japan	4%	4%	At Bank's Discretion	Part of Mkt. Risk	20% of tier 1
United Kingdom	4%	4%	At Bank's Discretion	No limit	25% of tier 1
United States	4%	4%	90	Not Relevant given \$US	15% of capital, 10% for secure assts
<b>Latin America</b>					
Argentina	11.5%	< tier 1	90, > 180 Non-Recover	Closely Monitored	25% of tier 1
Mexico	Subject to Authrty		90 for comm; 180 for mortgages	15% in US\$ + 2% in all others	10% single; 30% corporate
Chile	5.75%	2.25%	90	< 20 % of capital	5%-25%
<b>Asia &amp; Pacific</b>					
Hong Kong	4%	4%	90	Monitored by HKMA	25% of tot. capital
India	None	< tier 1	210	Not Allowed	Corp: 25%; Grp: 50%
Indonesia	4%	4%	90	< 20% of capital; < 25% exposure for single currency	85%
Korea	None	≤ tier 1	180	20% of capital	45%
Malaysia	8%	0%	180	No Restrictions	None
Thailand	4.25%	4.25%	90	Net long 20% tier 1; Net short 15% tier 1	25% of tier 1

Source: World Bank (1997)

## References

- Calomiris, C. (1999) Building an Incentive Compatible Safety Net, *Journal of Banking and Finance*, Vol. 23, pp. 1499-1519.
- Dhumale, R. (2000) Capital Adequacy Standards: Are They Sufficient? *CBR Working Paper Series*, No. 165, June 2000.
- Eatwell, J. and Taylor, L. (2000) *Global Finance at Risk*, New York: New Press.
- Goodhart, C., P. Hartmann, D. Llewellyn, L. Rojas-Suarez, and S. Weisbrod (1998) *Financial Regulation: Why, how, and where now?* London: Routledge.
- Honohan, P., and J. Stiglitz (1999) Robust Financial Restraint, Paper presented at a workshop titled *Financial Liberalisation: How far? How fast?* Development Research Group, World Bank, Washington D.C.
- Mishkin, F. (1996) Understanding Financial Crises: A Developing Country Perspective, *NBER Working Paper 5600*.
- Peek, J., and E. Rosengren (1996) The use of capital ratios to trigger intervention in problem banks: Too little too late, *New England Economic Review*, September/October 1996.
- Santos, J. (1998) Commercial Banks in the Securities Business: A Review, *Bank for International Settlements (BIS) Working Paper No. 56*.
- Stultz, R. (1999) Financial Structure, Corporate Finance, and Economic Growth, Revised Mimeo.
- World Bank (1997) *Guidelines for Financial Sector Development*, Mimeo, Washington, D.C.: World Bank.