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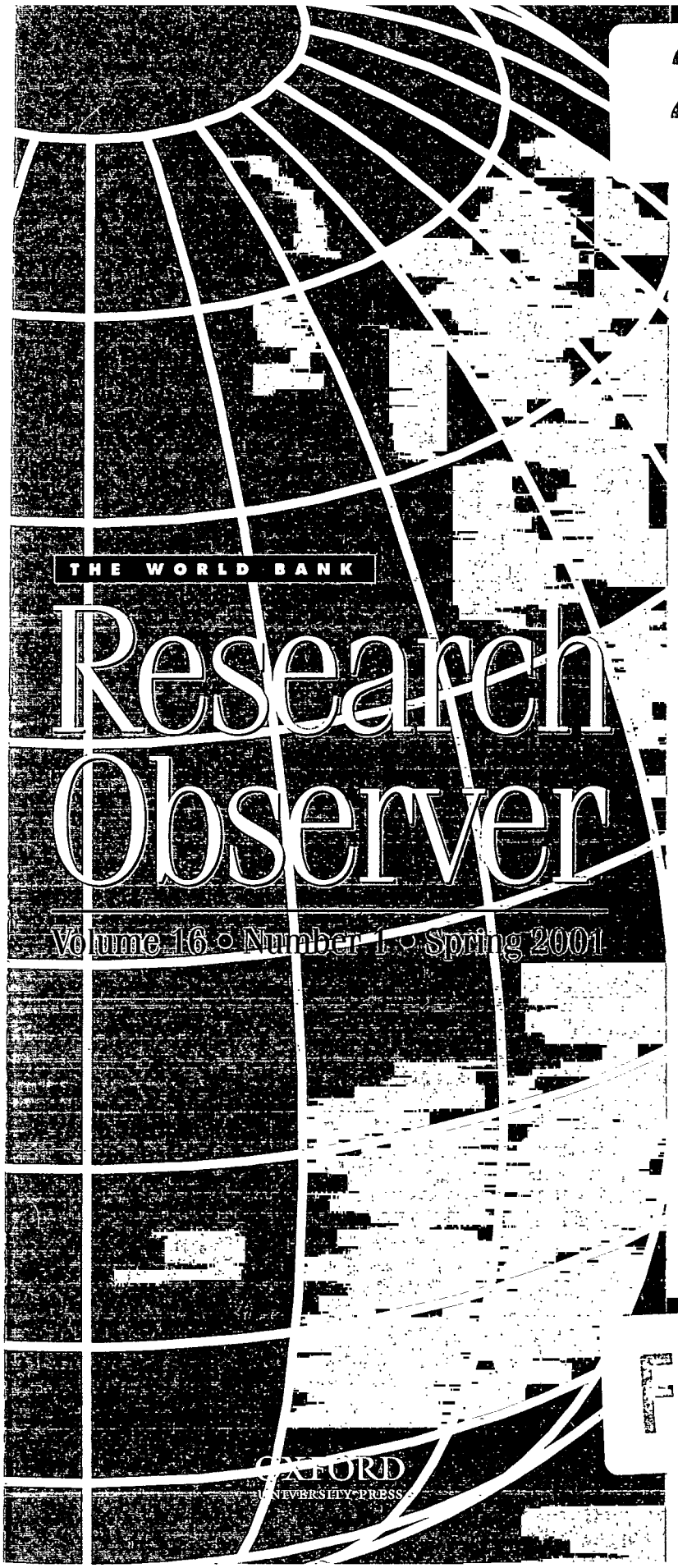

THE WORLD BANK

Research Observer

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Principles of Financial Regulation: A Dynamic Portfolio Approach

Joseph E. Stiglitz

Economists seeking explanations for the global financial crisis of 1997–99 are reaching consensus that a major factor was weak financial institutions, which resulted in part from inadequate government regulations. At the same time many developing countries are struggling with an overregulated financial system—one that stifles innovation and the flow of credit to new entrepreneurs and that can stunt the growth of well-established firms. In particular, too many countries are relying excessively on capital adequacy standards, which are inefficient and sometimes counterproductive. The author argues that financial systems can be reformed successfully using a "dynamic portfolio approach" aimed at managing the incentives and constraints that affect not only financial institutions' exposure to risk but also their ability to cope with it. The article sets out general principles of financial regulation and shows how the dynamic portfolio approach can help countries deal with the special problems that arise during the transition to a more liberalized economy as well as those that arise in dealing with a financial crisis similar to the 1997 crisis in East Asia.

As dramatic as it was, the global financial crisis of 1997–99 was only the most recent in a rash of crises that have devastated market economies over the last 25 years. By one calculation almost 100 countries experienced a severe currency or financial crisis during that period,[1] with adverse consequences for their national budgets and economic growth. Such patterns clearly call for an explanation; although there has been no dearth of suggestions, a consensus is growing that at least part of the explanation lies in weak financial institutions, which result in part from inadequate government regulation. The pendulum has come full circle: from the burst of enthusiasm over deregulation, policymakers now appreciate why it is that the most successful economies have long had a strong tradition of financial regulation. In the United States financial regulation dates back to 1863, in the middle of the American Civil War, when it became apparent that a strong banking system was essential to create a new national economy and that such a system required a strong national regulatory structure. The most recent major lapse in regulation, the deregulation effort that

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began in 1981, led to the savings and loan debacle. The consequences of that crisis were so severe that the U.S. economy did not recover for close to a decade.

But many developing countries are struggling with precisely the opposite problem—an overregulated financial system that stifles innovation and the flow of credit to new entrepreneurs, stunting the growth of even well-established firms. One of the many adverse effects of the East Asian financial crisis is that countries have become wary of reforms that affect the financial sector, aware that they may leave the country worse off. This article argues that reforms are possible—and indeed needed—and can be undertaken without undue fear, but success requires understanding the basic principles of financial sector regulation. The article sets forth those principles.

Even before the crisis, a theoretical literature argued that the nature of financial market failures necessitated a strong role for government (Stiglitz 1993). Failures in the banking system have strong spillovers, or externalities, that reach well beyond the individuals and firms directly involved. To avoid a financial collapse, governments typically bail out the affected entity, whether or not formal deposit insurance is in place; this intervention itself gives rise to problems of moral hazard.[2] Although the absence of formal deposit insurance might give depositors a slightly increased incentive to monitor financial institutions (because there is some uncertainty about whether they will actually be bailed out), individual monitoring is actually inefficient. Monitoring is a public good, and it needs to be publicly provided. Of course, at a more practical level, a small depositor cannot be expected to examine the books of a bank on a weekly basis: there is strong evidence that regulators and rating agencies have difficulties doing so. Indeed, the widespread misconceptions about the appropriate strategy for regulating the financial sector suggests that even so-called experts are not fully aware of some of the key issues. Why, then, should one expect more from an individual depositor with little training, interest, or capacity in the arcane details of financial accounting?

Despite its long history, financial market regulation is poorly understood, as evidenced by the disasters associated with deregulation in industrial and developing countries. Often such measures were pushed through in a burst of enthusiasm for free markets without recognizing the inherent market failures associated with such markets—and without remembering the disastrous history of free (unregulated) banking (Caprio and Vittas 1997; Vives 1991). Today few economists advocate unregulated banking, but a similar ideological agenda has pushed excessive reliance on a single regulatory instrument—capital adequacy standards. The belief is that this measure entails the minimal interference with the workings of the market and avoids the well-recognized problems of unregulated banks. A deeper analysis of the financial sector, however, shows that such reliance is not only inefficient but may even be counterproductive under some circumstances.

This article presents a general approach to financial sector regulation that I refer to as the *dynamic portfolio approach*. It recognizes that asymmetric information gives

rise to the need for regulation and examines the regulatory structure from the perspective of risk management. The article focuses on managing the incentives and constraints that affect financial institutions' exposure to and their ability to cope with risk. It argues that a number of instruments are available that can be used to complement each other. The way these instruments are mixed differs over time and with the country's level of economic development. Underlying the analysis is the recognition not only that financial institutions play a central role in the economy but also that financial institutions are both a source of risk to and are affected by risks from the rest of the economy. Thus, the design of the regulatory structure needs to be sensitive to the ability of, say, the corporate sector to manage an absorb risk.

This article outlines the general principles of financial regulation and goes on to discuss the special problems that arise in the course of the transition toward a more liberalized economy. Although I recommend a process of gradual transition, it is apparent that managing the transition requires considerable subtlety; in the early stages some regulations may actually have to be tightened. The final section discusses the special problems that arise in dealing with a financial crisis similar to the 1997 crisis in East Asia. The regulatory framework required for dealing with such systemic problems needs to be markedly different from that employed in dealing with an isolated weak bank.

Basic Principles

Underlying the need for bank regulation is a discrepancy between social and private returns on assets (risk), which can create an incentive for bank owners and managers to engage in excessive risk. Imprudent lending is not the only problem. Akerlof and Romer (1993) emphasize banks' incentives for looting. They note that the mechanisms of control are similar except that the scope for using criminal penalties as incentive devices is greater. In practice, of course, determining whether looting has occurred is often difficult, which limits the applicability of such penalties. There are thus two approaches to regulation: first, trying to alter incentives so that social returns and private incentives are better aligned; second, imposing constraints that limit the extent to which owners and managers can deviate from appropriate risk.

Improved Incentives

Incentives are improved through increased capital, so banks have more to lose if they gamble. Such capital takes two forms: standard capital requirements, which force banks to maintain a certain level of net worth or a tranche of uninsured capital; and franchise value, which is the present discounted value of future profits. If a bank gambles on an investment and loses, a larger capital base means that the bank bears

more of that loss; if it loses enough, it goes bankrupt and cannot reap future profits—it loses its franchise value.

But the enthusiasts of capital adequacy standards have missed an important subtlety: Increasing capital requirements lowers the franchise value of the bank, so that the net benefit is much less than would seem to be the case and may even lower the overall capital value of the bank, thus actually adversely affecting incentives.

The reason is simple. The kind of equity capital required to meet capital adequacy standards has a high cost (otherwise there would be no need for a government requirement). Thus, by raising the amount of high-cost capital (relative to the low-cost deposits), the residual (franchise) value is reduced. There is an important and obvious corollary: financial market liberalization—that is, increased competition and the elimination of ceilings on deposit rates—lowers franchise value and thus leads to increased risk-taking. This is the underlying reason for the systemic relationship between liberalization and financial sector crises. To be sure, increased competition might have produced long-term benefits if no financial crisis had occurred. But the frequency of such crises suggests that all too often those benefits are not achieved, and indeed, the fact that economic growth is significantly slowed for five years after a crisis strongly suggests that the net benefits are questionable at best. In fact, cross-country studies question whether there is any systematic relationship between capital market liberalization and either growth or investment (Rodrik 1998).

Advocates of capital adequacy standards have a reply. The problem, they assert, is that capital adequacy standards were simply not set high enough or were not rigorously enforced. I will come back to the latter objection; here I consider the former.

There is, to be sure, a level of capital adequacy that is high enough to ensure that banks will not engage in gambling behavior. But these levels entail a cost. Because the capital is expensive, banks are only be able to pay depositors relatively low interest rates. (To put it another way, the marginal return to deposits is lowered.) Hellman, Murdock, and Stiglitz (1998) show that relying solely on capital adequacy standards is inefficient. By accompanying capital adequacy standards with ceilings on deposit rates, it is possible to offer depositors precisely the same interest rate they would have achieved under the gambling-preventing capital requirements, yet banks would be unambiguously better off. Indeed, one can go further: the deposit rate can be raised with a slight accompanying increase in the capital requirement from that level, thus mobilizing more savings and attaining the same level of safety and soundness of the banking system that would have been achieved by relying solely on capital requirements.[3]

Regulators need to recognize that capital adequacy standards by themselves may actually induce banks to engage in riskier behavior: As they seek returns to offset their higher costs, they engage in increased risk-taking, partly offsetting the benefits conferred by the capital adequacy standards. That is why capital adequacy standards have to be set so high that banks are forced to lower deposit rates.

To offset this problem, regulators have attempted to make capital adequacy standards reflect the risks that banks undertake. But the risk adjustments that are put into place are so inadequate—almost intrinsically so—that they do little to resolve the problem and may actually exacerbate it by providing distorted incentives. First, they approach risk on the basis of an assessment of each asset, yet the risk faced by the bank is a result of the correlations among all the risks. A bank portfolio consisting of a large number of highly correlated but relatively low-risk assets may in fact be far riskier than a bank portfolio consisting of higher risk assets that are negatively correlated or not correlated at all. This, of course, is the point of risk diversification. In the past problems have occurred when banks failed to evaluate properly the correlation among assets. Because of the effects of contagion, investments in Mexico and Brazil in the 1980s turned out to be highly correlated, with disastrous effects on the banks' balance sheets.

Today, sensitivity to these issues is heightened, although they remain poorly captured within the capital adequacy framework. But a new set of correlations—that which occurs between credit and market risk—has proved even more troublesome. Originally, risk adjustment focused only on credit. Although they have subsequently been amended, the risk adjustments are treated and applied uniformly by all countries. The responses to this neatly illustrate the distorting consequences of inadequate risk adjustments and how they can expose banks to greater risk. To offset the high capital adequacy requirements, banks sought high-return investments that were not risk weighted, and they could easily find such assets in long-term Treasury bills. These bills paid high interest rates, presumably to offset the high risks associated with market value. But the banks were allowed to treat the additional return as income (rather than being forced to put the "risk premium" aside to provide reserves against the possible contingency of a fall in market value). An active debate on the subject took place in the United States. Many economists supported the principle that the regulatory framework should be based on transparent systems in accord with risk principles. The chairman of the Federal Reserve Board, however, took the position that it was necessary to comply only with the Basle principles, which emphasize the importance of independent regulatory authorities, early intervention in the event of financial distress, transparency, and market discipline.[4] In this particular case, the perhaps unexpectedly large deficit reduction that U.S. president Bill Clinton managed to push through Congress (by a slim margin) in 1993 provided the setting for a marked reduction in long-term interest rates. The result was an increase in long-term bond asset values, which effectively recapitalized the banking system (Stiglitz 1998). Some gambles do pay off. But if the perhaps more likely scenario had played out—a continuation and even an expansion of the soaring deficit—interest rates could have risen, leaving the banks in dire straits.

The recent crisis has shown the danger of paying undue attention to the correlations between credit and market risk. A bank may believe that it has purchased cover

for an exposed position, but if the probability is high that the provider of that cover will go bankrupt—especially under the circumstances in which it is called on—then the bank does not really have adequate insurance against risk. If those who provide cover have an inadequate capital basis relative to their risk exposure (which depends on the correlation of their risks), then such problems may easily arise, as occurred in the crises in the Republic of Korea and Russia. But note the almost impossible position that this imposes on regulators. Not only do they have to look at the nominal cover, they have to look at the balance sheets of those providing the cover.

Capital adequacy standards (with or without risk adjustments) are only one way to enhance incentives. Other ways entail strategies that increase the institution's franchise value, such as restrictions on deposit and lending rates and on entering the market. Restrictions on deposit rates can be an effective part of a portfolio of financial regulation, one that strictly dominates reliance on capital adequacy standards. (To be sure, one must guard against policies intended to circumvent these restrictions, such as hidden forms of service provided to depositors. Typically, these go only a little way in undermining the effectiveness of these ceilings.)

Advocates of financial market liberalization have often attacked ceilings on lending rates because they restrict banks' incentive to lend to high-risk ventures. But that is exactly the point. Such risky lending is associated with a systematic discrepancy between social and private returns because of the implicit protection provided by deposit insurance. Such ceilings may be an important complement to other regulatory instruments, given the limitations referred to earlier and discussed in greater detail below.

Constraints

The simplest constraint is designed to prevent banks from engaging in excessively risky lending and to ensure that when such lending occurs, the bank is adequately compensated by a high interest rate, has sufficient capital to absorb any losses, and promptly sets aside reserves when loans become nonperforming. This kind of monitoring forms the basis of traditional bank regulation. But the cost of such regulation is high, and because regulators typically are less informed than lenders, the scope for abuse is wide. Hence, especially where regulatory capacities are weak, it is better to rely on more direct constraints.

Several categories of constraints are imposed on banking systems, including those on processes and on categories of loans, on entry into the market, and on interest rates. For instance, before liberalization, Thailand (and many other countries) restricted the amount banks could lend for speculative real estate ventures and imposed strict collateral requirements on such loans. Many regulatory authorities are considering restrictions on the use of derivatives. A common set of restrictions relates to self-dealing (insider loans). The long, sad experience of such loans makes the dan-

gers of such transactions clear. Most countries impose restrictions on who can own and run banks. The risk of a violation of fiduciary responsibilities is simply too great to entrust these funds to those with, say, criminal records.

Increasingly, governments are supervising risk-management systems. But the limitations of these systems have become increasingly clear, even in the industrial countries that have tried to implement them. Supervisors have repeatedly failed to detect the risks associated with huge derivative positions. In the absence of sophisticated risk-management techniques, regulators need to rely on cruder approximations of solvency. Thus, they focus on, for example, foreign-exchange exposure (mismatches between assets and liabilities) or (as in the case of Malaysia) the foreign-exchange exposure of borrowing entities.

By the same token, because highly leveraged firms run the risk that they may be unable to repay their loans, regulatory authorities may limit the leverage of firms to whom banks lend. (This is a restraint that few regulatory authorities have actually imposed. Prudent banking might make such a regulation unnecessary if banks had the correct incentive structure. Korea has imposed such constraints.)

Although correlations may not be well measured, the presumption that firms in the same industry are highly correlated (because they are typically affected, at least in part, by similar shocks) naturally leads to restrictions specifying that the entity's asset base be diversified. A long history demonstrates that very rapid and frequent increases in a bank's asset base tend to be associated with high-risk portfolios. This illustrates the value of legally mandated restrictions to prevent such practices. These restrictions may mean that it will take longer for competitive forces to weed out inefficient banks, but well-documented experiences suggest that these risks are outweighed by the attendant benefits. The extent to which limitations on too rapid an expansion of assets can be relied on (like any constraints or incentives) depends on the existence of complementary restraints and incentives. When the incentive structure includes deposit insurance but does not limit interest rates paid to depositors, banks that engage in risky behavior will have an incentive to offer higher interest rates to attract more funds. A form of Gresham's law takes place as risky banks drive out safe banks (Stiglitz 1992).

Systemic Effects

Subtlety, attention to correlations, and an awareness of systemic effects can guide policymakers in imposing and implementing these regulations. Two examples suffice to make the point. Consider a common constraint: a minimum collateral requirement on real estate loans. Such constraints are useful in two respects. In normal times, the magnitude of an error in judgment is limited. An 80 percent capital requirement may well protect the lender against a misjudgment in the value of the asset or in fluctuations in that value. Even if the borrower cannot repay the loan, the lender is sup-

posedly fully protected. The fact that the borrower has so much to lose provides an incentive to borrow only if the investment is likely to pay off. Such contracts would thus appear to be incentive compatible.

The problem is that the value of the collateral is highly correlated with the circumstances under which borrowers cannot or do not repay.[5] The collateral requirements themselves also contribute to the correlation. In an economic downturn (especially an asset bubble crash), many borrowers find themselves unable to repay their loans; some borrowers decide to default on their loans as the value of their collateral falls below the value of the loan. As a result, many assets are put up for sale; the sudden increase in the number of distressed properties for sale leads to a sharp drop in asset prices (intertemporal arbitrage is far from perfect) (Shleifer and Vishny 1997). This decline, in turn, leads to more defaults, and a vicious circle is set in place. The collateral requirements seem to reinforce the downward spiral.

The problems are even more severe when capital adequacy standards are rigidly enforced in the face of an economic downturn and banks cannot raise the funds to recapitalize, as is typically the case. In the resulting credit crunch, banks have to cut back their loan portfolios, forcing many more firms into bankruptcy or, at a minimum, making it impossible for them to service their loans. As each financial institution moves to satisfy capital adequacy standards, the whole system may find its strategy completely undermined, worsening capital adequacy.

Limitations on Regulatory Incentives and Constraints

Information imperfections give rise to the need for regulation and plague the implementation of regulatory regimes. Three principles are worth noting:

- *Capital is imperfectly measured.* Ascertaining the true capital—that is, what the bank has at risk—is uncertain. The problem is acute, because most of the assets (loans and holdings of real estate) are illiquid and there are no markets to ascertain their true values. But book value is highly unreliable. Indeed, this is precisely why most economists have supported marking to market value those assets whose values can be easily ascertained. In the United States and elsewhere, the resistance to these reforms, which would increase the transparency of the banking system, has been remarkable. Those resisting have argued that the information may lead to distorted behavior, because only part of the bank's asset portfolio would be marked to market. But the distortions have more to do with how the information is used by regulators and depositors than with the availability of the information itself.
- *Constraints are imperfectly monitored.* For instance, many mortgage regulations specify that the value of the house must amount to at least two-thirds of the value

of the property. This restriction is intended to discourage land speculation financed through bank lending and reflects the variability of land values. But valuation typically involves considerable discretion. Insider lending is another practice that is difficult to stop. Although insider lending is prohibited, lending to friends of insiders, who then lend to insiders, is easy to arrange. The savings and loan debacle in the United States demonstrated the large variety of ways by which those who wished to skirt around the regulations could do so—although they also illustrated that one can overstep the bounds and end up in prison.

- *These information imperfections are endogenous and thus are affected by the regulatory regime.* Regulatory regimes, combined with imperfect information, can lead to highly distorted behavior and actually weaken the banking system. This is a key point: the extent of information imperfections is affected by the consequences of the provision of information. Some examples (following) make this point.

Failure to use "mark to market" accounting is such a case. By relying on book value accounting, management induces perverse incentives in the sale and retention of assets, increasing the discrepancy between market value and book value. Banks sell those assets that have increased in value, recording their gains, but retain those assets that have lost value, thus avoiding the need to record these losses. This technique may stabilize asset values in the economy (as noted in the discussion on collateral), but it means that book value is an upwardly biased measure of true capital. Book value accounting also leads to economic inefficiencies: whether a bank should buy or sell an asset should depend on the relative merits of the bank's ability versus that of other entities to manage and monitor the particular asset.

Worse still, book value accounting offers management an incentive to engage in excessively risky investments, because these provide a greater opportunity to distort "recorded" capital values relative to actual values. Banks have an incentive to reduce the quality of information and to take actions that increase the magnitude of the distortion.[6]

These incentives become more acute the greater the extent to which the capital adequacy standards are binding. One of the consequences of rigidly enforcing capital adequacy standards without appropriate risk adjustments (and, as mentioned, risk adjustments are woefully inadequate) during an economic downturn is that it leads to increased risk-taking and a reduction in the quality of information.

Dealing with Limitations on Information

There are three complementary approaches to informational limitations. First, select regulatory regimes that are less information intensive. In other words, it may be easier and less costly to monitor certain categories of loans (to make sure that banks are not making, say, real estate loans) than to assess the quality of the loans them-

selves. Indeed, the reliance on enhancing bank incentives is based on the premise that banks have better information about the loans than do regulators. It is easier to monitor the variables that affect bank incentives, such as capital adequacy. Although that is true, there are limitations—with important consequences—in monitoring capital.

Second, complement the information base on which regulators depend with information provided by markets. Particularly suggestive in this regard is Argentina's strategy, which requires banks to obtain a tranche of uninsured capital. The interest rate that banks pay for such capital provides an indicator of the market's perception of the bank's risk. Typically, the private and public sectors have access to different information. The private sector may, for instance, have better information concerning the condition of the firms to whom the bank has made loans, but regulators may have more up-to-date information concerning the bank's current balance sheet. The information that each has available and the way each processes that information are sufficiently different that both have value. Third, avoid regulatory regimes that undermine the quality of information or at least be aware of their biases and implement offsetting corrections.

Financial Institutions Balance the Benefits and Costs

If the restrictions imposed on banks become too severe, funds will flow to less regulated nonbank financial institutions. To the extent that banks face significantly greater systemic risks (and more severe moral hazard problems because of the explicit or implicit guarantee of bailouts), this shift may not have overall adverse consequences. But as several recent crises have illustrated, if nonbank financial institutions loom large enough in the economy, they, too, can give rise to systemic risks, and they, too, can become too big to fail. In this process all the arguments explaining why regulation is needed for banks become applicable to nonbanks. The reach of regulation must thus embrace all financial institutions, although the extent and nature of the regulation may differ markedly between banks and nonbanks depending on the role the latter institutions play in the economy.

Developing countries often face greater risks because their economies are smaller and less diversified. At the same time, their risk management capacities are weaker, their risk absorption levels (and built-in stabilizers) are less effective, and their regulatory authorities are more limited. Clearly, regulatory policies need to complement each other. This observation is a reflection of the modern approach to agency theory. This theory, which was developed a quarter of a century ago (Ross 1973; Stiglitz 1974), emphasized the information asymmetries between principles and agents and the often marked differences in incentives that resulted. Incentive systems were designed to align the two. Although the early literature focused on designing reward structures based on (imperfectly) monitored outputs versus (imperfectly) monitored

inputs, it became increasingly clear that optimal incentive structures used all available information on inputs, outputs, the processes by which decisions were made, and the processes by which inputs were converted into outputs. In a sense, this analysis pushes the evolution of agency theory a step forward by emphasizing the constraints on subsequent opportunities.

I have stressed the importance of interactions between the various parts of the portfolio of regulatory actions. These interactions are often complex and poorly understood. For instance, restrictions on bank lending may adversely affect the institution's franchise value, so that although certain types of risk may be proscribed, overall risk taking might actually increase. More broadly, restrictions on the set of feasible activities necessarily lower expected profits and thus reduce franchise values. Moreover, restrictions may have an adverse impact on incentives, so that even though the ability to engage in excessive risk taking may be reduced, the incentive to do so may be increased. Either tighter oversight or more stringent restrictions on lending may have to be imposed.

Transitions: Financial Regulation in the Process of Liberalization

This discussion has highlighted some of the problems with financial regulation in equilibrium. But some of the most interesting challenges pertain to the process of liberalization. The recognition that changes cannot occur overnight and that time is needed to build up regulatory capacity suggests that a process of gradual liberalization may be preferable to the rapid liberalizations that have encountered so much trouble. One lesson that has been learned from East Asia's experience is that liberalizing the financial sector before the requisite regulatory structure is in place is a recipe for disaster.

Two further aspects of the transition process have not received sufficient attention. The first concerns announcement effects, meaning that the announcement of even a gradual approach to liberalization has an instantaneous adverse impact on franchise value. The prospect that future profits may decline reduces incentives for prudential behavior well before the liberalization takes effect. Thus, it is important to tighten the regulatory structure initially to prevent entities from indulging in risky ventures. The process of liberalization cannot simply be a successive peeling away of regulations.

Second, the individuals responsible for financial liberalization must be cognizant of the scarcity of trained human resources. The standard challenges have often been noted. Banks and managers are not well prepared for the new competitive environment. Moreover, the previous cushion of profits permitted greater scope for mistakes while still allowing the bank to survive. Indeed, before liberalization, banks often sim-

ply directed credit according to the government's instructions, with full knowledge that the government would bear the costs of any defaults. Hence they were not really engaged in the central functions of banking—the screening and monitoring of loans (Stiglitz 1998). But although the need for and demands on regulators increase, typically there is a shortage of trained personnel as skilled employees are recruited away by the private sector. The public sector simply cannot compete. This phenomenon was evident in Thailand, whose central bank, well regarded in the 1980s, lost many of its most talented individuals after liberalization.

Regulating in Crises

Weak regulation, forbearance, and a failure to meet basic capital adequacy standards are common contributors (if not causes) of financial crises. It is thus natural to respond to a crisis by insisting that banks quickly meet capital adequacy standards. But such a policy may actually prove to be counterproductive. The problem arises from the failure to distinguish between systemic problems and isolated bank failures. When a single bank has a problem, shutting down the bank has no systemic consequences and no macroeconomic effects. To be sure, borrowers who relied on that bank may face difficulties until they find alternative sources of funds. Systemic crises, however, are quite different.

Consider a country in which a crisis has occurred and where a large fraction of the financial institutions suddenly do not meet capital adequacy standards. Assume that there is no adjustment in those standards and they are told to quickly comply. The midst of a recession is hardly an appropriate time to raise additional capital, at least from the private sector. Thus, unless the government is willing to provide additional finance, banks have to cut back on lending, curtailing the amount of credit available and forcing some firms into default. In any case, firms' demand for investment capital is likely to be unmet, and they may be forced to reduce their scale of operations. In time, these adjustments can trigger a chain of bankruptcy. Worse still, as firms go bankrupt, the number of nonperforming loans increases, weakening the bank's financial position. Clearly, rigid enforcement of capital adequacy standards may be self-defeating.

Alternatively, the government may finance the restructuring. Too often this is done in a way that ignores the basic rationale for additional capital. The principal reason for strong capital adequacy standards is to provide bank owners with an incentive not to engage in risky behavior and to provide a cushion against shocks so that the government will not be required to bail out the bank. Government-provided funds satisfy neither criterion. Private incentives are unchanged because the amount of private money at risk is unchanged. It is hard to see how government-as-owner should be more prudential than government-as-regulator. The government cushion

affects only the timing of the provision of public funds. It has no effect on the amount of public funds that will eventually have to be disbursed.

Moreover, such funds can be counterproductive. If the government raises money in the conventional way, these funds may crowd out public expenditures on other items. Although the government maintains demand by sustaining bank lending, the aggregate contraction of expenditures on education or health clearly has contractionary effects on the economy as a whole. Alternatively, the banks may simply be shut down, with even more disastrous effects as credit is cut off and the chain of events described earlier is set in motion.

A more appropriate objective of bank restructuring should be to maintain the flow of credit while ensuring that lending is prudent. The dynamic portfolio approach advocates a tightening of oversight, including possible restrictions on categories of acceptable activities. This approach is accompanied by a longer-term requirement for the satisfaction of capital adequacy standards (to guard against banks issuing dividends).

In a world in which many economists, let alone analysts, do not understand the fundamentals of bank regulation, public relations may require that banks at least appear to satisfy high capital adequacy standards. There are ways that this may be done at low budgetary costs. For example, rather than invest in a firm directly, banks may lend to the government at low or 0 percent interest rates, with the proceeds invested in the equity of a firm. The government's implicit guarantee reduces the capital adequacy requirement for that loan, because the risks associated with the asset and liability differ markedly. Although this transaction nets out on the government's capital account, it improves the bank's ratio of net worth to assets. (At the same time, it makes the inadequacy of capital adequacy standards clear.)

When shocks to the financial system are large enough or lending mistakes are big enough, the net worth of a bank may actually be negative. At this point, the government faces more fundamental problems. If there is an explicit deposit insurance system, the insurance should pay off the insured depositors, putting the bank effectively into bankruptcy. Whether the bank should be shut down or recapitalized depends on a judgment about the bank's competence. More subtle problems involve the informational and organizational capital embedded in the bank, with some attention to moral hazard issues on the one hand and credit constraints on the other. The basic criterion should be: Does this financial institution have organizational and informational capital that make it valuable in screening and monitoring loans? But this basic criterion must be modified in two ways: the government needs to be aware that closing down a bank (or at least punishing managers through severance) provides incentives for financial institutions in the future to be more prudent. This would mean that a marginal bank—one whose net value as an ongoing enterprise might be slightly positive—might be shut down. But offsetting this decision is the fact that when a country faces a macroeconomic slowdown, the systemic effects of closing

down a bank may be significant. Thus, regulators might decide to keep a marginal bank alive, even though its net value as an ongoing enterprise might be slightly negative.

The way that the savings and loan crisis in the United States was handled emphasizes the importance of maintaining institutional and organizational capital. Few banks were actually closed down; most were taken over by other banks, typically on a weekend so that customers hardly noticed the change in management. A paramount objective was thus not only the preservation of capital but also (and relatedly) continued access to credit. This successful management of problem banks should be compared with the disastrous approach taken in Indonesia, where authorities shut down 16 private banks and implied that still more weak banks might be closed in time. Depositors were put on notice that their deposits were at risk. The resulting run on the remaining private banks was no surprise, particularly because safer alternatives were available: state banks (which many believed had the government's implicit guarantee) and foreign banks (which many believed were sounder). Even if these safe havens had not been available, depositors could have taken their money and put it into bank accounts denominated in foreign currency (thereby at the same time avoiding the downside risk of devaluation). As private banks weakened, the supply of credit was disrupted, contributing to the decline in the economy.

Restructuring financial institutions typically involves stripping out the bad assets into an asset management agency. In the aftermath of the savings and loan debacle in the United States, the acquiring agency was the Resolution Trust Corporation. What value is associated with this rearrangement of the control of assets? There are three possible answers, of varying merits. The first, and perhaps the most important, is that the compensation paid by the government to the bank for these assets exceeds their actuarial value. In effect the asset resolution process is a subtle way of providing a hidden subsidy. The second—and most persuasive, if true—is that by specializing in the management of nonperforming assets, the asset management agency can enhance the value of those assets; it has an absolute advantage in workout techniques. This expertise is more convincing in the case of real estate assets (the bulk of those managed by the Resolution Trust Corporation). In fact, it did a very credible job in disposing of the nonperforming assets, helped by the renewed strength of the real estate market following the drop in interest rates. But there is little confidence that it would have done as well had it been saddled with the responsibility of managing controlling interests in corporations, such as General Motors or Ford. Third, stripping out bad assets allows banks to focus attention on new lending activities and reduces uncertainty about the value of their existing portfolios, which, given the risk of default, might have induced behavior that amounted to looting the banks.

Monetary policy in the midst of a crisis can either exacerbate or mitigate the problems associated with financial institutions. High interest rate policies typically have a variety of adverse effects on financial institutions. They lead to a decline in asset

values, resulting in more mortgage defaults. More firms face financial constraints, leading to additional nonperforming loans and corporate bankruptcies. The sharp changes in asset values associated with higher or lower interest rates increase uncertainty about the value of different enterprises, exacerbating informational problems within the economy. In countries where banks can invest in equities, lower equity prices (which typically follow from higher interest rates) further erode the banks' net worths. Moreover, the higher interest rates on government bonds often contribute to a scarcity of funds for lending to enterprises; banks find it more attractive to lend to the government. (There are some exceptions: In countries where banks do not perform the standard intermediation functions, but rather largely hold government bonds, higher interest rates may enhance banks' cash flow. Although this improves the financial position of banks, it impairs the overall strength of the economy.)

Concluding Remarks

Financial crises have become more severe and more frequent in the last quarter of a century, at least in part because of financial- and capital-account liberalization without the appropriate regulatory framework. The issues are broader: the 200-year history of modern capitalism has been marked by repeated macroeconomic disturbances caused by financial weaknesses, and only strong governmental regulation of that sector has brought a modicum of stability.

With respect to regulation, two final observations about financial restructuring are worth noting. First, the costs of restructuring can be divided into two components. One arises from the negative net worth recorded by many banks because of the high level of bad loans. Where protection is provided in the form of deposit insurance, the government is obliged to fill the gap. This represents a redistribution from taxpayers to depositors, a transfer payment that has a fiscal cost. It does not use real resources and, in that sense, is not inflationary. Moreover, although the government may have committed itself to repay depositors, it typically has not made a commitment on the interest rates it must pay. It may, for instance, contemplate restricting loan withdrawals and limiting the interest rate paid on deposits; alternatively, it can allow deposit withdrawals but restrict transfers of capital abroad. These are examples of ways in which the costs of fulfilling the government's commitments may be contained—ways that are less distortionary than the more traditional ways of inflating away the value of monetary claims.

The second component of the cost of restructuring involves the capital required to restart the banking system. Such schemes can be funded in ways that entail low interest costs. For example, the government can borrow from the banks at low interest rates and invest the money in the banking firms. Although such transactions may

meet capital adequacy standards, they do not resolve incentive issues. They may, however, serve to restore confidence. It is also important to note that in terms of the government's budget, these financial transactions rightly belong in the capital account, not the recurrent account, and therefore should not crowd out other output-, growth-, or equity-enhancing forms of public expenditures. Unfortunately, if costly ways are employed for financing the restructuring of the banks and if the distinction between capital and recurrent budgets is not made, there is a real danger that restructuring expenditures will crowd out other expenditures to the detriment of economic recovery. Thus, it is essential to balance the benefits and costs of alternative ways of spending scarce public funds.

The second observation relates to the phenomenon that as an economy goes into recession and lending is discouraged because of the poor prospects facing the economy, the liquidity of the banking system sometimes increases among banks that do not face massive withdrawals. Some economists, worried about inflation, naively argue for mopping up the liquidity. But governments typically have only blunt instruments for doing so, and hence banks, finding their constraints tightened further, decrease lending yet again, and in so doing exacerbate the downturn. More generally, worries about inflation in the face of massive excess capacity are likely to be misplaced. The relationship among aggregate economic variables (including that between monetary aggregates and output) may be greatly disturbed in an economy in which the financial sector is disrupted. The U.S. Federal Reserve learned this lesson in the early 1990s at significant expense to the economy.

Even under systemic crisis conditions, international experience indicates that forbearance is dangerous when lax standards are issued in the hope that the situation will subsequently improve. Therefore, when opting for some form of supervisory forbearance, it is important to avoid exacerbating moral hazard problems through more stringent supervision and regulation. Regulators need to address several questions, including which banks or portfolios qualify for supervisory forbearance as safeguards against connected lending or looting and how to increase proactive regulation and supervision.

The problem is that all too often, regulation goes beyond efforts to enhance the safety and soundness of banking systems. There are, for instance, frequent attempts to repress competition that are not justified by the objective of increasing franchise value to enhance prudential behavior. Incumbents in any industry try to protect themselves against the pressures of new entrants. Although a wide array of arguments are brought to bear in support of such contentions, it should be clear that these are typically no more than self-serving arguments of special interest groups attempting to maintain their monopoly rents.

Countries, such as India, that have had a long history of government intervention in many sectors of the economy need to be especially sensitive to these arguments. By and large, competition is the most efficient mechanism for encouraging efficiency

and innovation. The challenge is to enhance competition, openness, and innovation in the financial sector while maintaining sound prudential oversight, appropriate incentives, and needed constraints. This approach can help ensure that the kinds of crisis that have marred the success of East Asia are not inflicted on the far more vulnerable economies of the rest of the developing world.

Notes

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1. Caprio and Klingebiel (1996) identify banking crises—defined as episodes when the entire banking system has zero or negative net worth—in 69 countries since the late 1970s. They only cover countries with sufficient data and estimate that including all of the transition economies would add at least 20 more countries. With a less stringent definition, Lindgren, Garcia, and Saal (1996) estimate that three-quarters of IMF member countries experienced "significant bank sector problems" at some time between 1980 and 1995. They identify "banking crises" in 36 countries, or one-fifth of IMF member countries.

2. As Caprio (1997) has often pointed out, there are two kinds of economies: those that have deposit insurance and those that have it but do not know it yet.

3. Some analysts have argued that this problem arises because of deposit insurance. Without deposit insurance, those gambling with the bank's funds would be unable to attract depositors. As noted earlier, implicitly, at least, virtually all countries offer deposit insurance, at least to banks that are "too big to fail." But even apart from this, Hellman, Murdock, and Stiglitz (1998) show that the same perverse incentives arise in banking systems without deposit insurance.

4. A complementary approach to international banking standards has been proposed by Goldstein (1996).

5. Borrower incentives are strongly affected by the legal environment and market conventions. In some states in the United States, for instance, real estate loans are nonrecourse, so that the collateral is the only asset that can be attached in the event of nonperformance. In other states, other assets can be seized, although in the event of bankruptcy only the lender has seniority status with respect to the collateral. Incentives of borrowers are markedly different in the two regimes, which reflect different views of creditor and debtor rights—conflicts that appear throughout bankruptcy law.

6. For a theoretical development of this point, see Edlin and Stiglitz (1995). Marking to market does not fully resolve the problem so long as there are some assets that cannot be marked to market. Then stringent enforcement of capital adequacy standards may lead to an investment being distorted into assets where that is not feasible or at least not done. If those assets are, at the same time, riskier (which may or may not be the case), then actual risk taking could increase.

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Competition and Scope of Activities in Financial Services

Stijn Claessens • Daniela Klingebiel

This article analyzes the costs and benefits of different degrees of competition and different configurations of permissible activities in the financial sector and discusses the related implications for regulation and supervision. Theory and experience demonstrate the importance of competition for efficiency and confirm that a competitive environment requires a contestable system—meaning one that is open to competition—but not necessarily a large number of institutions. A competitive banking system can improve the distribution of consumer credit, enhance the corporate sector's access to financing, and mitigate the risks of financial crises. In an open market, in which services and products are provided in response to market signals, financial institutions respond by offering a wider scope of financial services. The optimal institutional design for supervisory functions is less obvious.

In examining the framework for a country's financial system, it is useful to start with the laws that govern its financial institutions, such as central and commercial bank regulations, deposit insurance (if such a scheme exists), securities market requirements, and relevant international agreements. These laws and regulations define the roles and activities of commercial banks relative to those of nonbank financial institutions, influence the degree of competition in the financial system, define the degrees and modes of permissible entry, and specify the responsibilities of supervisory agencies. This framework and how it is enforced determine the structure, stability, and efficiency of a country's financial system.

This article reviews alternative frameworks for financial services markets from an economic perspective using experiences in several countries as a guide. We then analyze the effects of different degrees of competition in the financial sector, examine the costs and benefits of different configurations of permissible activities for financial institutions, and discuss the implications for regulatory and supervisory structures. We focus first on the role of competition in the financial sector and the tradeoffs between competition on the one hand and stability and innovation on the other. We next examine alternative structures of financial services dictated in many countries

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by government policies rather than by the market. After discussing the advantages and disadvantages of integrated banking and other financial system configurations, we review the empirical evidence on this issue and analyze the pros and cons of different supervisory structures.

Competition and Contestability

It is important to encourage low costs and product innovations in financial intermediation. Generally, competition leads to these benefits. But unlike other sectors, in which unfettered competition is often preferable from the perspectives of efficiency, stability, and growth, competition in financial markets cannot be considered in isolation. In establishing a competitive environment, the following issues arise: franchise value, static and dynamic efficiency, the ability to supervise financial institutions and activities, and rent seeking. Financial sector rules generally aim to balance these objectives and concerns.

Competition and Consolidation

Competition in the financial sector plays an important role in ensuring the benefits of static and dynamic efficiency. Empirical evidence indicates that many financial institutions are so inefficient that this concern actually dominates such issues as whether financial institutions are too large or too small to benefit from economies of scale. (For studies on industrial countries, see Berger, Hunter, and Timme [1993]; for developing countries, see Barajas, Steiner, and Salazar [1999], Bhattacharya, Lovell, and Sahay [1997] and Hao, Hunter, and Yang [1999]; for five East Asian countries, see Laeven [1999]; and for a cross-country study, see Demirgüç-Kunt and Huizinga [1999].) The findings are generally similar: Many banks operate below their technical possibilities, and measures that would induce financial institutions to act efficiently from the standpoint of costs are essential. The most important of these measures is competition, which has been found to affect performance measures in a wide variety of countries.

In determining the level of competition in a banking system, entry policies—not actual entry—are important (Vives 2000). A competitive financial system does not necessarily require a large number of financial institutions; a concentrated system can be competitive if it is contestable (that is, if competition is open). Financial systems in many European countries are considered to be quite competitive even though they have a limited number of banks; often, in fact, the combined market share of the top three banks in a country exceeds 30 percent. In reporting on Canada, for example, Shaffer (1993) finds no evidence of monopolistic behavior even though the

five largest banks in the country account for more than 80 percent of all banking assets.

Banking systems are also highly concentrated in developing countries, but many of these systems are not considered competitive. One difference is that competition from other financial institutions and other forms of financial intermediation is stronger in more developed capital markets. Moreover, financial institutions in such markets face a credible threat from new entrants that are permitted to offer rival services in the market and are encouraged to do so by a transparent licensing process. This threat of competition is not always present in developing countries, where regulatory barriers often limit entry, especially by foreign financial institutions. Allowing entry does not mean that any number of banks can enter the market; all countries maintain some limits for prudential reasons. When moving from a closed to a more open system, a transition period is necessary to allow domestic financial institutions to adjust and maintain profitability. One option is to set a firm timetable for opening the market—a timetable that is made binding through domestic laws and regulations and possibly backed up through international agreements. This credible threat of entry precludes political wrangling by existing banks.

Just as contestability and concentration are not necessarily inconsistent, increased competition and greater consolidation of banking institutions need not be inconsistent. The European Union's Single Market Program involved both considerable consolidation within countries as well as increased competition (Gardener and others 2000; Vives 2000). The new program enhanced domestic financial reform efforts, including the competitive framework, in many member countries of the European Union. Barajas, Steiner, and Salazar (1999), Clarke and others (2000), and Denizer (1997) observed the same improvement in developing countries. The current trend toward global consolidation appears to be driven by economies of scale and scope rather than by a desire to carve up certain markets (Berger, Demsetz, and Strahan 1999).

Tradeoff between Competition and Stability

Experience and theory show a tradeoff between competition and a stable and sound financial system. Financial institutions can be adversely affected by intense competition that encourages unrealistic rates on deposits and loans and undermines profitability, thereby weakening the incentive for financial institutions to act prudently. Gruben and McComb (1999) find, for example, that as a result of Mexico's large-scale privatization in 1991–92, marginal costs exceeded marginal revenues, imposing losses and increasing the incentive for financing risky projects. This excessive competition contributed to the financial instability that culminated in the 1994–95 crisis. The fact that the benefits of liberalization and increased competition under the European Union's Single Market Program have been realized without significant

banking crises can be attributed in part to associated re-regulation efforts, including tighter capital adequacy and other prudential requirements, and an increased emphasis on supervision.

Entry policies can help achieve the balance between profitability and competition. Entry barriers alone, however, contribute to rent seeking, discourage efficiency improvements, and result in limited incentives for innovation. Moreover, entry has to be considered in relation to exit. Policymakers need to make clear to the financial institution's owners, managers, and investors that inefficient and imprudent behavior will result in the institution's failure or closure. In many developing countries, exit processes for financial institutions have been very weak, leaving the financial sector with many undercapitalized institutions and unfair competition from weak banks that have been allowed to continue operating.

Entry and exit policies alone may not ensure a stable financial system. Additional instruments may be necessary to balance competition and profitably, especially in developing countries. Honohan and Stiglitz (1999) identify four additional instruments that are necessary to strike a balance between competition and profitability: minimum absolute capital requirements, capital adequacy requirements as a fraction of risk-weighted assets, ceilings on deposit rates, and limits on portfolio composition or lending activities. Each instrument has negative side effects, including rent seeking, disintermediation, and monitoring costs (table 1). Most countries have used a combination of these tools at different times in the development of their financial sectors. All countries today, for example, have some form of capital adequacy requirement. Simple tools, such as limits on risk exposures or on the total growth of assets, may be useful if the quality of financial information is weak, the capacity of the supervisory authority is stretched, and the risk-management capacity of the banking sector is limited. Many countries have liquidity requirements, for example, that restrict banks' portfolios. Identifying the proper mix of regulatory instruments requires a dynamic analysis of the potential profitability of financial institutions under different regulatory paths and states of the economy (Stiglitz 1999).

Benefits and Costs of Foreign Entry

Openness to foreign entry can be an important element in determining the degree of contestability (Claessens and Glaessner 1999; Levine 1996). Although foreign entry (as any other entry) can lower profitability, it can also have separate, offsetting benefits. In an 80-country study of 2,000 banks (500 of which were foreign), Claessens, Demirgüç-Kunt, and Huizinga (2001) found that in countries with more extensive foreign ownership, the domestically owned banks were less profitable and recorded lower overall expenses. This suggests that competition from foreign banks puts pressure on domestic banks to improve productivity and services and that access to foreign expertise helps domestic banks become more efficient. Research in Argentina

Table 1. Overview of Instruments to Manage the Tradeoffs among Competition, Safety, and Other Considerations in Banking

Instruments to manage competition	*Effect on level of competition/contestability*	*Effect on safety and soundness considerations*	*Empirical evidence, comments*
Entry policy			
Capital requirements	Capital requirements that are too high can limit the number of viable financial institutions with adverse effects on competition and efficiency.	As number of banks is reduced, franchise value of banks increases.	Economies of scale are important in setting minimum capital requirements.
Fit and proper tests	If used to ensure that strategic owners of banks have the ability to manage the bank, such tests have no adverse effect on the level of competition. If used to prevent entry, they can adversely affect competition and efficiency.	If used to prevent entry, franchise value of banks increases.	The tests are important in ensuring that owners are able to manage a bank.
Allowing nonfinancial firms to hold financial firms	If it leads to nonmarket-based lending, efficiency of system adversely affected.	If it leads to conflicts of interest and nonmarket-based lending, it increases the risk of failure.	International experience suggests that financial-industrial group structures are fraught with problems and often lead to inefficiencies and safety and soundness problems in the banking sector.
Foreign entry	Can have positive effects.	Has a potentially adverse effect on franchise value of domestic banks.	Empirical evidence suggests that foreign competition puts pressure on domestic firms to improve their productivity and services and allows access to foreign technologies.

(continued)

Table 1. *(continued)*

Instruments to manage competition	*Effect on level of competition/contestability*	*Effect on safety and soundness considerations*	*Empirical evidence, comments*
Other policies to manage competition			
Capital adequacy requirements	Higher requirements will adversely affect competition because they increase the cost of banking.	Higher requirements give owners higher incentive to act prudently because they have more to lose.	Higher requirements than those recommended under the BIS guidelines may be warranted in countries with more volatile macroeconomies and that are vulnerable to external shocks.
Ceilings on deposit rates	Adverse effects.	Increases franchise value of financial institutions, thus providing them with increased incentives to act prudently.	May be warranted in countries where the supervisory and regulatory framework is weak and banks are thinly capitalized and have weak management capacity.
Limits on portfolio composition and lending activities	Adverse effects.	Increases franchise value of financial institutions, thus providing them with increased incentives to act prudently.	May be warranted in countries where the supervisory and regulatory framework is weak and banks are thinly capitalized and have weak management capacity.

Sources: Honohan and Stiglitz (1999) and authors.

(Clarke and others 2000), Colombia (Barajas, Steiner, and Salazar 2000), Hungary (Kiraly and others 2000), Ireland and Portugal (Honohan 2000), Spain (Pastor, Perez, and Quesada forthcoming), Turkey (Denizer 2000), and other countries that opened up internationally and deregulated domestically shows that the liberalization led to substantial gains.

Increased foreign entry also improves the framework for financial services by creating a constituency for better regulation and supervision, greater disclosure, and other improvements. Openness can also add to the credibility of rules. Countries that joined the European Union, for example, consolidated reform efforts and aligned regulatory regimes while also opening their markets to foreign financial intermediaries (see, for example, Pastor, Perez, and Quesada [2000] for the case of Spain and Honohan [2000] for Portugal).

Foreign banks active in emerging market economies typically tend to focus their activities on large corporations. Therefore, reduced access to services as a result of foreign competition has been a concern. Clarke and others (2000) find that foreign banks entering Argentina in the mid-1990s did not merely follow their clients abroad. They also exerted competitive pressure on domestic banks, especially those focused on mortgage lending or manufacturing, suggesting that foreign banks expanded especially in these sectors. Overhead, profitability, and interest margins were affected least in the domestic banks that focused on consumer lending, an area in which foreign investors showed little interest.

Demirgüç-Kunt, Levine, and Min (1998) find that a foreign presence had a positive effect on the stability of the financial sector. It is important, however, to ensure sufficient diversity in terms of the participants' country of origin to avoid the risks that a shock in a single home country would affect its bank branches abroad. Not all foreign banks are equally good; it is essential that the licensing process be transparent and include detailed information about owners, managers, and qualifying criteria.

The Scope of Permissible Activities

In most countries, regulation (rather than competition) determines the range of products and services a bank can offer, the types of assets and liabilities it can hold and issue, and the legal structure of its organization. Differences in corporate structures, however, have distinct advantages and disadvantages. Of growing importance is the global trend toward increased substitutability between various types of financial instruments. In many countries, bank deposits compete with other liabilities of financial intermediaries, such as money market funds, in the provision of liquidity and payment services. On the one hand, this competition implies that the demarcation lines between different types of financial intermediaries have become increasingly blurred from both the consumers' and the producers' points of view. On the other

hand, even as these regulatory barriers have become less effective, the economic costs of maintaining them have risen.

The Structure of the Financial System

It is useful to distinguish between two models of financial services: The first prohibits banks from engaging in any type of securities transactions or other noncredit financial service activity; the second permits banks to provide a variety of financial services, either directly or indirectly through subsidiaries. The latter is often called "universal banking." Because other aspects—such as the ownership of nonfinancial institutions—are often associated with universal banking, we use the term "integrated banking" to refer to a banking structure that permits a single institution to offer a scope of financial services.

Integrated banking is the norm around the world. Of 51 industrial and emerging countries surveyed by the Institute of International Bankers in 1998, only China has a completely "pure" separate banking system—in the sense that banks are not allowed to engage in any type of securities activities. Thirty-six of the countries surveyed, including all the EU countries, allow the same banking organization to handle banking, securities trading, and underwriting. In 15 countries financial institutions are allowed to engage—to varying degrees—in securities activities, either through a bank parent (12) or a bank holding company structure (3). The United States is the most prominent country with a bank holding company structure that also restricts the type of securities businesses that commercial banks can undertake (see Claessens and Klingebiel 1999).[1]

Three benefits have been identified with fully integrated banking: First, it allows for the use of informational advantages; second, it increases profits through economies of scale and scope; and, finally, it reduces the variability of profits (table 2).

Informational advantages. In establishing a relationship with a company, a bank incurs costs gathering information about the firm's financial condition and its investment decisions. The longer the expected duration of the relationship, the more likely the bank will invest in gathering firm-specific information—information that may lead to an increase in the financing available. Integrated banks have lower overall information and monitoring costs because they can offer a broader set of financial products than can specialized banks. For example, an integrated bank can use information derived from managing a basic bank account to provide other financial services. If the bank holds ownership in a corporation, it may have representation on the board of directors, which can be useful in acquiring information for its lending activities. An integrated bank can also design financing contracts better suited to the borrower's activities. Finally, as a firm switches from bank financing to raising money

Table 2. Overview of Benefits and Costs of Integrated Banking

Potential benefits

Informational advantages

- Banks can obtain more information about firms through the various products the banks offer.
- Banks and firms have potential to develop a longer-term relationship that may improve access to bank financing and better financing conditions for the borrower.

Economies of scope

- Cost economies can derive from access to information, management of the client relationship, distribution and marketing economies, reputational and pecuniary capital economies, and risk management.
- Economies on the consumer side include the potential for lower search, information, monitoring, and transaction costs; the potential to negotiate better deals; and the potential for lower product prices in a competitive market.

Economies of scale

- Exploitation of scale economies can save costs in overhead, back office operations, information technology, and investment banking–type operations.
- Size may also help in exploiting economies of scope.

Risk diversification

- Integration can provide banks with higher profits in periods of disintermediation.
- Integration can produce more stable income streams.

Increase in revenue generation

- Cross-selling of different services and products should allow banks to increase revenues.

Potential costs

Conflicts of interest

- Banks might abuse the trust of their customers by selling low-quality securities without revealing the risks.

Reduction in competition

- Integrated banking may reduce the scope for competition. There may be a tradeoff between safety and soundness considerations (higher franchise value of integrated banks) and a reduction in competition. A liberal entry policy may counterbalance this disadvantage to a certain degree. Yet from a political economy standpoint, a liberal entry policy may be difficult to sustain if economic power (that is, the banking system) is concentrated.

Concentration of economic and political power

- Integrated banking may lead to a concentration of economic and hence political power. No specific evidence confirms or refutes this concern.

Monitoring

- Integrated banks are more difficult to supervise and more difficult for the market to monitor.

Expansion of safety net

- The safety net of depository institutions may be extended to investment activities of integrated banks. Exposure can be limited with policy measures, such as market value accounting, risk-sensitive insurance premiums, and capital requirements, and by adopting procedures for taking prompt corrective action.

Source: Authors.

on the capital markets, it can remain a customer if the bank provides both lending and securities underwriting services.

Empirical research confirms that the close bank–firm relationship associated with integrated banking can be a source of important benefits to firms in terms of cost and availability of funding (Berger and Udell 1995; Petersen and Rajan 1994). Essentially, informational advantages associated with integrated banking can turn advantages for banks into advantages for customers, who get better and cheaper services. The degree to which these informational advantages can be realized and passed on to the customer depends, of course, on the degree of informational asymmetries: In economies where information is generally poor, close bank–firm relationships could in principle be very useful.[2] Under such circumstances, however, banks are likely to be weakly monitored themselves, a situation that risks poor resource allocation.

Economies of scope and scale. Economies of scope may arise from both the production and the consumption of financial services (Saunders and Walter 1994). Integrated banks have several specific cost advantages, such as better access to and dissemination of information across different product groups, greater distribution and marketing economies in the delivery of services, shared reputational and pecuniary capital across different products and services, and enhanced potential for risk management because of the gains of diversification. On the consumption side, economies of scope may derive from lower costs, including the potential to reduce search, information, monitoring, and transaction costs; consumers may also be able to negotiate better deals because of increased leverage. In a competitive environment these lower costs will translate into lower product prices.

In terms of economies of scale, most empirical studies have found that the bulk of scale economies are captured, but not fully exhausted, by the time a bank has $2 billion to $10 billion in assets.[3] Early studies for U.S. banks found that economies of scale were exhausted at much lower levels (Clark 1988). Later studies found evidence of scale economies up to the level of $2–10 billion in assets (Hunter, Timme, and Yang 1990; Noulas, Ray, and Miller 1990). Other empirical evidence for U.S. banks suggests that economies of scale actually may start to decline for asset sizes between $10 billion and $25 billion (Berger, Hunter, and Timme 1993). The few tests that have been conducted for other countries largely confirm these results. In studies based on non–U.S. data, Saunders and Walter (1994) and Vander Vennet (1994) found economies of scale in individual loans of up to $25 million. Lang and Welzel (1995) found scale economies among German universal banks up to a size of $5 billion. Evidence for emerging countries is very limited (Laeven 1999).

There is much less empirical evidence of scope economies, possibly because financial institutions cannot or do not choose their optimal institutional structure.

The bulk of studies for U.S. banks concludes that economies of scope in banking, if present at all, are exhausted at very low levels of output (Berger, Hanweck, and Humphrey 1987; Berger, Hunter, and Timme 1993). Empirical studies on European banks have been inconclusive. Lang and Welzel (1995) reported the absence of scope economies in German universal banks but found such economies in small cooperative banks. Vander Vennet (1999) found that universal banks are characterized by significantly higher levels of operational efficiency relative to specialized banks.

Barth, Caprio, and Levine (1999) analyzed empirically the costs and benefits of different allowable activities in 60 countries. They found no reliable statistical relationship between regulatory restrictions on commercial bank activities and the level of development in the banking sector, securities markets, and nonbank financial intermediaries or between regulatory restrictions and the degree of industrial competition. Indeed, based on the cross-country evidence, they state that "it would be quite difficult for someone to argue confidently that restricting commercial banking activities benefits or harms financial development, securities market development, or industrial competition" (Barth, Caprio, and Levine 1999:2). They do, however, find that regulatory restrictions on the ability of banks to engage in securities activities tend to be associated with higher interest rate margins for banks. Because there is little relationship between regulatory restrictions on banking powers and overall financial development and industrial competition, the preferred option may be no restrictions.

Increased diversification and lower risk. An integrated bank may be more stable than a specialized bank because of the benefits of diversification. These benefits can arise from two sources. First, disintermediation—where firms bypass banks and raise money directly from public markets—affects integrated banks less than specialized banks because an increase in the integrated banks' underwriting business can offset the decline in their lending business. This in turn may reduce integrated banks' incentives to engage in riskier lending to maintain profits. Second, as a result of diversification, the total profits of an integrated bank are more stable than those of banks specialized in a single product. Although securities subsidiaries of U.S. banks tend to be riskier (profits are more volatile) than banking affiliates, for example, the subsidiaries provide the benefits of diversification (Klein and Saidenber 1998; Kwan 1997).

Potential Risks of Integrated Banking

Integrated banking can incur costs (John, John, and Saunders 1994), including conflicts of interest, increased financial risks, and monitoring issues.[4]

Conflicts of interest. When financial institutions offer a wide array of products and have a broad set of customers, conflicts of interest can emerge.[5] Such concerns are more important where the bank acts as a broker; they are of less importance where the bank acts on its own account because the bank itself remains exposed. Conflicts have been identified as one of the major potential costs of permitting commercial banks to conduct securities business (Benston 1990; Kelly 1985; Saunders 1985). Typically, a bank is better informed than the public investors about a firm's soundness and prospects. This informational advantage may, however, be a double-edged sword. On the positive side, an integrated bank might be better positioned than a specialized investment bank to certify credibly the value of a security offered by the firm. On the negative side, an integrated bank might have the incentive and the ability to take advantage of investors by selling low-quality securities without revealing risks or by raising lending rates to the same borrower.

The critical issue here is not whether any potential conflicts exist but, rather, whether the incentives to exploit them do. Market forces in general, such as competition from other financial institutions, reduce incentives to exploit conflicts, as do potential damage to reputation and the monitoring by creditors and nonmarket monitors, such as credit-rating agencies. Conflicts therefore tend to be more important in countries where disclosure rules are weak, information on bank activities is hard to find, competition is limited, and supervision is weak. The ability to exploit conflicts can be further restricted by legal constraints (such as disclosure requirements to be met in the issuance and distribution of securities) and private self-regulatory standards (such as information-sharing rules between departments of a bank).

Empirical studies of Germany's universal banking system and of the U.S. financial system before passage of the Glass-Steagall Act in 1933 (a system that in some ways resembles the current situation in many countries) have not found evidence of systematic conflicts of interest (Ang and Richardson 1994; Kroszner and Rajan 1994; Puri 1994, 1996; Ramirez 1995).

Safety, soundness, and the safety net. A combination of securities and commercial banking activities can increase the risk of bank failure (Boyd, Chang, and Smith 1998; Saunders 1994). Although such failures have happened—in emerging as well as in industrialized markets (for example, the United Kingdom's Barings bankruptcy)—empirical evidence does not confirm this possibility as a general proposition (White 1986). On the contrary, evidence shows that the combination might well reduce risks. Eisenbeis and Wall (1984) find a negative correlation between U.S. bank earnings and securities broker-dealer earnings in the 1970s and 1980s (see also Benston 1990; and Brewer, Fortier, and Pavel 1989). Barth, Caprio, and Levine (1999) study a large set of countries and find those that impose strict regulatory restrictions on the securities activities of commercial banks have a substantially higher probability of suffering a major banking crisis. More specifically, countries with a regulatory environ-

ment that inhibits the ability of banks to engage in securities underwriting, brokering, dealing and all aspects of the mutual fund business tend to have more fragile financial systems.

Nevertheless, safeguards can be necessary to avoid the transfer of explicit and implicit deposit insurance subsidies from the banking arm of the institution to the securities arm (Kane 1996; Schwartz 1992). These safeguards can take the form of market-value accounting, timely monitoring and disclosure, more risk-sensitive capital requirements, firewalls between different types of operations, risk-based pricing of deposit insurance, and prompt corrective actions, including the closure of insolvent banks.

Monitoring and supervision. The supervisory functions for commercial banks and securities entities have different objectives. Supervision of commercial banks aims to protect the net worth of the entity and thus the rights of creditors, particularly depositors, as the bank is intermediating third-party money. For securities firms the regulators' objective is to protect the consumer by avoiding abuses arising from the agent-type relationships typical in securities markets. Combining securities and commercial banking activities under one umbrella can make supervision by regulators and monitoring by the market more difficult because the securities business might have an impact on the banking business, but the two activities cannot easily be monitored separately. In this respect, integrated banking can carry more risk.

Corporate structure of banking organizations. The extent to which the potential benefits of integrated banking can be realized depends largely on which of three organizational models is used (table 3): the fully integrated banking model, the bank-parent model, or the holding company model. A fourth model, discussed earlier, imposes a complete institutional separation between commercial and investment banking.

- *Integrated banking.* In countries where banks have latitude to choose their own corporate structure, most adopt the integrated bank model. This way resources can be shared among the organization's various departments with maximum flexibility, allowing the bank to take full advantage of information and economies of scope and scale. Moreover, integration increases a bank's ability to diversify sources of revenue. At the same time, safeguards for heading off conflicts of interest and extending the safety net are limited (Santos 1997a, 1998; Saunders 1994).
- *The bank-parent company.* In this model, securities transactions are handled by a subsidiary of the bank. Because there is a legal separation, integration of the bank and securities activities is compromised, thus reducing the potential for economies of scope. This model still allows for risk diversification, however, and

Table 3. Potential Benefits and Costs of Various Corporate Structures

	Integrated banking model	*Bank-parent model*	*Holding company model*	*Separate banking system*
Potential benefits				
Informational advantage	Can be realized to full extent	May be reduced if bank-parent does not share information	Severely reduced as units are restricted from exchange of information	None
Economies of scale and scope	Can be realized to full extent	Somewhat reduced as operational separateness is introduced and activities are not fully integrated	Reduced because model requires development and operation of separate units; moreover, holding company increases costs of operation	None
Diversification of sources of revenue	Can be realized to full extent	As profits accrue to the bank, revenue diversification can be realized at bank level	Limited because revenues generated by securities activities accrue to that unit	None
Increase of revenue generation through cross-selling of products	Can be fully realized	Can be realized only to extent that bank can use its outlets to cross-sell products	Limited	None
Potential costs				
Reduction in competition	Potentially	Potentially	Potentially	No
Conflicts of interest	Limited safeguards	Potential reduction in conflicts of interest	Potential reduction in conflicts of interest	No potential for conflicts
Extension of government safety net	Limited safeguards	Dependent on existence of firewalls and requirements for arm's-length transactions	Bank unit is insulated somewhat from failure of securities business, and holding company is limited as to extent of capital infusion it can provide to securities subsidiary	Government safety net limited to "pure" deposit taking institutions

Source: Authors.

offers the potential for higher revenues through cross-selling of financial services. The bank-parent model can reduce the potential for conflicts of interest and the related extension of the safety net—as long as regulations requiring firewalls between bank and its subsidiaries and prescribing arm's-length transactions are in place.

- *The holding company.* In this model, a holding company owns both the bank and the securities subsidiary, with a legal separation between the two. Different products are offered by separately capitalized and incorporated units. Each unit has its own management team, accounting records, and capital. This generally limits the exchange of information, personnel, or other inputs, thus reducing economies of scale and scope and constricting the bank's ability to exploit informational advantages. The holding company structure can limit risk diversification potential because revenues generated by securities activities accrue to that unit and then to the holding company. At the same time, the holding company can act as a source of financial strength to the bank subsidiary. The advantages of the holding company model include a reduction in the potential for conflicts of interest and a limit on the extension of the safety net (see Santos 1997b).

The Organization of Supervisory Authority

All governments, even the most market-oriented ones, regulate the financial sector to protect the public, to guarantee bank safety and soundness, and to monitor the desired degree of competitiveness. The organization of the supervisory structure depends on the policy of the regulatory regime, particularly the allowable scope of financial services. Three issues arise in this connection. Should countries that permit integrated banking locate all prudential and other supervision in one place, or separate it into multiple supervisors? If there are multiple supervisors, should they be arranged by type of institution or by function? Finally, should consumer protection and antimonopoly safeguards be the responsibility of the prudential regulator or of a separate regulator? Some guidance is available from recent analytical work—and from international experience—on the tradeoffs between these alternatives, but there is little empirical evidence and few preferred choices.

One supervisory agency or more? In terms of the division of responsibility, the Institute of International Bankers reported that of the 70 countries it surveyed in 1998, 44 used discrete agencies for banking, securities markets, and insurance and 19 combined two of the areas. Although the number of single supervisory agencies is growing, as of June 1999, only 8 of 71 countries—Austria, Denmark, Japan, Malta, Norway, the Republic of Korea, Sweden, and the United Kingdom—relied on this arrangement. These

agencies typically cover prudential and market integrity functions and can also supervise consumer services and competitiveness oversight functions.

Most of the single supervisory agencies are very recent and often were established in response to financial sector problems. Because of this association, it is difficult to judge the costs and benefits of this type of approach. If one focuses only on prudential oversight, there are good conceptual arguments for a single-agency model (Briault 1999; Taylor 1995; Taylor and Fleming 1999). These include increasingly blurred boundaries in financial services, given the links among capital markets, credit markets, insurance instruments, and other financial institutions, as well as the associated emergence of financial conglomerates. These trends make consolidated and integrated approaches to regulation and supervision necessary. A single supervisory agency can also offer economies of scale and scope in regulation and supervision and can avoid the problems of sharing information and coordinating with other agencies. One agency may also result in reduced costs of regulation and the creation of an institution that is more independent, professional, and politically insulated compared with the existing supervisory structure.

At the same time, a single regulatory arm might create the impression that a large range of financial institutions is covered by the public safety net. Such an agency may be too difficult to manage and politically too powerful to maintain its independence. In other contexts, specialization and competition between regulators have been advocated as ways to avoid regulatory capture. Finally, in many countries financial institutions are specialized by function—insurance companies, for example—and need not be supervised by an all-embracing agency.

Institutional or product supervision? Countries with a financial system in which commercial and investment banking activities are separated tend to have an *institutional* approach to regulation, that is, banks are regulated and supervised by a banking regulator, securities by a separate agency, and so on. In countries in which financial institutions engage in a wide variety of financial activities, this policy offers few advantages because the breakdown of products and services and the distinctions between various providers can result in a serious jurisdictional overlap, making this institutional approach quickly obsolete (Wallman 1999).

In a *functional* approach, regulation is organized by type of financial product.[6] For example, a securities exchange commission might regulate the sale of securities whether the seller is a bank, an insurer, or a securities firm. The functional approach can be more efficient and reduce jurisdictional overlap, but it has proven difficult to implement in most countries because of the extensive need for coordination among supervisory agencies. To ensure such coordination, many countries have resorted to the use of a lead coordinator among the various regulators for each finance institution. As product definitions continue to evolve and often defy cat-

egories, issues of coordination and overlap have increased, with associated risks of incomplete regulatory and supervisory coverage (Scott 1994, 1995).

Regulation and supervision by objectives. Under this approach, supervisory agencies correspond to regulatory objectives (Wallman 1999), with separate regulators for consumer protection, market integrity, systemic risk, and possibly competitiveness issues. Each of these regulators covers all financial institutions and all forms of financial intermediation. For example, to the extent that any financial product is sold to consumers, the consumer watchdog would have jurisdiction. To the extent that any financial institution is very large or is engaged in activities that could pose a risk to the system as a whole, the systemic watchdog has jurisdiction. Institutionally, these regulators could be separate agencies or could be combined in several ways. For example, the systemic regulator could be combined with the market integrity regulator, but not with the consumer protection or competitiveness regulator. Because the nature and methods of regulation and supervision are likely to differ, combining these functions in one institution is not necessarily desirable, at least on the grounds of economies of scale and scope. At the same time, when these functions are not combined in one institution, financial institutions would have to deal with multiple agencies, thereby increasing regulatory costs and possibly offsetting the benefits of regulation by objective.

So far, few countries have adopted this approach. Although differentiating between various objectives may be possible conceptually, in practice such fine discrimination may prove difficult. Concerns about systemic risk and safety nets, for example, may require the regulation and supervision of most of a financial institution's activities, not just its deposits. Systemic risk could, for example, emanate from a universal bank's investment banking activities if losses in investment banking threaten the overall solvency of the institution and the institution is large enough for its failure to have systemic repercussions.

Conclusions

Competition in the financial sector cannot be analyzed in isolation. The optimal degree of competition requires balancing various concerns, including franchise value, static and dynamic efficiency, the ability to supervise financial institutions, and the scope and institutional context for rent seeking. Country experience—and theory more generally—suggests that competitiveness does not necessarily require many financial institutions because a concentrated system can be competitive if it is contestable. The degree of contestable entry in the financial sector, together with competition from other forms of financial intermediation, is the most important determinant of the performance and efficiency of financial sectors. Openness to foreign banks

is an important element, and evidence suggests that foreign entry provides important benefits to a country.

The integrated banking model can offer important benefits to financial institutions through economies of scale and scope, diversification of revenue generation, and informational advantages, and to consumers through a reduction of search and transaction costs and lower costs of financial services. The potential costs of providing more integrated financial services—in particular extending the safety net to nondeposit financial services activities—can be mitigated through appropriate safeguards and firewalls, which require proper enforcement and monitoring by the supervisory authority. Countries throughout the world are moving toward the provision of more integrated financial services, and most countries now allow banks to engage in securities underwriting, dealing, and brokering. Furthermore, in countries where banks have latitude to choose their own corporate structure (that is, where to locate the securities unit), most banks choose to adopt the integrated bank model (and locate the securities unit in a department of the bank). There is also evidence that a wide scope of financial services provision enhances financial stability and mitigates the risks of a banking crisis. The preferred organizational design of supervisory functions is less clear, especially as the scope of financial services provided is expanding. Countries have adopted different institutional structures with success. Yet certain structures (for example, supervision by institution) are rapidly becoming obsolete.

Notes

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1. According to Section 20 of the U.S. Bank Holding Company Act, revenues that commercial banks derive from their securities subsidiary (underwriting and dealing activities) cannot make up more than 25 percent of their overall profits. Moreover, commercial banks are not allowed to hold an equity stake in nonfinancial firms (except for trading purposes). Recently adopted proposals in the U.S. Congress will eliminate these restrictions.

2. The question of scope of financial services is then also related to the costs and benefits of bank-based versus capital market–based systems, which in turn may have implications for firms' access to and cost of capital and for economic growth. For an overview of this literature, see Stulz 1999.

3. A billion is one thousand million.

4. An integrated banking system may also lead to greater market concentration and thus has the potential to reduce competition. Another concern has been the concentration of economic power that may come along with commercial banks having a wider scope of activities, including owning nonfinancial institutions. This has been a highly charged issue of political economy, and some countries care more than others about "excessive" concentration. This issue probably relates more to the concentration of economic power in general, including that of nonfinancial institutions, and the degree of competition, rather than to the particular banking model adopted.

5. For example, when commercial banks undertake investment banking activities, conflicts of interest can arise because of the commercial bank's advisory role to potential investors (for example, the bank may promote the securities of firms it is lending to even when better investments are available in the market) and because of its role as a trust fund manager (the bank may "dump" into the trust accounts it manages the unsold part of the securities it underwrites).

6. For example, bank-type aspects of a product would be regulated by a bank regulator, insurance-type aspects of the product would be regulated by an insurance regulator, the whole product would be regulated by both, or the regulators would have to defer to each other so that one regulator has "primary jurisdiction" and the other has secondary jurisdiction, and so forth. See further Wallman 1999.

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Toward Transparency: New Approaches and Their Application to Financial Markets

Tara Vishwanath • Daniel Kaufmann

The Asian financial crisis in the late 1990s not only highlighted the welfare consequences of transparency in the financial sector but also linked this relatively narrow problem to the broader context of transparency in governance. It has been observed that objections to transparency, often on flimsy pretexts, are common even in industrialized countries. This article argues that transparency is indispensable to the financial sector and describes its desirable characteristics: access, timeliness, relevance, and quality. The authors emphasize the need to weigh the costs and benefits of a more transparent regulatory policy, and they explore the connection between information imperfections, macroeconomic policy, and questions of risk. The article argues for developing institutional infrastructure, standards, and accounting practices that promote transparency, implementing incentives for disclosure and establishing regulations to minimize the perverse incentives generated by safety net arrangements, such as deposit insurance. Because institutional development is gradual, the authors contend that relatively simple regulations, such as limits on credit expansion, may be the most reasonable option for developing countries. They show that transparency has absolute limits because of the lack of adequate enforcement and argue that adequate enforcement may be predicated on broader reforms in the public sector.

Among policymakers there is growing recognition of the importance of transparency to the mechanisms that sustain welfare and development—economic markets and institutions of governance. In the economic sphere greater availability of reliable and timely information improves resource allocation, enhances efficiency, and increases the prospects for growth. In the recent literature on financial crises, lack of transparency is cited as one of the factors that either caused or contributed to the prolonged crises.[1] This literature also highlights the possible links between transparency, good governance, and economic stability. Greater openness and wider information sharing enable the public to make informed political decisions, improve the accountability of governments, and reduce the scope for corruption. Nonetheless, many otherwise open and democratic societies have adopted regula-

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tions that curtail transparency not only in financial markets but also in the broader sphere of governance.

Despite the perceived importance of transparency, few theoretical or empirical studies have examined its role in enhancing long-term growth and improving the stability of markets. Conceptual work suggests that increased transparency may not enhance welfare and may in fact increase market volatility (see Furman and Stiglitz 1998 for examples). The absence of empirical work derives in part from the difficulty of identifying and measuring "transparency," given that it deals with agents who are hiding information. Thus, the challenge is to define a measure of transparency that is empirically tractable. Such an exercise will highlight the requirements of the data as well as enable us to assess its determinants and evaluate its impact on the outcomes of interest.

This article reviews the existing literature on transparency, focusing on its role in promoting greater financial stability and highlighting remaining gaps in knowledge. Three specific challenges are discussed: meeting infrastructure needs by developing standards for quality, compliance, and enforcement; addressing regulatory needs by improving incentives for better disclosure; and installing countervailing regulations to minimize perverse incentives, such as those induced by deposit insurance or bailout schemes. To this end we also discuss the role of international organizations in helping design and implement the broader and more complex disclosure requirements demanded by the integration of world financial markets and the growth of innovative financing mechanisms.

Defining and Measuring Transparency

For the purposes of this article, transparency describes the increased flow of timely and reliable economic, social, and political information about investors' use of loans; the creditworthiness of borrowers; government's provision of public services, such as education, public health, and infrastructure; monetary and fiscal policy; and the activities of international institutions. Alternatively, a lack of transparency may exist if access to information is denied, if the information given is irrelevant to the issue at hand, or if the information is misrepresented, inaccurate, or untimely. The agent responsible for the lack of transparency may be a government minister, a public institution, a corporation, or a bank. Thus, a working understanding of transparency should encompass such attributes as access, comprehensiveness, relevance, quality, and reliability.

- *Access.* Laws and regulations ensure (at least in principle) that information is available to all. But information must also be accessible. Accessibility is aided by the institutions and venues that facilitate its flow, including newspapers,

radio, television, public notices, the Internet, and word of mouth. Lack of education is detrimental to transparency because it limits an individual's ability to access, interpret, and respond to information. Although strong equity considerations underlie the need for access, it is often profitable to delay or to limit access to useful information, in which case access becomes hostage to the ability to pay. There is thus a need to enforce timely and equitable dissemination of information.

- *Relevance.* Ensuring that information is relevant is difficult because relevance may depend on the needs of the user. For example, depositors need information to ensure the safety of deposits, investors need information about liabilities and risks, and the public needs information about current economic conditions, government policies, and so forth. Paradoxically, as sources of information, such as the Internet, proliferate, information overload threatens to dilute the ideal of relevance.
- *Quality and reliability.* To be effective, information should be fair, reliable, timely, complete, consistent, and presented in clear and simple terms. Quality standards must be set and then monitored by external agencies or auditors or by the standard-setting organizations. Consistency in the processes used to obtain information and in the formats of the information disseminated ensures comparability and so allows the individual to assess changes in the data over time. The criteria and methodologies used for gathering and interpreting the information, as well as any changes in methodologies, should be fully disclosed to prevent the deliberate withholding or distortion of information. Dishonest reporting can be deterred by the use of various watchdog institutions, ranging from professional accountants, credit agencies, the press, stakeholders, and even academic researchers (Kane 2000). Ensuring data quality and reliability is often a methodological and empirical challenge even for institutions and individuals of the highest probity.

Measuring Openness

Conceptually, a statistical measure of transparency is the precision of the information that is obtained, which is in turn a function of its quality and relevance. Lack of transparency in the case of accounting information, for example, may be measured by comparing a firm's officially disclosed balance sheet information with the assessments of auditing agencies that investigate firms for credit approval. In a highly transparent firm, there will be little discrepancy between the officially disclosed information and that provided by the auditors. (Of course, a prerequisite for such measurement is the public availability of the information.)

A serious impediment to measuring transparency is poor data quality—a lack of detailed information on publicly disclosed information, on the various disclosure standards, and on evaluations by independent auditors of the categories of information disclosed. With improved data, one can systematically measure transparency, iden-

tify its determinants, and quantify its impact on the relevant economic variables.[2] Recent attempts to measure transparency have used such proxies as a "weak rule of law" and "corruption" that are linked to a lack of openness but whose absence does not necessarily ensure transparency. This approach can be refined by formulating an index using proxies for the characteristics required. An attempt to construct an index of financial transparency is described later in this article.

Limits to Transparency?

Is transparency always desirable? Proscriptions against disclosure abound in all societies. Is there a legitimate reason for withholding certain information?

As Stiglitz (1999) has argued, societies' preferences should favor greater openness and transparency. The economics literature supports the notion that better information will improve resource allocation and efficiency. Disclosing financial information directs capital to its most productive uses, leading to efficiency and growth. Lack of transparency can be costly both politically and economically. It is politically debilitating because it dilutes the ability of the democratic system to judge and correct government policy by cloaking the activities of special interests and because it creates rents by giving those with information something to trade. The economic costs of secrecy are staggering, affecting not only aggregate output but also the distribution of benefits and risks. The most significant cost is that of corruption, which adversely affects investment and economic growth.[3]

Although arguments against transparency may be justified in a few instances on the grounds of privacy and confidentiality, those who hold this position need to counter not only the instrumental benefits of transparency but also powerful arguments about the rights of citizens to know. More dubious exceptions to transparency are those advanced on the grounds of national security, stability, tactical negotiations, or deference to public unity. Such exceptions may be warranted in certain narrow circumstances, but reductions in transparency should be limited, and the limits exposed to public debate. Particular scrutiny should be directed at invocations of confidentiality, market stability, or national security.

Research to inform such debates fails to qualify the arguments for and against transparency. For example, arguments about the need to limit the transparency of policy setting by a country's central bank are not borne out empirically, although a theoretical literature is willing to entertain the notion. Theoretically, a greater and less volatile flow of information about the decisions of the central bank should be just as likely to stabilize and rationalize financial markets as it is to disrupt and corrupt them. Indeed, it is probably true that the less accountable the agency, the more transparent it should be. It is not evident, however, that more information can strengthen financial systems. Furman and Stiglitz (1998) cite examples in which more information may worsen credit rationing or increase price volatility. Clearly, more research,

both conceptual and empirical, is needed to resolve this debate and its implications for the behavior and incentives of firms and individuals and for economic outcomes.

Limits to Voluntary Disclosure

Although transparency may be desirable, markets rarely induce socially desirable levels of transparency, not to mention full and voluntary disclosure of information. There are many reasons why this is so. First, costs are associated with such disclosure. Collecting, organizing, and disseminating information requires time, effort, and money. Agents will thus reveal information up to the point where the marginal benefit from disclosure equals marginal cost—typically that point is reached before full disclosure. Second, positive payoffs may come from nondisclosure. For example, where agents interact with each other strategically, revealing more information may result in a loss of competitive advantage, which in turn might reduce the firm's profitability. Moreover, nondisclosure allows the individual who has the information to benefit from it by offering the information at a price, which leads to innovation. For example, it is precisely because hedge funds are not transparent that they are able to generate profits. If their arbitrage strategies were known, they could be replicated. In such circumstances disclosure regulation may not be desirable; given the costs, voluntary disclosure may be socially optimal (Fishman and Haggerty 1997).

Third, the presence of externalities may limit the disclosure of information. Externalities may arise when firms' values are correlated, so that information pertaining to one firm may be used to value other firms. Theoretical work suggests that such information spillovers hamper economic efficiency and prevent entrepreneurs and firms from attaining the socially optimum level of information (Admati and Pfleiderer 2000). Externalities also explain why markets underinvest in monitoring and enforcing rules to ensure transparency. In part, this must be ascribed to the fact that those who monitor and enforce provide a benefit to all yet receive no recompense from other beneficiaries.

The "public-good" properties of information suggest that government should take care to protect the public by creating rules and regulations specifying disclosure requirements about categories of information, frequency of disclosure, and standards for disclosed information. Moreover, transparency alone cannot always ensure the production of reliable information; in such cases, there may be a need to impose accountability through enforcement. Generally, the benefits of transparency are limited by the inherent difficulties of obtaining information in rapidly changing environments. For example, sophisticated financial instruments that would make timely assessments of the net worth of banks and firms are unreliable because markets respond to constant changes in external factors. Achieving transparency therefore may not be sufficient. Enforcement mechanisms that ensure accountability by punishing fraudulent behavior are also essential. In such circumstances, regulations may be

necessary to minimize risks and ensure stability. Such regulations need to balance the costs and benefits from increased disclosure in distinct circumstances.

Regulation in Context

In general, disclosure regulation that either mandates or encourages transparency may be justified when externalities are present and information is costly. The decision to introduce disclosure regulation, however, as well as the specific implementation of such regulation, warrants careful consideration.

First, policymakers must determine whether greater transparency would necessarily improve economic outcomes (Furman and Stiglitz 1998). According to Hirshleifer (1971) in certain instances more information may cause speculation and lead to greater market volatility. A more recent study by Bushee and Noe (2000) finds that improvements in disclosure practices are correlated with subsequent increases in stock market volatility. Apparently, a policy of greater disclosure skews the composition of investors toward those with a strong propensity to risk; the prevalence of fickle traders willing to buy and sell in hopes of short-term gain leads to greater volatility.

Second, where full disclosure is justified, policymakers must determine the kinds of information to be disclosed, the agents required to provide the information and verify its quality, and the enforcement required to ensure compliance. The literature suggests that in some circumstances policy should support only certain kinds of disclosure. Blinder (1998) argues that transparency of central bank policies makes the bank's reputation more sensitive to the outcomes of its policies. Faust and Svensson (1998) qualify this position, arguing that if the central bank's reputation is completely independent of its actions, the public loses an important constraint on the bank's behavior. Their theoretical modeling suggests that the results may be higher-than-average and more variable inflation and unemployment. However, this report has not been confirmed empirically. In an attempt at striking a balance on this issue, the U.S. Federal Reserve Board releases minutes of open-market committee meetings with a six-week lag, deleting confidential information on the names of individuals, foreign banks, and so forth.

Third, once the extent and nature of disclosure have been decided, regulation policies should be tailored to local circumstances, that is, to the specific institutional and market environment. In developing countries with weak institutional and legal environments, the state must assume a greater role for providing information. As countries develop, the private sector often evolves to meet information needs. In the United States, for example, such institutions as the New York Stock Exchange (a cartel of traders that sets commissions and limits entry) subject companies that apply for listing on the exchange to stringent screening that encourages voluntary disclosure and prevents purely speculative or bogus ventures from being listed.

In developing countries, globalization and the integration of markets—financial markets in particular—have heightened the demand for transparency, which is now outpacing the capacity to provide it. Governments have undertaken innovative experiments that rely on market-like mechanisms to induce firms to disclose information. Involving local communities in monitoring government services has been shown to foster transparency and lower corruption in some cases.

Transparency and Financial Stability

Lack of information and uncertainty are inherent features of finance, because capital markets are engaged in trade not only in money but also in information itself. Investors must gather information to select projects and to monitor their performance. Both undertakings present specific challenges. One of these is the problem of adverse selection, which arises when lenders do not have as much information about the risks involved in a project as do the firms seeking the financing for the project. To avoid the consequences of selecting inappropriate borrowers, lenders charge higher interest rates, which in turn induce borrowers to take on riskier projects (the problem of moral hazard). Accurate information is also needed to monitor and enforce loan contracts. To generate good returns, lenders have to design contracts that improve the availability and quality of information about the individual or the enterprise.

Transaction Costs in Financial Markets

Individuals who monitor the performance of firms or banks provide a benefit to all shareholders or depositors but invest resources in this monitoring only to the level of their private benefit, not the broader socially desirable level. Imperfect markets and credit rationing occur because information is costly; credit rationing may be destabilizing because those who are willing to pay higher interest rates may not be those who put the loans to best use. Contagion, exemplified in bank panics, can occur when the troubles of one institution "contaminate" public perceptions about the entire industry. Depositors or investors who cannot distinguish individual bank solvency run on all banks, even solvent ones. The vulnerability of financial systems may worsen these problems. The failure of a major financial institution, stock market crashes, and recessions may all increase uncertainty in the financial markets, worsen information asymmetries, and aggravate adverse selection problems.

The public-good properties of information provide a rationale for governments to play a larger role in the disclosure of information. But whether such intervention can sufficiently mitigate other adverse consequences of information disclosure is unclear. Will more disclosure reduce problems of credit rationing, lower market volatility, or avert banking crises?

Evidence on the Relation between Transparency and Financial Crises

The fiscal and economic costs of the banking crises in the 1980s have sparked heated debates about the policies that are crucial to promoting financial stability (Caprio 1999; Goldstein and Turner 1996). Lack of transparency has been suggested as one cause of these crises. By now the story is familiar; it turns on limited information about mutual guarantees of the net worth of firms and banks and on the use of insider relations to mask poor investments. Once a downturn set in, poor transparency made it difficult for investors to distinguish between healthy and unhealthy firms and banks; investors consequently abandoned them all, which caused bank runs and ultimately destabilized economies that were often already fragile.

Few attempts have been made to systematically analyze the role that lack of transparency played in these crises. Several questions should be addressed. Does the lack of transparency cause a crisis or prolong it? Will greater transparency prevent banking crises? Has the need for transparency increased with global financial integration and liberalization of financial markets? Does more transparency lead to greater market discipline, and can it replace regulation (that is, deposit insurance)?

Empirical research suggests that where financial liberalization takes place in the absence of transparency, a financial crisis is more likely (Mehrez and Kaufmann 2000), although a causal link, is difficult to establish. Corruption may be associated with a lack of transparency (Martin and Feldman 1998), but evidence linking corruption to crises in East Asian countries is weak (Furman and Stiglitz 1998). Furthermore, even the Scandinavian countries, which are among the least corrupt in the world, suffered from banking crises at the beginning of the 1990s. Moreover, countries where corruption is not a problem may not have transparent banking systems if regulations do not require disclosure. Corruption and lack of rule of law may make it difficult to achieve transparency, but they do not measure transparency per se.

Caprio (1999) goes a little further in evaluating the role of information and incentives in financial crises. In an empirical analysis, he develops a scoring system to compare the regulatory environment in 12 East Asian and Latin American countries. The ranking is based on whether bank ratings are required, on the number of top-10 banks reviewed by international rating firms, and on an index of corruption. The rankings are broadly consistent with the overall ranking of regulatory environments.[4]

The study finds that the hardest-hit Asian economies were those with the poorest overall scores and lower-than-average levels of transparency. Singapore, which recorded the highest score both overall and in terms of transparency, was also the least affected by the crisis. Although the relative importance of the different indicators is not assessed, the evidence suggests that the quality of the regulatory environment, including its transparency, may be particularly important in the presence of explicit deposit insurance. The study also suggests that safety nets, such as deposit insurance,

tend to increase the problem of moral hazard and blunt the incentives for depositors and bank officers to acquire or use information. In addition, such policies as capital controls may be rendered ineffective if balance sheet information masks the true liabilities of banks.

The evidence presented by Caprio (1999) does not support the hypothesis that a lack of transparency caused the financial crises in East Asia and Latin America. But the evidence does suggest that a lack of transparency may exacerbate a crisis. Bank runs may be averted by better disclosure that allows investors to distinguish healthy banks from insolvent ones. In general, more information strengthens market discipline, provided the information is timely and reliable and that other regulatory instruments are employed to improve the incentives to provide and use information and enforce compliance.

The evidence suggests that at least three means are available to achieve transparency: improving the rules and regulations governing disclosure, putting in place accounting practices to enforce quality, and designing safety nets to limit moral hazard.

The Importance of Sound Accounting and Auditing Practices

A strong case can be made for strict accounting norms. Information must be reliable, based on sound principles and standards that enable investors and lenders to make consistent assessments of firms' activities and risk profiles. Accounting standards facilitate the interpretation, reliability, and comparability of information across enterprises and make it easier for investors to identify worthy firms and evaluate managers. Conversely, lapses in accounting norms can provide opportunities for misrepresentation as a way to divert assets.

A prevalent weakness of many accounting systems is the ease with which they can be manipulated to mask discrepancies between the accounting values and the real value of assets. Discrepancies typically result from asset attributes, such as risk or profitability, which are uncertain or can be misrepresented. For instance, the accounting valuation of long-term bonds typically ignores market expectations concerning interest rates. The Chilean financial crisis of the early 1980s and the savings and loans scandals in the United States were said to have resulted from such problems. In Chile, central bank loan guarantees to domestic banks were wrongly perceived by both domestic and international markets as absorbing the foreign-exchange rate risk attached to an impending devaluation. Thus, Chilean banks were able to borrow short term from the international market at 20 percent and lend the same money to domestic firms at 50 percent. The anticipated devaluation forced the borrowers to default, however, leaving the banks insolvent, and the Chilean government had to pay off bank depositors and foreign investors (Akerlof and Romer 1993).

Implementation challenges to developing countries. If industrial countries with well-developed institutions can fail to contain information failures arising from accounting problems, the task is likely to be all the more difficult for developing countries. In addition to weak accounting systems—owing, in part, to the lack of trained accountants and poor enforcement—developing countries often experience the following problems:

- Many developing countries have failed to establish rigorous accounting conventions. Thus, the true size of nonperforming loans is concealed from borrowers. Even if problem loans are identified, banks often do not have adequate reserves in place to cover their losses. Goldstein and Turner (1996) calculate the ratio of loan loss reserves to nonperforming loans for a sample of developing countries in the 1990s and find that on average the countries with the highest share of nonperforming loans (with the exception of Argentina and Malaysia) maintain the lowest coverage ratios.
- The lack of uniform reporting requirements and the absence of penalties for publishing false information prevent investors from distinguishing weak from strong banks (Goldstein 1997). Private credit-rating agencies, such as Moody's and Standard and Poor's, limit their coverage to 25 developing countries and serve only the largest banks in those countries.
- Poor information systems exacerbate the difficulties of assessing the creditworthiness of borrowers.
- Inadequate supervision and enforcement allow insolvent banks to continue to operate, extending new loans to unprofitable borrowers.

Poor accounting standards also render capital requirements and similar policies inadequate. For example, the Basle Capital Adequacy Accord (Basle Committee on Banking Supervision 1998) may not be adequate for developing countries with poor accounting and supervision. Implicit in the Basle standards is the assumption that banks have adequate provisioning for bad loans. Because this may not be the case and because related-party lending may be prevalent, the Basle accord provides a very meager cushion of safety.

Evidence from countries beset by the recent financial crises suggests that they were affected by accounting failures. More specifically, the financial information that was presented did not adequately portray the underlying risks in firms and banks (box 1).

Guidelines for implementing improved accounting practices. There are four general guidelines that developing countries can follow to improve their accounting practices. First, governments should make every effort to promote the use of internationally acceptable accounting standards and methodologies. At the same time, the private sector may have an important role to play. In the United States, private firms prepare credit reports on individuals and routinely share them with investors. A report by the

Box 1. Accounting and the Asian Crisis

A 1998 study for the UN Conference on Trade and Development (Rahman 1998) reviewed accounting practices in five East Asian countries (Indonesia, Malaysia, the Philippines, the Republic of Korea, and Thailand) to assess how actual accounting practices deviated from published accounting statistics, such as related-party transactions, foreign currency debt, derivative financial instruments, and contingent liabilities. The findings suggest that these countries did not follow International Accountancy Standards and that this likely triggered the financial crises. Users of the accounting information were misled and were not able to take precautions in a timely fashion.

Several findings in the Rahman study are particularly telling. For instance, only a third of the total number of companies sampled disclosed information regarding related-party borrowing and lending, revealing weak enforcement of the disclosure requirements. Although 60 percent of the sample supplied information on foreign currency debt in local currency, only 19 percent disclosed gains and losses on foreign currency translations. Furthermore, the failure to set aside appropriate reserves to cover loan losses limited lenders' ability to evaluate the size of the banks' nonperforming loans. In addition, more than 80 percent of those companies that used derivative instruments did not disclose the interest and losses on these instruments, or on the terms, conditions, and policies that determine whether these contracts will be honored. Almost no company disclosed the risk associated with the derivatives in their portfolios. Less than half of the respondents recognized contingent liabilities as a category, so they were able to avoid any disclosure of the amount of such liabilities.

Working Group on Transparency and Accountability (1998) recommends exploring government partnerships with private institutions and organizations to help in the assessment and utilization of information.

Second, the rules concerning accounting and supervision need to be tailored to the country's specific infrastructure and regulatory environment. Countries may justifiably wish to maintain some independence in setting national standards based on their preferences for risk or their institutional limitations. Efforts to harmonize accounting standards across countries as a first step in instituting a uniform international code have run into difficulties for just these reasons.

Third, governments must improve enforcement. Sound accounting standards have little use without legal and institutional systems to supervise and enforce them. Devising an effective supervision system requires careful research into the structure of the regulatory system to understand the details of the supervision process and identify its weaknesses. In many developing countries, bank owners and officers are well connected politically and consequently often escape punishment for failing to comply with existing standards. Finding the exact loopholes in supervision and taking the proper actions to close them are important steps in enforcing accountability.

Fourth, international institutions can and should provide technical assistance to strengthen and implement accounting standards. These institutions also can improve compliance by making provision of loans conditional on adherence to the standards.

The Appropriate Design of Regulation

Information provision and monitoring, as promoted through accounting standards, is not sufficient if appropriate behavior is not enforced. Designing regulations for financial market information is a complex matter; indeed, regulation may not always be warranted. When do financial institutions need to be regulated? Should controls be imposed on borrowing, on the maturity and risk structure of assets and liabilities, or on loan provisioning? Information asymmetries in financial markets complicate efforts to devise regulatory policies that mitigate perverse incentives and stabilize markets. The level of financial risk that individuals and institutions are willing to assume depends on the reliability of the information provided and on the regulatory environment.

Deposit Insurance and Disclosure: A Tradeoff?

Safety net provisions, such as deposit insurance, that mitigate the consequences of bank failure may also have a destabilizing effect because they offer a form of limited liability that induces two incentive problems. The first problem is that safety nets encourage overinvestment in risky projects—a problem of moral hazard. The second problem is that safety nets induce behavior, described as "looting" or "bankruptcy for profit," that allows owners and managers to use corporate assets to pay themselves personal dividends and salaries. In the case of insolvency, the government bears the cost of both these problems in the form of insurance payouts and bailouts (Akerlof and Romer 1993). These two incentive problems are often complementary, and it may be difficult to distinguish between them, especially as causal precipitants of adverse shocks.

Though better information may mitigate these problems, deposit insurance may reduce the incentive for depositors to use that information and to punish banks that make risky investments by lowering deposits or demanding higher deposit rates. Safety nets therefore have to balance protection against liquidity crises and the moral hazard problems that give rise to imprudent banking practices.

The assumption that full disclosure can replace the need for a safety net is the basis for at least one alternative framework. Since 1996 New Zealand has provided no deposit insurance and has abolished prudential ratios except for capital requirements and ratios on connected lending. Meanwhile, it implemented the most extensive disclosure requirements in the world, including frequent external audits and credit-rating disclosure. To give these laws teeth, managers of financial institutions have been made personally liable and accountable for any discrepancies (Cordella and Yeyati 1997).

At least three conditions are required for the success of this market-reliant approach to financial system management. First, incentives for market discipline may depend on whether a no-bailout position in the event of bank failure is credible. In Venezuela,

political pressure forced the government to bail out the banks despite a previous promise that it would not take such a step (De Krivoy 2000). In Japan, regulatory forbearance (implicit insurance) stands in for unpopular explicit bailouts (Calomiris 1997). Indeed, there is a debate about whether ambiguity in the rules governing safety nets is preferable to transparency. Theoretically, ambiguity reduces the moral hazard by undermining the bailout guarantee and may improve credibility if the government decides against rescuing a failed bank. Countries have adopted different strategies. In the United Kingdom a 1979 banking act safeguards deposits and stipulates that the Bank of England need not support all banks; at the same time, the bank has discretionary power to provide assistance when it sees the threat of systemic failure (Cordella and Yeyati 1997).

Second, whether transparency leads to greater market discipline depends on the extent to which depositors take account of the information in placing their deposits, and whether this, in turn, limits the extent to which banks take excessive risks. Currently, there is no evidence on this matter or on depositors' ability to interpret information when it is available. If the ability to interpret information properly were indeed a limitation for depositors, it would call for more transparency in bank activities.

Third, disclosure requirements should not be considered a sufficient safeguard against financial crises. The notion that safety net schemes should be replaced by stricter disclosure requirements implies that greater transparency can avert crises and panics. The existing evidence, presented earlier, does not support this hypothesis.

More research, both theoretical and empirical, needs to inform the future design of comprehensive financial safety nets, including deposit insurance. Research should also address other necessary forms of intervention. Such evidence as exists on means of mitigating incentive problems in financial markets illustrates the merit of using combinations of simple, easily implemented policies, including limits on credit expansion and capital adequacy requirements based on the degree of risk. These interventions are beyond the scope of this article, but they are discussed prominently in Stiglitz and Bhattacharya (1999).

The Limits to Financial Sector Reform

The success of reforms that focus on the regulation of financial markets depends on the institutions of governance. Thus far, we have assumed that governments will be motivated to increase transparency in the financial sector where feasible, but that assumption may be incorrect.

Such an assumption presupposes a different kind of transparency: one that relates to the integrity and accountability of governments. It links financial sector reform to broader reform of the system of governance. Suppose that government agents have the potential to extract bribes from private organizations in exchange for preferen-

tial treatment by the government bureaucracy. A system of poor accountability in the financial sector may facilitate such transactions by making it easier to hide illicit payments. In such a world, the lack of financial transparency and poor government accountability will be mutually reinforcing (box 2). This unregulated environment underscores the importance of working to improve transparency in the economy as a whole rather than in narrow sectors.

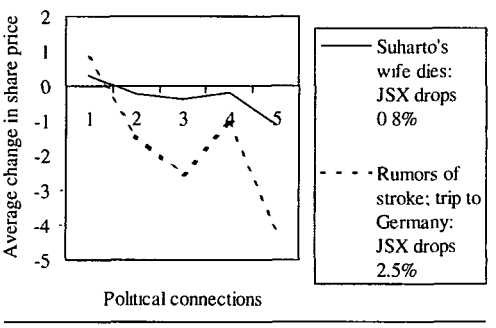
In sum, the evidence does not show that a lack of financial transparency caused the Asian financial crisis, but it does suggest that the lack may exacerbate such crises. Broadly, developing countries suffer from insufficiently rigorous accounting conventions, lack of uniform reporting requirements, poor information systems, and inadequate supervision and enforcement. Evidence suggests that the hardest-hit countries were those affected by accounting failures—specifically, those that failed to disclose financial information that reflected the underlying risks in firms and banks.

Box 2. Governance and Finance: Corruption in Indonesia

The system of patronage that evolved in Indonesia under President Suharto is a particularly infamous example of close ties between business and government. Many firms reportedly sought the assistance of those with close ties to the president to receive preferential treatment. Indonesia's financial markets were notoriously opaque, which made it impossible to document such misconduct or to stop the continued purchases of government favors. Thus, those with the potential to do so had little incentive to change the system.

The opacity of financial transactions makes it difficult to assess the extent of corruption, but some innovative thinking by Fisman (1998) is instructive. He looks at the reaction of the Jakarta Stock Exchange to news about President Suharto's health to estimate the value of political connections in that country. Figure 1 shows the market reaction to the death of Suharto's wife and to the announcement that Suharto would go to Germany for a health checkup. Both events raised doubts about the president's longevity, and in both cases the value of well-connected firms declined by more than the value of firms without connections. Note that the overall market declined by considerably more in reaction to news of the German hospital visit. Accordingly, the adverse consequences for well-connected firms (relative to less connected firms) were more serious in reaction to the trip to Germany (the dotted line is much steeper than the solid line). Building on these observations, Fisman computes that as much as a quarter of a well-connected firm's value may be attributed to political connections.

Figure 1. Market Reaction



Good governance is a predicate of transparency in the financial sector as well as in other areas of economic and social life governed by public institutions. Information is central to the design of public policy, including the administration of tax systems, delivery of public services, and regulation of the private sector—all activities that affect economic life and social welfare. Consequently, the lack of transparency in public administration is a debilitating constraint on policy implementation and its economic and social outcomes and is in its own right important to welfare and development (Vishwanath and Kaufmann 1999).

Conclusion

Although the general preference is for more transparency, generally and in financial markets, achieving it carries costs as well as benefits. Many questions remain: Does more transparency lead to greater market volatility and, if so, under what conditions? Has the need for greater transparency increased with globalization? Can more transparency obviate the need for government regulation by inducing self-regulation? A systematic inquiry into these issues will help frame appropriate disclosure policies.

Although the moral hazard problems induced by deposit insurance may be averted by replacing it with more comprehensive disclosure requirements, as New Zealand has done, the experience of such countries as Venezuela, buttressed by cross-country empirical research, suggests that the success of such policies is contingent on several factors, including the credibility and independence of central banks and political actors, the behavior of banks and depositors, and the dynamics of financial crises, which are not well understood.

Transparency in and of itself is not sufficient without accompanying enforcement mechanisms. public institutions therefore need both to regulate disclosure and to enforce appropriate behavior. Indeed, as illustrated by the case of Indonesia, financial reform may be predicated on broader public sector reforms. Notably, the effectiveness of public institutions affects not only the performance of markets—including capital markets—but also the allocation of public goods and the distribution of risk and other implicit costs in an economy.

Subsuming more specific recommendations on transparency in financial markets, made earlier in this article, are therefore broader imperatives to improve transparency in governance. This agenda brings its own set of challenges and solutions. In particular, because institutions take time to develop, successful medium-term reforms often entail harnessing supplementary resources. On this the burgeoning literature on the promotion of transparency through public participation and consultation has developed a pertinent commentary.

Notes

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1. Examples include mutual guarantees of firms' and banks' true net worth, and insider relations that mask poor investments.
2. An attempt is currently under way to measure accounting transparency using data from Indian firms and to assess its impact on investment activity (Bertrand and Mullainathan 1998).
3. There is a growing literature on the relation between corruption and growth in particular, initiated by Mauro (1995). More broadly, for several governance dimensions, see Kaufmann, Kraay, and Zoido-Lobaton (2000).
4. Other indicators in the regulatory ranking include capital position, loan classification, and liquidity position. In addition, the authors assess the operating environment in which banks function (using strength of property rights, creditors rights, and law enforcement as proxies).

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Privatization and Corporate Governance: Principles, Evidence, and Future Challenges

Alexander Dyck

Unless developing countries embrace a corporate governance perspective, privatization is unlikely to provide the benefits of improved performance with accountability. This article introduces the concept of governance chains that can constrain the grabbing hands of public and private actors by providing information and accountability mechanisms to help investors monitor managers. Empirical data on established firms from 49 countries provide estimates of the relative importance and strength of private and formal chains of governance. The framework and empirical benchmarks help explain the outcomes of past privatizations and suggest certain steps that governments can pursue to be sure to get the most out of future privatization activity.

Over the past 15 years, privatization programs have transformed the economic landscape in countries around the globe, transferring close to $1 trillion in assets from government-controlled enterprises to private hands. Analysts report that this shift provides benefits ranging from increased state revenues to a reduction in government's role as sole provider of certain goods and services, and academic research has documented significant improvements in operating and performance criteria (Galal and others [1994], LaPorta and Lopez-de-Salines [1999], Megginson, Nash, and van Randenborgh [1994]). According to Shleifer (1998), such evidence moved thinking away from a qualified acceptance of privatization toward an enthusiastic endorsement of the process. But more recent studies challenge this view. Such transfers not only have failed to stop the "grabbing hands" of the state, but evidence suggests that they also allowed profits to be diverted to the grabbing hands of insiders in privatized firms. In Chile, for example, the managers of the largest privatized electricity company pocketed more than 850 times the price given to minority shareholders in a takeover bid (Wright 1999). In Russia, following privatization of the oil industry, the controlling shareholder of Yukos Oil "skimmed over 30 cents per dollar of revenue, while stiffing his workers on wages, defaulting on tax payments by claiming that Yukos couldn't afford them, destroying the value

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of minority shares in both Yukos and the production companies that Yukos controlled but only partly owned, and *not* reinvesting in Russia's run-down oil fields, which badly needed new investment" (Black, Kraakman, and Tarassova (1999: 1737). In the Czech Republic, firms were "tunneled out," that is, stripped of their assets and left with debt, disenchanted workers and investors, and little hope of raising capital to fund future investment projects. As one foreign investor warned in a full-page ad in the *New York Times*, "Think twice before you invest in the Czech Republic. Otherwise, you could be left to 'twist in the wind'" (*New York Times*, November 8, 1999).

These revelations present challenges for state-run enterprises that are about to be privatized. Evidently the transfer of title alone does not ensure improved resource allocation. This article argues that policymakers need to consider more than issues of competition and regulation; adopting a corporate governance perspective will lead to more effective privatizations with fewer problems, particularly in the long run. The steps required to encourage the private sector to invest are deceptively simple: find a way to tie the grabbing hands of public and private parties by providing information and accountability to investors. I say "deceptively" because putting such ideas into practice is difficult, given the variety of institutions that affect information and accountability.

To simplify the thinking about privatization and governance, I introduce the concept of governance chains that can constrain grabbing hands and provide benchmarks, based on their use in established firms, that measure the likely effectiveness of different governance chains. I distinguish two types of chains: a private governance chain in which there are few institutions and each provides both information and accountability, and a formal governance chain, in which the specialization of information and accountability increases the length of the chain and the demand for institutional depth.

Sizing Up the Corporate Governance Challenge

In a well-functioning economy, there is specialization in investment and management. Investors provide their resources to managers with strong investment projects and management capability. Suppliers, workers, and financiers are all investors of a sort because they entrust their resources to those in control of an enterprise. As investors in a long-lived collective enterprise, each awaits promised returns to these contributions.

The promise that investors receive in exchange for their resources includes specific terms and broader understandings about how future contingencies will be resolved. Uncertainty accompanies promises. The parties to the promise, as distinct

entities with their own goals, know their interests are not perfectly aligned. The promise is certainly incomplete, as it is difficult (if not impossible) to identify in advance all possible changes in circumstances. The greater the elapsed time between the making of the promise and its payoff, the greater the concern that the original terms of the promise will not be fulfilled.

A major obstacle to securing investment is the prospect that those delegated with decision-making power will not use that authority to deliver what was promised but will instead divert the returns for their own benefit. Some diversions, like outright theft, are obvious. Others are less apparent but equally costly from a societal perspective. Managers have myriad ways to reward themselves at the expense of investors, including transferring resources to themselves at below-market prices, using the firm's funds to build personal empires, or simply tolerating management slack.

Where there are no credible ways to stop grabbing hands from diverting resources, suppliers, workers, and financiers will not extend resources to firms. In the long run countries lose two ways. First, valuable investment opportunities are simply lost. Second, there is no competition for the control of resources within firms, leaving those that are poorly managed to underperform and making it more difficult for new firms to raise capital and compete against these inefficient producers in the market.

Grabbing hands can be public or private. Government officials have been known to require payments in exchange for services and business licenses. The acknowledged problems with public grabbing hands provide an important rationale for privatization. Where such perverse incentives are unconstrained, economic activity goes underground and out of the formal economy. Less widely acknowledged are the risks of grabbing hands in the private sector—an occurrence that may surface in privatized firms, allowing insiders to divert resources. For privatization to be effective, the government must be involved in tying both public and private grabbing hands.

It is helpful to distinguish two types of insiders in the private sector. In the first situation, insiders are managers. Viewed from a traditional U.S. perspective, managers often effectively control the firm's resources, although they have small ownership stakes. In the second situation, the controlling shareholders are the insiders. The dominance of controlling shareholders has been illustrated in the continental European countries (Becht and Roell 1999) and in developing countries (La Porta and others 1998).

Benefits of Governance: Improved Information and Accountability

The institutions of corporate governance are those organizations and rules that influence the expected returns to investing and giving authority over one's resources

to insiders. Such institutions alter the payoffs to insiders and outsiders, affecting the actions that will be observed, and facilitate or constrain the grabbing hands of public and private actors.

Two factors lower the costs of such delegated decision making. First, effective governance institutions improve information flows and avoid what is often called the "lemons problem." That is, insiders have an incentive to provide information about good investment projects, but they also have an incentive to withhold information when investment projects go bad or when they (insiders) have been diverting promised returns. Investors know that bad information is covered up and act accordingly, raising the returns required or refusing to invest at all. In contrast, where information flows to outsiders are timely, accurate, and credible, diversions are more difficult to hide, and resources are more likely to be matched with promising investment projects and managers.

Second, effective institutions of governance make insiders accountable. To ensure that resources are always being targeted on their most efficient uses, investors need to be able to punish insiders explicitly (by firing them) or implicitly (by withdrawing their investments). Such accountability mechanisms are enhanced when investors have clearly defined powers in advance, the ability to coordinate their actions, and low-cost mechanisms for resolving disputes with insiders.

Governance Chains

The least formal governance institutions, which I call private governance chains, have only a few links that monitor and enforce economic activities. The relationship between insiders in the firm and specific external organizations, such as business associations or banks, generates both information and accountability. The strength of these governance chains rests largely on the motivations and ability of insiders in the firm and those in charge of these external organizations.

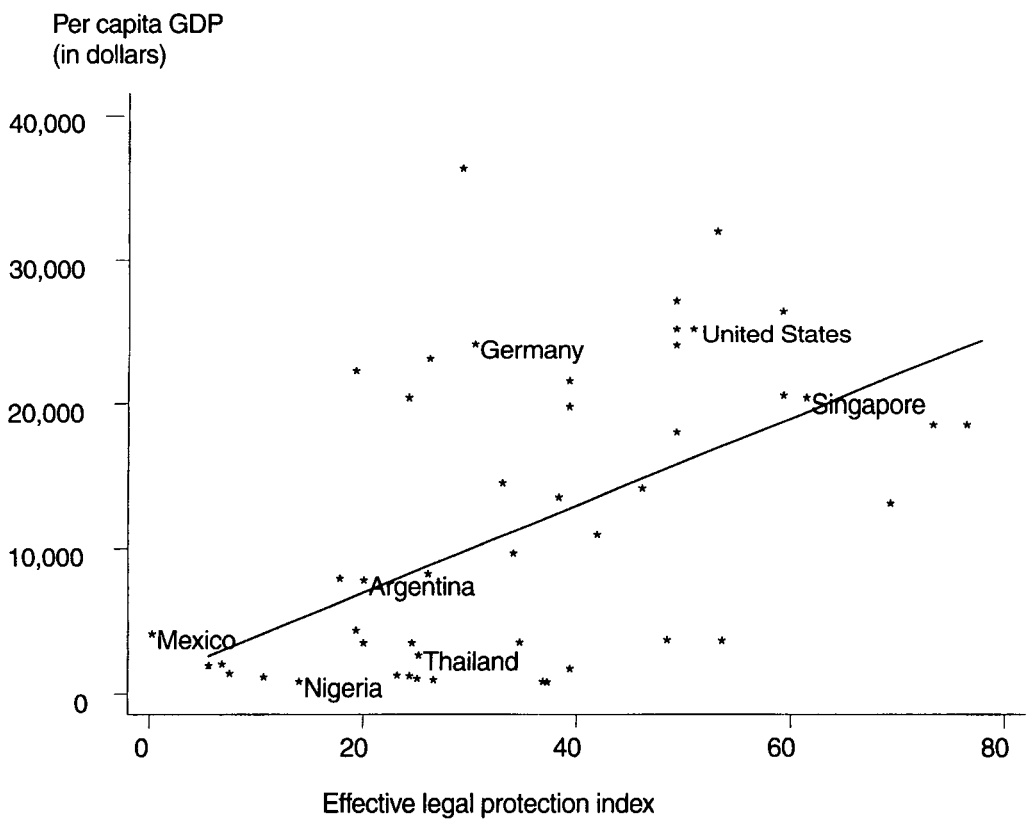
The most formal solutions contain more links in their governance chains. Separate entities specialize in providing information, others offer accountability, and still others provide a combination of these tasks. The three principal links are institutions that hold political actors accountable; internal institutions, such as boards of directors, that provide both information and accountability; and legal institutions, such as corporate bankruptcy and disclosure laws, which ensure that information and powers of accountability are held not only by the board but also by outside financiers more generally.

Complementing these institutions are additional external organizations. Policy advisers also need to consider financial intermediaries that pool the capital of investors and provide monitoring; information intermediaries, such as auditing firms, credit- and bond-rating agencies, and brokerage firms, that provide independent

assessments and ratings; and regulatory organizations that provide incentives for financial and information intermediaries to disseminate socially beneficial information and provide accountability. Private and formal governance chains can be combined, but for my purposes, it is useful to see them as separate entities.

Figure 1 compares private and formal governance chains. The vertical axis shows each country's per-capita gross domestic product (GDP); the horizontal axis provides one measure of the existence of formal governance institutions: an index of the effectiveness of legal protections. To construct the index, I assume that the legal links in formal governance chains would be effective only when arbitrary actions of political actors were constrained and when laws on the books gave powers to financiers. The index is the simple product of, first, a measure of the rule of law provided by commercial risk-rating agencies, and second, a measure of protections for financiers developed by La Porta and others (1998).

Figure 1. Per-Capita GDP and Investor Legal Protections



Source: La Porta and others (1998) with additional calculations by the author.

Such a simple comparison should not be overinterpreted, but three points are worth noting. First, regardless of the desirability of formal governance chains, most countries do not even have the two links described above. Countries are arrayed predominantly on the left side of the figure. Second, the figure suggests a value to effective formal protections. On average, countries that have a higher index for formal protections have higher per-capita incomes. Third, the figure shows that there are alternative ways to create a well-functioning business environment. The high-income countries exhibit a range of scores indicating the effectiveness of formal institutions. Some countries, like Germany, with only a middling index of effective formal protections, have done very well.

Thinking through the main components of governance chains helps an adviser recommend a given approach. I begin by examining how promises are made credible in settings without an effective state—the situation facing many countries on the left side of figure 1.

Private Governance Chains

Self-enforcement of promises is important in those instances where the state is ineffective and a firm—or a person—is judged by reputation. One way investors can increase the security of their investments is by repeatedly interacting with the same party and allowing "the long shadow of the future" to discipline individuals. Insiders will maintain their promises as long as the losses from breaking up the relationship exceed the short-term gains associated with the breach of promise.

Link One: Linking Insiders to an "Ordering Agent"

One key to the successful use of private governance chains has been the identification of insiders with an "ordering agent" who can coordinate and improve information flows and impose penalties in case of abuse. Reputation is a powerful force, but it has limits when only insiders and investors are involved. Insiders in the firm might violate the interests of one financier and lose the ability to appeal to him or her again for finance, but this threat is weak deterrent if the insiders can turn to other sources for funds. The use of ordering agents to magnify an individual's reputation and support an appeal for investment are found across the developing as well as the industrial world in business associations, business groups, and foreign firms.

Greif (1997) highlights the historical role of business associations as ordering agents who help constrain the state from expropriating private goods. Business associations can also constrain insiders, as revealed in recent evidence from Vietnam and transition economies. Firms that are members of business associations have demonstrated a greater ability to raise formal finance and obtain trade credits, a form of

unsecured lending that is particularly important for smaller firms and those seeking to expand (Johnson, McMillan, and Woodruff 1999).

A related way to link insiders with an ordering agent is to conduct investments through a business group organized around ethnic or family lines. Investors have multiple channels for collecting information and imposing penalties, using social channels to supplement financial ones. Khanna (2000), among others, describes the widespread use of family-centered and ethnic-based business groups in the developing world and demonstrates that performance of group firms relative to nongroup firms can be quite strong.

Both historically and currently, the link between foreign insiders and institutions in their home countries can give those insiders more credibility with investors. Greif (1997) describes the advantages Jewish traders in medieval Mediterranean trade had because of their ethnic ties and the ability of the Jewish community to impose sanctions. Today foreign firms that operate in developing countries are often linked to stock exchanges in their home country, providing a link to a well-functioning institution of organized order. Investors know that information will be made available because the stock exchange requires firms to report consolidated returns using standard accounting practices. The value of this link is suggested by the success domestic firms have had in improving their credibility and ability to raise funds following a cross-listing on a foreign exchange.

Link Two: Adjusting Ownership and Control to Facilitate Private Information Flows and Enforcement

Another key to effective use of private governance chains is to use the ownership and control structures to engage private agents who have a comparative advantage in information collection and in providing accountability. Ownership concentration increases the incentives to monitor insiders and hold them accountable. With sufficiently concentrated provision of finance, one potential set of grabbing hands can even be eliminated, as the dominant provider of finance becomes the manager. International evidence from large firms around the world shows widespread use of this mechanism. When a family controls a firm, it participates in management more than two-thirds of the time.[1]

Through ownership structure one can also leverage actors with access to specialized knowledge about the firm and with a comparative advantage in holding managers accountable. Through the early 1990s, many analysts of German and Japanese corporate governance systems suggested that a key to the relatively strong performance of firms in these countries was the ownership and control structure that involved knowledgeable and powerful banks and workers in addition to concentrated owners. Aoki (1984) underscores how labor might be able to police against abuse through its ability to withhold its services. Financial institutions' power to hold insiders accountable de-

rives from their ability to provide long-term finance, from their access to private information about companies, and from their ability to cut off the supply of short-term capital.

A board is accurately characterized as a "relational board" when it includes representatives of suppliers, workers, banks, and major customers. Board members have ties beyond their investment stake that give them preferential access to information and an independent ability to hold insiders to account without having to resort to any legal mechanisms. This type of board is distinguished from the independent board found in more formal approaches to governance and discussed later.

How widespread are private governance chains, as evidenced by the use of ownership concentration and control? Although much academic discussion focuses on dispersed ownership and supporting institutions, recent evidence from academics and World Bank researchers who have measured the size of ownership and voting stakes in large firms shows that internationally such dispersed ownership structures are the exception rather than the norm.

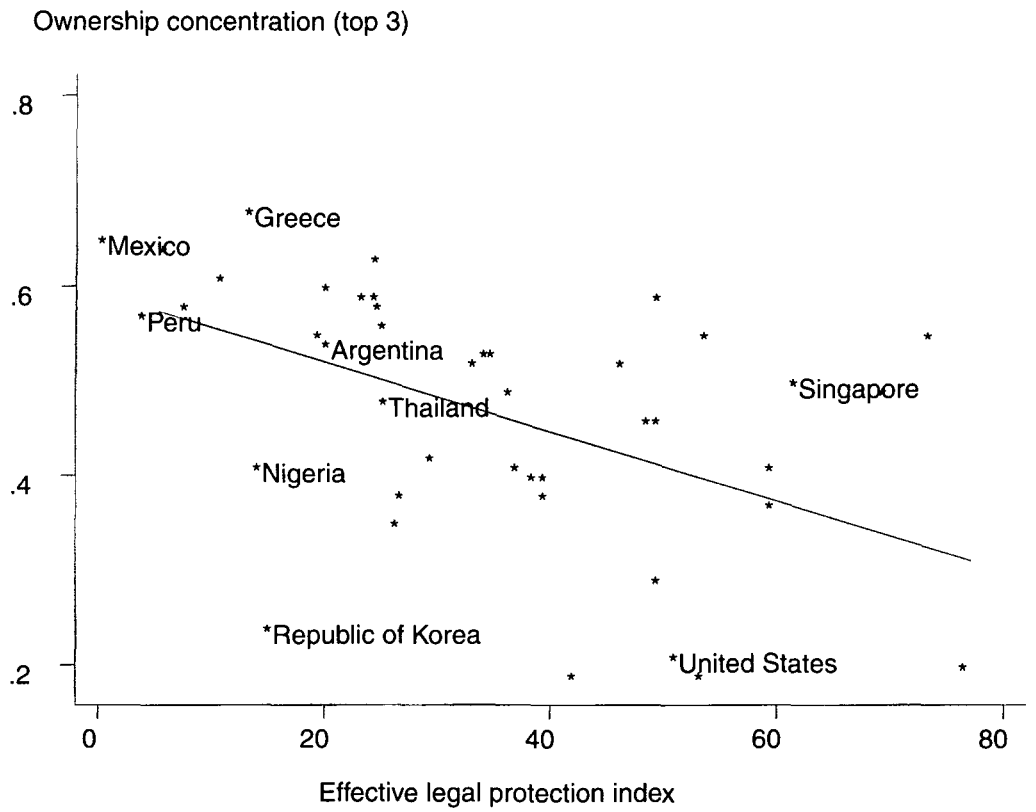
Figure 2 presents evidence from La Porta and others (1998) showing a relationship between ownership structures and legal protections. The measure of ownership concentration is the average shareholding of the three largest shareholders in a sample of the 10 largest domestic publicly listed firms for the same 49 countries as in figure 1. The left side of figure 2 tells an important story: In countries with ineffective legal protections, concentration is the only recorded ownership structure. This evidence is consistent with the argument that dispersed ownership structures are undesirable and unsustainable in countries with weak supporting governance institutions. Furthermore, it is consistent with the argument that ownership concentration is a substitute governance mechanism. This evidence provides an important benchmark for advisers considering privatization because it shows how established firms have responded where two central links in the governance chain are weak.

The Opportunity Cost of Private Governance Chains

Informal, private solutions to the incentive problems addressed by governance measures are widespread and can provide information and accountability. Although such measures should be given serious consideration in a weak institutional environment, private solutions have significant costs relative to formal governance solutions.

The principal advantage of well-functioning formal approaches is their ability to maximize the chances for putting those with resources to invest in touch with those who have good ideas and the ability to implement them. In contrast, potential investment projects that would yield positive returns are likely to go unfunded in an environment characterized by concentrated ownership or one in which insiders must be linked to a private group or business association that can provide order. Formal governance chains also provide equal treatment to those with good investment projects. In

Figure 2. Ownership Concentration and Legal Protections, Worldwide



Source: La Porta and others (1998) with additional calculations by the author.

an informal setting, those who are not supported by a private governance chain may be unable to find funds for equally good projects.

A second advantage of a well-functioning formal approach is its flexibility. Accountability does not rest with one or two actors but is provided by many parties. If insiders do not fulfill their promises to creditors, bankruptcy laws give financiers control of the company. If firms fail to meet expectations, managers can be replaced by the board, backed by the company's by-laws, by the actions of minority shareholders backed by corporate laws, or by investors enabled to seize control of the firm.

In contrast, given the limited number of actors involved in private governance chains, incentive problems in any one of these actors can produce real and prolonged costs. Banks that have poor incentives will be poor monitors. Recent literature on the

Japanese and German banking systems now sees banks' affiliations with borrowing entities as costly and likely to encourage overlending and deferred restructuring (Weinstein and Yafeh 1998). In light of the Asian financial crisis, attention has focused on the widespread practice of control without ownership, which facilitated private grabbing when the economic situation deteriorated. Moreover, private organizations can also coordinate business activities to undermine social welfare by fixing prices or limiting entry to the market.

Recent evidence shows that well-functioning formal governance chains provide many benefits. La Porta and others (2000) report that firms in countries with stronger legal protections are more likely to pay dividends; La Porta and others (1999) and Claessens, Djankov, and Lang (2000) find that legal protections enhance the value of shares. Johnson and others (2000a) show that countries in Asia with stronger formal governance mechanisms suffered smaller declines in share prices and currency values than did countries with weaker protections. La Porta and others (1998) find that the extent of legal protection for financiers is correlated with the depth of equity markets, a predictor of future growth and development.

Formal Governance Chains

Relative to ideal formal governance chains, informal governance chains are weaker. But is this the right comparison? To determine whether formal governance chains can be used we need to understand how they function and find out whether they exist or can be introduced at the time of privatization. This section describes and provides some estimates of each of the six links in formal governance chains.

Link One: Legal Institutions to Constrain the State

Property rights are the first link in the chain of formal governance. The transition economies provide striking evidence of the dangers of an unconstrained state. Johnson, McMillan, and Woodruff (2000), in a study of firms in four transition economies, report that not only do those in control of an enterprise find it nearly impossible to raise external finance in states that do not respect property rights but they are also unwilling even to reinvest earnings. Reinvestment rates are 64 percent higher in firms in countries where property rights are perceived to be stronger than in those where they are perceived to be weak.[2]

One way to limit the state's involvement is through the use of laws of incorporation. Governments need to create a legal space for private firms to establish themselves. Where firms are not allowed to incorporate at all, or where incorporation requires explicit and discretionary political approval, the state is more likely to interfere.

A law of free incorporation signals a greater willingness to cede authority to private actors and markets. But such laws are not enough to tie the hands of the state. A banal but often ignored point is the need for a credible constraint on arbitrary action by political actors who may wish to undermine the rights written into corporate laws. There are many ways to constrain political actors, but underlying them all is a check on executive authority, provided by a separation of powers among executive, legislative, and judicial authorities; by a federal government that oversees regions with independent power; or by other means (Henisz 2000).

To evaluate the desirability of a formal approach, policymakers thus need to test the strength of the constraints on the state, ideally based on an international comparison. One could focus on the structural constraints mentioned above or on the quality of the state's rule of law, the effectiveness of the judiciary, the risk of expropriation, the risk of contract repudiation, or even the extent of corruption or demands for extralegal payments. All such responses are closely correlated. For simplicity in this article, I use the response to the rule-of-law question as the indicator of restraints on the state and the enforcement of laws.

Link Two: Independent Boards to Constrain Insiders

Internal corporate institutions designed to delegate decision making can constrain grabbing hands in the private sector. Here attention has focused on the institution of the board of directors, that body defined in company by-laws and appointed by shareholders to exercise control over insiders. Individuals appointed or elected to a board of directors are charged with the specific task of monitoring management. When boards include members with expertise about the firm and the industry, the board is well positioned to solve problems that arise from management attempts to withhold detrimental information. Effective in providing accountability, boards of directors are also responsible for recruiting executives, setting compensation policy, and handling dismissals.

Boards can help address problems, but they are not enough. To improve information flows and accountability to shareholders, boards need to have the right incentives. All too often boards become instruments of the manager or controlling shareholder rather than watchdogs for outside investors. Making board members independent of top management is desirable wherever independent board members can be found with the ability to monitor management, given the information provided by management. Building on research in developed markets, standard-setting bodies, such as the Organization for Economic Cooperation and Development (OECD), recommend corporate governance guidelines that include more outsiders on boards of directors and in sensitive activities, such as financial reporting, nomination, and remuneration committees.

The difficulty of finding board members who are familiar with the firm's circumstances, who are independent of insiders, and who have the incentive to dedicate themselves to their oversight duties leads to the third link in the governance chain—legal protections that provide outside investors with information and accountability mechanisms beyond those implied by a board of directors.

Link Three: Legal Institutions to Constrain the Grabbing Hands of Insiders

Important issues arise regarding laws that require firms to disclose financial and ownership information using channels available to all investors. Experience reveals common practices through which insiders have been able to divert large proportions of firm assets to their own uses, suppressing the information that, if disclosed, would help stop such abuses. International standard-setting bodies, by providing a metric, have facilitated measurements of how far actual information disclosure is from standards.

OECD (1999) provides a good illustration of the type of information that should be disclosed to investors to eliminate self-dealing by insiders. That information includes consolidated financial information, which lists all the firms in which the insiders have a controlling interest as well as the transactions between these firms, and "related-party transactions," which require insiders to reveal the terms of any transaction between themselves and the firm. Because such self-dealing transactions are easier to accomplish when there is a clear controlling shareholder, these guidelines also recommend that ownership stakes must be disclosed when they exceed thresholds that could give the shareholder control.

On the accountability side, the laws that are likely to be most effective are those that provide for little interference with management during normal times but allow for significant intervention with low transaction costs when a situation deteriorates. Specifically, these are laws that permit a temporary concentration of control in the hands of shareholders, such as corporate laws requiring shareholder approvals for acquisitions or divestitures, and that provide for the credible possibility that outsiders can replace current controlling shareholders or managers (or both), such as the shift of control to a court-appointed manager in bankruptcy. Such laws lower bargaining costs arising from the presence of many financiers. This approach is associated most closely with the work of La Porta and others (1998), who have produced internationally comparable measures of protections for equity and debt financiers.

Note that the logic behind focusing on such accountability mechanisms produced by the state is the same that drove the discussion of private ordering agents. The state should be viewed as a particularly capable ordering agent because its control over coercive force gives it the ability to enforce its judgments and because in principle it is nondiscriminatory and open to use by all parties in an investment transaction.

La Porta and others (1998) first measure legal protections for providers of debt finance. In almost all developing countries, debt finance is central to funding investment projects that exceed internally generated cash flow. Bankruptcy laws specify the criteria for determining when promises have not been kept and outline a procedure for reallocating control over the use and distribution of assets, normally assigning control temporarily to a judge, who often transfers it to a trustee controlled by creditors. Strong bankruptcy laws mean that the costs of invoking these protections are low and that the bargaining process for distributing assets is speedy and predictable.

La Porta and others (1998) then measure protections for minority shareholders under corporate laws, focusing on laws that give these shareholders power regarding changes to the company charter, the process for determining the boards of directors, and management's duty to the board and the board's duty to shareholders. The researchers focus on six rights that indicate who holds the power in firms. Extraordinary actions hinge on protections such as class-action lawsuits and takeovers.

Johnson and others (2000b) note that financiers are protected not only by the substance of the law but also by their ability to seek judicial recourse in case of perceived abuse. For example, the legal concept of a director's "duty of loyalty" to investors is common in most corporate laws. This phrase is thought to have a greater impact in countries with a common law legal tradition, such as the United Kingdom, United States, and Commonwealth countries. Using this weakly defined "duty" as a rationale, outsiders have been able to enlist judges to protect investors from abuse by insiders. In contrast, the same duty of loyalty concept is interpreted narrowly in civil law jurisdictions, with judges unwilling to involve themselves in transactions that might have a plausible business purpose and thus permitting more behavior often labeled as "tunneling."

Link Four: Organizations to Improve Information Flows and Accountability

Many discussions of governance institutions stop here. But that is a mistake. In well-functioning governance systems, additional sets of actors emerge or are enlisted to improve information and accountability. Financial organizations that pool capital and invest on behalf of clients are the fourth link in formal governance chains. The size of the investments made by intermediaries gives them the incentive to monitor firms directly or, if necessary, to pay for the information to be collected. Such investors include hedge funds, venture capitalists, and pension and insurance funds. Prominent in established markets, such institutions are increasingly important in developing countries due to cross-border private capital flows as well as to the growth of domestic private pension funds. Financial intermediaries penalize insiders either by exiting the firm and driving down the firm's price or by exercising voice and demanding changes.

Link Five: Firms to Improve the Flow of Information to Outside Investors

Financial intermediaries cannot function effectively without access to information. Such information intermediaries include auditing firms, credit-rating agencies, bond-rating firms, and equity analysts affiliated with brokerage houses. These organizations can reduce the lemons problem in information supply by offering an informed judgment about the quality of information released by firms.

The importance of such information intermediaries to investors is revealed in industrial economies. Intertwined with the firms that expanded their scope from regional to national and dramatically increased their size in the 19th century was the development of credit-rating agencies followed by accounting and auditing firms. The capital-demanding railway industry would have found it difficult to expand as it did without the rise of public accounting firms and the emergence of bond-rating companies. Stock markets introduced listing requirements, and brokerage houses and the security analysts they employed provided independent analysis of current and future prospects of firms.

Link Six: Organizations to Provide Incentives to Intermediaries

The sixth link in formal governance chains is provided by private and public regulatory organizations. Financial and information intermediaries are private firms that are naturally more interested in profits than in producing public goods. Financial intermediaries, for example, could benefit from insider trading. Information intermediaries might find it more profitable not to collect information, or they could withhold information if their profits derived more from other business relationships with the firms they monitored.

The potential loss of their customer base is a powerful incentive for these intermediaries to provide quality information. But history suggests that reputation is not enough. Unregulated private entities in the 19th century gave way to regulatory interventions that structured incentives for these intermediaries by setting standards and providing discipline. In this way, regulatory authorities have effectively substituted for boards or corporate laws in promoting socially beneficial information flows.

A key element in structuring intermediaries' incentives is finding the right mix of private and state regulatory solutions. An example of a successful marriage between public and private powers is the formation of the U.S. Securities and Exchange Commission (SEC) in the 1930s. McCraw (1982) recounts how the architects of the SEC decided to focus on the financial and information intermediaries rather than on the firms issuing securities. McCraw also emphasizes that a major factor contributing to increased confidence in the equity markets was the effective use of self-regulation (by delegating power to private regulatory bodies), coupled with the SEC's ultimate responsibility for standard setting and discipline. Importantly, these private regulatory bodies

were not subject to the legal due process required of public institutions attempting to institute the same regulatory rules.

The appropriate mix between state and private regulation cannot be specified in advance, and the mix differs to reflect industry conditions, the incentives of state regulatory actors, the desire for a more flexible system, and the power of reputation penalties. For example, where reputations have less established value (as is the case with new firms in developing economies), more active state involvement might be warranted until private solutions can operate effectively. But all countries need to develop information intermediaries, financial intermediaries, and regulatory organizations to structure incentives. These groups can become major promoters of improvements in other elements of formal governance chains. Where the incentives of these intermediaries are weak, they can become major obstacles to any governance reforms.

Information and accountability can be provided through shorter private governance chains or through longer governance chains where information and accountability are provided by separate entities. Private governance chains are weaker than formal governance chains, but the formal chain may be only as strong as its weakest link, making it impossible to say that one approach is universally preferred.

Governance Approaches and Privatization Outcomes in Transition Countries

To what extent have privatized firms relied on formal governance chains? Have privatization approaches that demand formal governance chains produced strong results in countries that start with weak links? In other words, can the artificial corporate structures created through privatization stimulate the development of governance institutions?

Evidence from transition economies provides a rich data source with countrywide differences and within-country variation on the use of private or formal governance chains. Both sources help refine the understanding of the components of effective governance.

The difference between corporate structures of established firms and those introduced at the time of privatization is that structures devised by political actors for newly privatized firms have not yet been tested. This can be seen by relating an index of concentration to an index of the effectiveness of legal protections. The concentration index is based on whether the European Bank for Reconstruction and Development (EBRD 1999) classified the privatization method as direct asset sales, management and employee buyouts, or voucher privatization. Voucher privatization involves a share issue that results initially in dispersed ownership. Direct asset sales result in more concentrated ownership. Management and employee buyouts are somewhere in

between direct sales and voucher privatization at creating concentration at the time of privatization. This is a crude measure, but it captures cross-country differences.

The index of effective legal protections is the product of a national score for formal protections for creditors and equity investors and a measure of the rule of law; both estimates are from Pistor, Raiser, and Gelfer (2000). The legal protections index is based on the year that marked the beginning of the country's privatization program. The rule-of-law index is available for all countries only for 1998. Overall scores for the index are low. To repeat the obvious, the odds were against effective formal protections. The historical legacy of socialism included an atrophying of legal frameworks to support private ownership. Courts were not independent. Legislation was at times slow to develop and in other cases weakly enforced.

The initial approach to ownership at the time of privatization in transition economies did not follow the patterns of established firms around the world. Several transition countries avoided international benchmarks by introducing a privatization approach that demanded formal governance mechanisms without initially having the two principal links in the formal governance chain. For information and accountability, these countries implicitly assumed that the links in the formal governance chain could be introduced quickly, increasing the effective legal protection, or that ownership would be quickly reallocated at a low cost from the public to the private sector, increasing reliance on private governance chains.

There are significant cross-country differences. A number of countries started with private governance chains in focusing on direct sales. These countries followed the patterns of figure 2. In Estonia vouchers were used, but in most instances 60 percent of the firm was sold to a strategic investor (Nellis 1996). German officials rejected demands for a widespread distribution of shares to East Germans, instead selling assets to foreigners and established firms (Dyck 1997).

What does the evidence on the performance of these different approaches show? To a large (and perhaps surprising) degree, the initial approach to privatization correlates well with the country's subsequent growth experience. Those that held to international benchmarks on governance and introduced concentrated ownership structures to counterbalance their weak legal environments have done better than average for their regions, as measured by their per-capita GDP growth rates from 1991 to 1998 (Havrylyshyn and Wolf 1999). Those countries that implicitly relied initially on formal governance chains, such as the Czech Republic, have done worse, sometimes spectacularly so.

More convincing are the results from firm studies. A recent survey of 3,000 enterprises completed by the World Bank and the EBRD (1999) reports that for all indicators of restructuring, reform is much greater in firms with fewer than three shareholders and in foreign firms. The most convincing findings come from quantitative empirical research that employs statistical controls for country factors and the choice of privatization method. Djankov and Murrell (forthcoming) summarize the results

from 23 studies, including notable examples such as Frydman and others (1999). Privatized firms that relied on formal approaches to provide governance recorded the weakest returns, whereas those that relied on private solutions based on ownership concentration and links between insiders and private ordering agents have had much stronger returns. Djankov and Murrell (forthcoming) estimate that relative to foreign ownership (the most effective structure), dispersed ownership structures deliver just one-tenth the impact on performance. Outsiders are more effective than insiders in improving performance. Djankov (1999), who studied the former Soviet republics, found that privatization had a positive impact when the ownership stake was greater than 30 percent and the owner was a foreigner.

Interpreting the Relative Weakness of Formal Governance Chains

One problem with the initial use of formal governance chains in cases in which private governance chains could work more effectively has been the costs associated with a rapid increase in ownership concentration and a switch in governance mechanisms. Across the transition countries, there was a dash for control of the privatized entity. The extent of control was sufficient to divert returns, lowering the value of the shares of minority shareholders and making it cheaper for the majority shareholders to buy more shares over time (Claessens and Djankov 1999). In short, governance in firms rested for a long time on the weak links in formal governance chains.

Which links have mattered and should therefore be the focus of reform efforts in subsequent privatizations? Many of the diversionary practices introduced by Eastern European firms have been perfectly legal, a situation that highlights the importance of corporate laws—the third link in formal governance chains. But corporate laws, though important, should not be the sole focus of reform. Pistor, Raiser, and Gelfer (2000) report that the laws on the books to constrain insiders dramatically improved throughout the 1992–98 period. The average level of legal protection for financiers in the La Porta and others (1998) sample of 49 countries was 5.3. In 1992 the transition economies' score of 3.6 put them below this level, but by 1998 their score was 6.4; for the countries that pursued voucher privatization, the score reached 6.9. Pistor, Raiser, and Gelfer (2000) observe that the weak link in the chain was the state's inability to enforce existing laws, an inability that reduced the effectiveness of all reforms. Other researchers have focused on the links of intermediaries and on the regulators that structured their incentives. Compelling evidence is provided by detailed case studies of the Czech Republic and Poland (see Johnson and Shleifer 1999 for a comparison of the Czech Republic and Poland). The two countries had similar levels of legal protection, but Poland's performance was much better. The differences in performance are attributed to correspondingly weaker incentives for intermediaries in the Czech Republic.

The Czech government consciously focused on formal governance chains to constrain insiders. Firms were privatized, with dispersed ownership relying on newly

created financial intermediaries to produce information and accountability. The government took no active steps to structure the incentives of these intermediaries through the development of private or public regulatory authorities. Early studies reported that the market was working toward improving governance, but evidence began to show that the laissez-faire approach created ample opportunities for abuse in the supporting organizations. The term "tunneling" was crafted to describe the various mechanisms through which enterprise and fund managers were able to shift investor assets to their own accounts.

A lack of positive incentives for intermediaries and banks facilitated tunneling. The investment privatization funds that were the dominant intermediaries had little incentive to improve their portfolios by undertaking active—and costly—efforts to improve governance, and again, they faced few meaningful regulatory incentives (Coffee 1996). Banks, with large investments in firms through both equity and debt, delayed bankruptcy proceedings and thus failed to provide accountability. Their incentives to act were weakened by the extensive state role in bank ownership and control that created what has been described as a system of "bank socialism."

The absence of government regulations left the financial intermediaries free rein. The securities and exchange commission, which was under the control of the finance ministry and exposed to political pressures, had no real independent authority. Only with the passage of the Securities Commission Act in April 1998 did the Czech National Bank introduce more strict provisioning and loan classification rules to make sure that banks took their lending and monitoring responsibilities more seriously. The timing of this legislation, following the collapse of the government, hints that behind this slow institutional development was a political unwillingness to cede discretionary authority to regulatory agencies.

The contrast with Poland is striking. Poland took a different route by limiting voucher privatizations and focusing first on establishing an institutional structure that regulated financial and information intermediaries and creating incentives to monitor companies' financial returns. The government undertook far more stringent regulation of securities, including controlling financial intermediaries through licensing, demanding that issuers of securities provide complete disclosure, and imposing ex ante restrictions that limited conflicts of interest for intermediaries. There have been far fewer reports of investor dissatisfaction with Polish firms than with Czech firms.

A comparison of trends in market development offers suggestive evidence of the comparative success of Poland's approach to governance. In 1995 market capitalization as a proportion of GDP was 4 percent in Poland and 30 percent in the Czech Republic. Three years later market capitalization had risen to 14 percent of GDP in Poland and had declined to 24 percent in the Czech Republic. The number of issues listed declined from 1,698 to 283 in the Czech Republic and rose from 65 to 218 in Poland (Johnson and Shleifer 1999). Similar results hold across Eastern Europe and

the former Soviet republics, with a particular decline in listed issues in the countries that pursued mass privatization.

The experience of the transition economies reveals the importance of all of the links in formal governance chains. Some links can be transformed through dedicated effort. But what apparently cannot be done is to improve all of the links simultaneously, even as resources are being diverted or left to unproductive uses and promising new investment projects are going unfulfilled. The experience of the transition economies suggest that it takes a long time to develop effective formal governance chains. Private governance chains in the same environment, though they have their flaws, have resulted in better performance.

Governance Approaches and Privatization Outcomes: Global Evidence

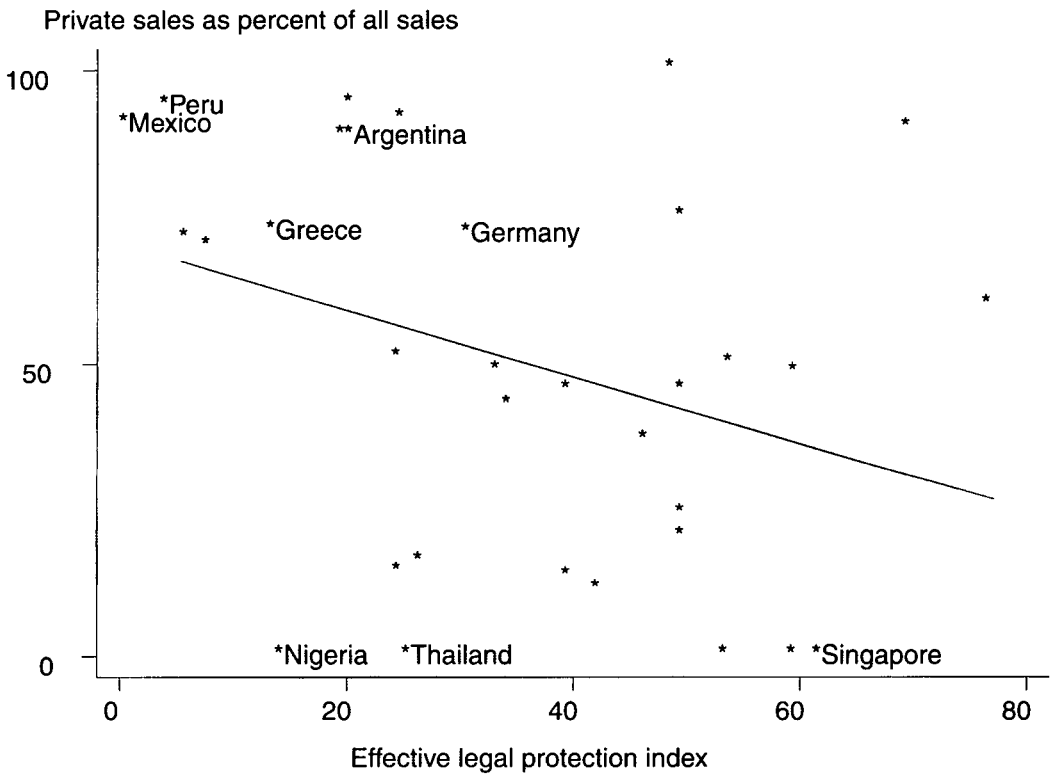
Can this lesson from transition economies—that privatization design should be aligned with the strength of existing governance chains—be generalized to other settings? Figure 3, using privatization data from Megginson and others (forthcoming), helps position privatization approaches throughout the world with those in the transition economies and relative to benchmarks suggested by established firms. The downward sloping line in figure 3, following that in figure 2, confirms the relative tendency of governments to use asset sales rather than share issues in privatization programs when formal governance chains are weak. Asset sales are usually associated with the sale of a majority stake to a single investor or to a consortium of investors that have been approved under some prequalification screening process. Share-issue privatizations are more likely to introduce firms without an initial controlling shareholder. Privatized firms around the world stick to established benchmarks to a much greater extent than do transition economies. Among countries with relatively weak formal protections, very few countries use share issues for a large proportion of privatizations.

When a Governance Approach Is Aligned with the Institutional Environment

No comprehensive studies relate a firm's performance to institutional factors and privatization schemes. Notable examples—such as the United Kingdom, which adopted a formal governance chain, and Mexico, which relied on a private governance chain—show that both chains can work very effectively when the institutional environment is supportive.

For a sample of 25 electric and water companies in the United Kingdom, the average ownership stake of the largest shareholder was very low: just 4.6 percent in the year of privatization (Cragg and Dyck 1999a). Despite the threat that this distribution could result in managers controlling the firm, according to evidence provided

Figure 3. Privatization Approach and Legal Protection, Worldwide



Sources: La Porta and others (2000), Megginson and others (forthcoming), and calculations by the author.

by Cragg and Dyck (1999a, 1999b), managers have been replaced, their replacement and compensation are sensitive to changes in the firm's financial performance, and privatized firms now find it easier to hire top-quality managers. These patterns show that four years after privatization, privatized firms (in terms of incentives) are indistinguishable from established, publicly traded firms, in sharp contrast to their pattern under state ownership, when there was no evidence of dismissal or compensation contingent on a firm's performance.

Qualitative and quantitative evidence introduced in Cragg and Dyck (1999b) reveals the role the six links in the governance chain played in producing these results. The involvement of financial and information intermediaries is particularly important. By the fourth year, the extent of oversight of privatized firms by analysts is indistinguishable from that given to established publicly traded firms, and the quality

of this oversight exceeds that of privatized firms in samples of countries with both high and low levels of shareholder rights.

The Mexican privatization program, another notable success story, used private governance chains. Lopez-de-Salines (1997) finds that controlling stakes were sold to investors in 87 percent of the firms in his privatization sample. When noncontrolling stakes were sold, the shares were bought by the controlling shareholder in 83 percent of the cases. Returns to these privatizations have been tremendous. LaPorta and Lopez-de-Salines (1999) report a 40 percent increase in the ratio of net income to sales three years after privatization, far greater than the 7.5 percent Megginson, Nash, and Van Randenborgh (1994) report in their international sample of share-issue privatizations.

When a Governance Approach Is Not Aligned with the Institutional Environment

What about those privatizations that were not aligned with legal protections? No systematic evidence is available, but some insights are available from Latin America (although caution must be exercised in generalizing from these examples).

Compare the oil company YPF, the largest company in Argentina, and Enersis, the most important electric company in Chile. Effective protection for investors is relatively weak in both countries but particularly so in Argentina. Both economies are dominated by business groups and concentrated ownership structures. In Argentina, for example, 100 percent of established, publicly traded companies without state ownership have an identifiable controlling shareholder (La Porta and others 1999). In 1993 YPF was sold in a privatization that produced no single private shareholder with more than 3 percent of the shares; the state retained a 20 percent direct stake. Enersis was sold to a dispersed group of shareholders, including individuals, employees, and pension funds.

These ownership structures were notable because they were different from the vast majority of other firms in the two countries. In effect, the privatizations relied on formal governance chains to check abuse, whereas the norm was to place more reliance on private governance chains. This approach opened up the possibility of abuse by management or the sort of dash for control and dilution of minority rights as seen in Eastern Europe.

Most analysts give YPF high marks for high levels of disclosure and responsible management, with consistent dividends and healthy equity returns despite a takeover by the Spanish oil company Repsol in 1999. In contrast, although Enersis management is given strong marks for improving efficiency and performance, when Endesa of Spain sought to buy a controlling stake in Enersis in 1997, evidence of widespread diversion of assets emerged. Management successfully demanded a reported price 850 times that available to noncontrolling shareholders (Wright 1999).

Thus it appears that a governance approach that deviates from that suggested by initial levels of legal protection can be successful, but it is vulnerable. In the YPF and

Enersis examples, privatizations that relied on formal governance chains provided a temporary benefit in increased market development and demand for governance institutions, but these governance chains proved unsustainable. Institutional development is not sufficient to maintain these structures.

Strengthening a Given Governance Chain

Governance is not the only factor driving the choice of privatization method. Political factors, including such issues as foreign domination or a concentration of economic power in the hands of already powerful domestic groups, make it difficult to adopt private governance chains.

Strengthening Formal Mechanisms

When firms that are privatized rely on formal governance chains in countries where such institutions are weak, the natural response is to use the tools under control of the policymaker at the time of the privatization to compensate for those links in the chain that are beyond their control. First, to make up for weaknesses in domestic information disclosure laws, firms can tie themselves to foreign institutions through cross-listings on foreign stock exchanges. In addition to increasing liquidity and lowering the cost of access for foreign investors, foreign listing requirements increase the extent of information that must be produced, and the involvement of foreign stock exchanges and foreign regulators increases the credibility of that information. A foreign listing is likely to be particularly useful in providing information and accountability if the company's strategy calls for financing from international markets.

Privatizing firms apparently appreciate the advantages of cross-listings. Of the US$133 billion that has been raised through American Depository Rights (ADRS) between 1990 and 1999, more than one-third is accounted for by privatized companies (IMF 2000:73). An increasing fraction of equity in the transition economies is also cross-listed on foreign exchanges; both YPF and Enersis were listed on domestic exchanges and on the New York Stock Exchange.

Second, policymakers can compensate for weaknesses in the link of corporate laws by writing investor protections into the company charter. Many privatized companies around the world, for example, include a so-called golden share that requires government approval in the case of a control transfer. In an economy with well-functioning governance institutions, this restriction imposes clear costs by limiting value-enhancing takeovers. But in countries with weak formal governance institutions and where transfers of control can also destroy value, such restrictions can protect minorities. In YPF, the company by-laws went further than a golden share and specified that if any entity assembled a 15 percent stake giving it control, it was re-

quired to make a public tender offer for all remaining shares at the same price to all shareholders (essentially introducing an equal-opportunity rule). This protected minority investors in case the government ever relinquished control. Enersis, lacking any such legal requirement, turned out to be more susceptible to diversion.

Third, privatization advisers need to find ways to coordinate the resources and powers of investors, securities exchanges, and financial institutions to uphold those legal protections that do exist, both through corporate laws and company by-laws. Enforcing judgments through the judicial system ultimately requires political action. If shares in the company are held by politically powerful interest groups, they can be enlisted and enhance the chances of enforcement.

The case of Enersis demonstrates this dynamic. When informed of management's diversion of returns, a domestic investor contacted other institutional investors and urged them to act to protect their interests. Investors jointly urged the securities regulator to require the Enersis board to review the deal, which in turn resulted in the decision to fire management and impose a $55 million fine for failure to disclose information regarding the prospective sale. Chile is now working to improve its takeover legislation.

Making the Most of Private-Sector Mechanisms

Simpler informal governance chains also pose dangers. The transition economies suggest that in countries with very weak formal governance mechanisms, the identity of the owners makes a difference. Some owners, because of their comparative advantages in access to information and other sources of power, are more able to hold insiders accountable and are more credible with outside investors. Other owners independently have a reputation to uphold or are linked to an agent who will penalize them if they engage in abusive behavior. Such a chain of logic provides one rationale for the relatively greater performance of foreign firms in transition economies.

The extreme version of the argument that identity matters in countries with weak formal governance chains is that in these settings, auctions selling controlling stakes (but not complete ownership) are problematic. For instance, the owner with the greatest ability and willingness to dilute some assets will pay the most for the firm. This benefit of identity, however, needs to be compared with the equally daunting problem that without price as a metric, corruption is encouraged. A process that sequences prequalification requirements followed by a competitive bid provides a way both to obtain the benefits of identity and to limit the prospect of corruption.

Conclusions

Privatizations have produced significant improvements as well as some disappointments. Advisers that take a governance perspective at the time of privatization will

see more effective privatizations, particularly in the long run. At one level, taking a governance perspective is simple—the adviser needs to find a way to protect public and private investors by providing information and accountability. At another level it is difficult, for a variety of institutions can provide such services.

To simplify thinking about privatization and governance, I have introduced the concept of governance chains. I introduce two types of chains: a private governance chain in which there are few institutions and the institutions assume the responsibility of providing information and accountability, and a formal governance chain in which the specialization of information and accountability increases the length of the chain.

Where each of the links is strong, formal governance chains will be more effective, but in most countries many of the links are weak. The key to effective privatization is thus to employ the governance chain that has the greatest probability of success in the first instance and, barring this, to strengthen each link as much as possible. Privatizations that attempt to use formal governance chains without initially developing the links of the governance chain or without making concerted efforts to compensate for existing weaknesses will disappoint.

Notes

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Various measures of legal protection relating to businesses as well as details on ownership concentration and privatization are available in appendix tables on the Web at *http://www.worldbank.org/research/journals/wbromast.htm.*

1. Studies that develop measures of ownership concentration include La Porta and others (1998) for more developed economies and Claessens, Djankov, and Lang (2000) for a more economically diverse group of East Asian countries. La Porta and others report management participation 69 percent of the time in their sample, whereas Claessens, Djankov, and Lang report 67 percent for their sample from East Asia.

2. Results are based on firm-level regression using data from five transition countries, where property rights are measured by an index that combines the incidence of demands for "extralegal payments" for government services, demands for extralegal payments for government licenses, firms paying for protection, and firms reporting that courts cannot be used to enforce contracts.

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Privatization and Regulation of Transport Infrastructure in the 1990s

Antonio Estache

Although the link between improved infrastructure services and economic growth is uncertain, it is clear that reforms aimed at creating competition and regulating natural monopolies establish an environment conducive to private sector participation, incentives for companies to strive for efficiency savings that can ultimately be passed on to consumers, and greater provision of services (such as faster roll-out of infrastructure or innovative solutions to service delivery for customers not connected to an existing network). In determining the form that infrastructure restructuring might undertake or the design of a regulatory agency, policymakers can generally benefit from a review of the experiences of other countries. A key element of any decisionmaking process should be a review of how the various types of reform will affect the efficiency of the sector and whether they will increase private financing of its significant investment needs.

Until the 1990s most forms of transport infrastructure were owned and operated by public monopolies or were closely supervised by central governments. A widespread shift in thinking about the appropriate role of the state in the marketplace took place in the 1990s, while dismay with the quality of service provided by many state-controlled public monopolies led to demands for greater efficiency and competition. Within the transport sector, the main force propelling governments to reform was fiscal crisis. Pragmatic governments, confronted with the need to cut public expenditures, were forced to turn to the private sector for assistance in financing the tremendous investments needed to modernize transportation services and infrastructure. The amounts required in developing countries were equivalent, on average, to 4–6 percent of gross domestic product (GDP) a year. Removing this burden on the economy freed up shrinking resources that could be devoted to financing deficits, servicing debts, and, in principle, supporting underfunded activities, such as education and health (although there is no strong evidence that such support has actually taken place).

Increased private sector involvement in transport infrastructure does not mean that the state has no role in these activities. Governments still have to define

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policies and strategies for the sector and finance socially valuable projects that are too risky to attract private investment at viable rates of return. But the main challenge facing governments is to make the transition from self-regulated providers of transport services to independent regulators of activities delivered by private transport operators. This new role is important because not every transport activity is competitive. In fact, transport restructuring often creates local monopolies or oligopolies. Moreover, even when competition works because entry is feasible and desirable, public regulation of safety or the quality of service is often needed to ensure that operators do not jeopardize consumers by, say, neglecting maintenance or limiting service to cut costs. Recent experience suggests that although the transfer of operations from public to private hands may be reasonably smooth, the regulatory transition is proving to be much more challenging than anticipated. In many countries the government must still make significant adjustments in its ability to regulate private suppliers to ensure that the expected efficiency and financing payoffs of private sector participation can be sustained.

This article looks at the extent of and reasons for privatization of the transport sector over the last 15 years. It reviews the most common methods governments have used to effect privatizations and the problems that governments have encountered in shifting from actively providing transportation services to regulating that provision by private entrepreneurs.

Private Participation in Transport Infrastructure

A useful—but imperfect—indicator of the trend toward private participation in transportation is the number of new transport infrastructure projects the private sector has considered since 1985. Because this number has a great deal to do with developments in local and international capital markets, it is not clear what share of investment is stimulated by privatization and what share by deregulation. Moreover, a strict comparison of numbers across sectors is quite a challenge because, for example, far more roads are built than railways.

Despite these limitations the data provide at least a rough idea of developments in the sector. Between 1985 and October 1999, an international survey (Public Works Financing International 1999) estimated that 1,006 new transport projects worth $575 billion were being planned or financed—or both—around the world.[1] About half of the projects were toll roads, a quarter involved railways, and the rest were airports and seaports. An interesting detail is that less than a third of these projects were under construction at the end of 1999, suggesting that deregulation can generate enthusiasm but does not guarantee that the private sector will follow through on planned projects. A more detailed look at the differences between industrial and developing economies provides useful insights.

Industrial Economies

Table 1 shows that industrial countries generated less than 30 percent of the planned privatization projects in the transport sector between 1985 and 1999 but accounted for about 46 percent of the total value of planned projects around the world. This sample suggests that the average project in industrial countries is much larger than that in developing countries, which account for roughly 70 percent of the planned projects but only 54 percent of the total dollar amount.

The data show that the pattern of private infrastructure provision pioneered by the United States found followers not only in the United Kingdom—the most active project generator—but also in Australia, where national and subnational deregula-

Table 1. Projects Planned in Industrial Economies 1985– October 1998 (millions of US$)

	Toll roads		*Rail projects*		*Airports*		*Seaports*		*Total*	
Country	*No.*	*Value*	*No.*	*Value*	*No.*	*Value*	*No.*	*Value*	*No.*	*Value*
North America	40	15,866	16	27,939	27	5,800	3	1,315	86	50,920
Canada	10	4,450	3	8,016	3	1,750	0	0	16	14,216
United States	30	11,416	13	19,923	24	4,050	3	1,315	70	36,704
Western Europe	70	61,334	68	80,237	12	10,905	3	111	153	152,587
Belgium	1	430	0	0	0	0	0	0	1	430
Denmark	1	2,700	2	805		0	0	0	3	3,505
Finland	1	255	0	0	0	0	0	0	1	255
France	4	8,121	4	2,146	0	0	0	0	8	10,267
Germany	7	6,594	3	5,597	2	4,707	0	0	12	16,898
Greece	4	6,874	1	547	4	3,442	0	0	9	10,863
Ireland	2	52	1	70	1	170	0	0	4	292
Italy	0	0	3	18,000	0	0	0	0	3	18,000
Netherlands	0	0	1	1,580	0	0	0	0	1	1,580
Portugal	10	6,659	3	3,185	1	2,000	0	0	14	11,844
Spain	22	8,315	3	5,163	0	0	2	64	27	13,542
Sweden	0	0	3	750	0	0	0	0	3	750
Switzerland	0	0	1	12,500	0	0	0	0	1	12,500
United Kingdom	18	21,334	43	29,894	4	586	1	47	66	51,861
Asia	10	18,944	23	12,264	14	33,079	2	170	49	64,457
Australia	9	4,544	22	12,110	11	4,463	4	170	42	21,287
Japan	1	14,400	0	0	2	28,400	0	0	3	42,800
New Zealand	0	0	1	154	1	216	0	0	2	370
Total	120	96,144	107	120,440	53	49,784	8	1,566	288	267,934
Worldwide total	448	212,009	274	227,808	165	103,648	119	31,895	1,006	575,360

Source: Adapted from Public Works Financing (1999).

tion has resulted in a large number of new private initiatives. Deregulation in several European countries has generated many new private rail and road projects, and a push by the European Economic Community to liberalize the sector is expected to stimulate similar projects in the rest of Europe.

Developing Economies

Table 2 summarizes a database compiled by the World Bank's Private Participation in Infrastructure (PPI) group, which tracks projects in developing countries that reached financial closure between 1990 and 1997. The database draws on various sources, including the World Wide Web, commercial databases, specialized publications, project developers and sponsors, and regulatory agencies. Unlike the database used to compile table 1, the PPI database covers actual (rather than planned) projects in transport that directly or indirectly serve the public. These projects include all divestitures, concessions (under which a private entity leases the assets and agrees to invest during the period of the contract), franchises, and operation and maintenance contracts (which award the right to operate and maintain the facility for a specified period) during the years that accounted for most of the activity in developing and transition economies shown in table 2.

Table 2. Number of Divestitures, Concessions Contracts, Operation and Maintenance Contracts, and Investment Commitments in Developing and Transition Economies (1990–1997)
(in millions of dollars)

Project	*Africa*	*East Asia*	*Eastern Europe*	*Latin America*	*Middle East*	*South Asia*	*Total*
Airport							
Number of transactions	3	5	5	11	0	1	25
Value	58.8	2,597.4	694.1	388.3	0	125	3,863.6
Port							
Number of transactions	3	36	3	36	5	7	90
Value	0	5,086.2	0	1,704.9	370.5	833.1	7,994.7
Rail							
Number of transactions	3	7	1	26	0	0	37
Value	0	7,483.3	0	6,208.1	0	0	13,691.4
Road							
Number of transactions	5	102	2	93	0	6	208
Value	426	18,567	1,086	18,794.8	0	63.5	38,937.3
Total							
Number of transactions	14	150	11	166	5	14	360
Value	484.8	33,733.9	1,780.1	27,096.1	370.5	1,021.6	64,487

Source: World Bank PPI database; for more information on this database contact *sminovj@worldbank.org.*

The PPI database deals exclusively with projects in which the private company (or a foreign state-owned company, such as Electricite de France) assumes the operating risk (or the development and operating risk) during the contract period. The database records investments and privatization revenues on a commitment basis in the year of financial closure (for which data are typically readily available). Where privatizations and new investment commitments were phased in and data were available at financial closure, they are recorded in phases. Actual disbursements have not been tracked. The values listed in table 2 show that between 1990 and 1997 private operators had committed themselves to invest about $65 billion in transport infrastructure in the short to medium run—about 1 percent of the 1997 GDP of developing countries.

Partnerships between the government and private sector, based on strong mutual commitments, can be significant sources of financing for transport investment, particularly in areas and activities where demand is strong, thus reducing commercial risk. That is illustrated by the number of projects and the value of new investments in Latin America and East Asia, where transport reform was coupled with macroeconomic adjustments. Indeed, these two regions accounted for almost 90 percent of all transactions and about 94 percent of all investment commitments between 1990 and 1997. Both regions benefited from a tremendous boom in demand in the 1980s, a time when many investors believed that they could do no wrong in regions that had apparently learned to manage their macroeconomic problems and could take advantage of the eased borrowing terms allowed by top credit ratings and an excess supply of capital flows.

Transport investment in developing countries is skewed toward rail and road projects—just as it is in industrial countries—because public rail services tend to be equally inadequate in both country groups. Keeping rail and road transport costs under control is a major concern because of the significant expenditures required to rehabilitate the infrastructure and improve operational performance. As it becomes increasingly clear that both efficient logistics and the opportunity for multimodal arrangements are essential to competitiveness, governments are eager to upgrade rail services rather than continuing to rely on trucks for all long-distance freight transport. Additionally, cars impose congestion costs in and around large cities that can be substantially reduced by better modal combinations. Emerging economies are recording significantly more private activity in port infrastructure—again reflecting the need to address high costs.

These trends imply that private entrepreneurs will be responsible for an increased share of transport services. More than 30 percent of railway services—measured both in total kilometers and in passengers per kilometer—are now in the hands of the private sector around the world. The private sector increasingly owns and operates airports and seaports in the industrial countries (except for the United States), Latin America, and East Asia, but this is still a far cry from the typical situation. Even in

the roads sector, where public funds will continue to be needed in rural areas that carry little traffic, private toll roads are meeting a growing share of traffic needs, particularly in Argentina, some parts of Brazil, and Chile. It is not too risky to predict that this trend toward private participation is likely to continue as the demand for new transport facilities continues to outpace the government's ability to raise the necessary resources. This is no longer the dogmatic "public versus private" debate heard after the Thatcher administration's privatization campaign in the United Kingdom. For many countries, private participation is a matter of necessity, as governments can no longer afford to be the sole operators and financiers of costly transport infrastructure.

Most governments have recently come to similar conclusions. About 73 percent of the projects shown in table 2 reached financial closure between 1995 and 1997. In fact, about 45 percent of the investment commitments were made after 1996. The table also indicates that time is needed to negotiate the contracts that support these projects, and both government and private operators must travel a steep learning curve to work with each other. Moreover, as the 1998–99 financial crisis showed, it is quite easy for the private sector to halt all contract negotiations when the surrounding macroeconomic environment is not supportive enough.

The Effects of the 1998–99 Financial Crisis on Private Participation

The financial crisis that began in East Asia in 1998 and spread to many other emerging financial markets in 1999 introduced constraints on private participation that are not reflected in the data shown here. Although recovery is on the horizon, conditions have changed, altering the nature of and prospects for private financing of transport activities in the next two to three years. Large portfolio outflows from emerging market funds mean that the sources of international equity and debt capital that became available in the mid-1990s have been sharply curtailed for all but the most creditworthy projects. The crisis has also influenced the demand for transport services: a slowdown in growth slows demand for transport as well. This contraction is a serious problem because experience suggests that even before the crisis the government teams charged with organizing privatizations tended to overestimate demand in the transport sector, probably more than in any other sector. What does this mean for the future?

The most obvious effect of this financial tension has been an increase in the level of risk. Premiums for commercial risk (driven by demand), regulatory risk (driven by institutional problems), political risk (always higher in uncertain times), and currency risk all rose significantly in 1999. Restrictions on financing options have also been

damaging. First, the costs of financing debt have increased not only for most developing economies but also for some industrial countries in Asia. Depending on the particular project, a lending rate of LIBOR (the London interbank offered rate) plus 8–10 percent should not be unexpected in many developing countries, which means that only the very best projects are finding a market.

Moreover, lenders are requiring higher levels of equity for many projects. In Brazil, for instance, projects that were being structured with as much as 70 percent debt and 30 percent equity in mid-1998 were being discussed at a minimum of 50 percent debt and 50 percent equity by the end of 1999. Because of the rapid outflows from emerging market funds and from developing country infrastructure funds, project sponsors have found it difficult to tap these funds as sources of equity. Many governments in developing countries are looking at construction and engineering companies as potential sources of equity. The challenge is to offer an appropriate incentive for these parties to undertake construction of the infrastructure. When projects were financed with 70 percent debt, construction companies could justify putting in about half of the 30 percent equity. With up to 50 percent equity required, however, construction profits are not adequate to earn a satisfactory return. In fact, the higher interest rates on debt mean that even if the old capital structure mix could be maintained, construction company equity holders would still require a much greater ongoing revenue stream to make such projects viable.

Furthermore, the maturity period of permanent debt instruments is likely to shorten for many borrowers. In countries without domestic long-term capital markets, many transport concessions use bridge financing until the construction is completed; at that point, concessionaires expect to convert these loans to permanent financial structures. But stability concerns have tended to shorten many lenders' horizons to 5 years, compared with as long as 10 years before the crisis—a major problem for many infrastructure projects. Even with a grace period for construction, many projects take three to five years to reach operating volumes that are self-supporting.

These problems suggest that governments need to redefine the ground rules for cofinancing the sector. Since the beginning of this new privatization wave, they have participated through implicit or explicit guarantees and have often picked up the tab in the form of subsidies when risks became realities and additional financing was needed. But now governments must consider providing explicit and transparent guarantees or contributing more equity to the projects. The Brazilian development bank has taken this route by buying some 21 percent of the shares of assets that were privatized.

In Latin America these actions can reduce the risk premiums by 2–4 percent. This markdown may make projects more feasible, but it will not produce the required return on equity. The real value to government investment would be if the guarantees promoted both a higher share of debt and a lower required return on private equity.

This does not appear to be the case under current capital market conditions. Rather, the discount serves to "buy down" the size of the project to make it more attractive to private capital.

Preferences for Private Sector Participation in Transport

Tables 1 and 2 provide an aggregate review of privatization activities in the transport sector. As noted earlier, privatization is a broad concept that hides many forms of private participation. Four broad categories of contractual arrangements for private participation are:

- *Divestiture.* The actual sale of public assets to the private sector can be accomplished through public offerings of shares or private sales of assets, and each of these can take many forms.
- *Greenfield Projects.* Under this approach the government commissions new investment projects, such as new airports, to a private owner (build-operate-transfer contracts are among the most common types). The development of new financing techniques that reduce or better allocate the risks of financing new infrastructure projects is one reason that greenfield projects have been so successful. It also explains why the specific design of unbundling the sector is so important.
- *Operations and Maintenance (O&M) Contracts.* This option calls for a private operator to manage and maintain the service but does not include investment obligations. In other words, the operator assumes the risk of operating and maintaining the service, and the government retains the investment risk. These contracts are typically awarded for a given period (two to five years).
- *Concession Contracts (or Franchises).* In this case a longer-term contract (10–30 years) assigns responsibility for operations and maintenance to a private operator that also assumes investment and service obligations. Many governments prefer this approach to divestiture because it does not imply a politically sensitive transfer of ownership of public assets to the private sector; instead assets are rented out.

In the industrial countries, asset sales (particularly in Australia and continental northern Europe) and concessions or franchises (in the United Kingdom, southern Europe, and Canada) have dominated most of the business in transport. The relative importance of build-operate-transfer projects is likely to increase in the United Kingdom as a result of the Private Finance Initiative, which promotes public–private partnerships for infrastructure (Wilson 1999). In Australia, Canada, Germany, the United Kingdom, and the United States, even local governments are interested in this form of infrastructure financing. Urban roads in Australia and the United Kingdom are

increasingly being marketed through what are essentially design-build-finance-operate contracts. Under these deals, private sector contractors take a large share of the risk that would otherwise have to be assumed by the government and therefore face strong incentives to provide infrastructure that local taxpayers want and for which they will pay.

In developing and transition economies concessions are the most common form of private sector participation in transport, although greenfield projects have been quite successful in East Asia over the last 15 years (table 3). The recent financial crisis essentially froze most project finance activities in the developing world, resulting in the reallocation of financing flows to industrial countries. Canada, for example, recently signed with a private operator very creative toll-road financing design; such countries as Australia and Portugal that have strong political commitments to private sector participation are riding a wave of build-operate-transfer projects and concessions in transport.

Middle Eastern countries have been the least effective (or the least interested) in forging partnerships with the private sector, although port projects have seen some activity, and there has been a recent concession to finance and operate the Aqaba railway in Jordan. South Asia and Africa were similarly inactive, although Burkina Faso and Côte d'Ivoire did secure a successful binational railway concession with private investors. Part of the problem in these regions is that most types of risk—commercial, political, and regulatory—are high and the ability to pay for transport services is very modest. Thus, a sustained infrastructure program will require rather long-term commitments to recover investments.

There seems to be a strong hope for change in Africa and South Asia. Recent projects in Côte d'Ivoire may provide a glimpse of things to come: A concession contract for the airport was granted, a major toll road is now in the hands of a private construction company, and a commitment for a seaport concession is about to be granted. Similar stories can be told for at least a dozen African countries, indicating

Table 3. Types of Private Sector Involvement in Developing and Transition Economies, by Region (number of projects per contract type between 1990 and 1997)

Project	*Africa*	*East Asia*	*Eastern Europe*	*Latin America*	*Middle East*	*South Asia*
Divestiture	0	8	5	6	0	0
Greenfield projects	1	49	1	8	2	6
O&M projects	10	10	1	12	2	0
Concession contracts	3	83	4	140	1	8
Total	14	150	11	166	5	14

Source: World Bank PPI database.

that the market seems to have found ways to mitigate the risk and is now convinced that it can deal with the political and regulatory problems that are believed to be much higher in Africa than elsewhere.

From a sectoral perspective concession contracts have overwhelmingly been the preferred form of privatization for all sectors except ports (table 4). In this sector, which had the highest share of operation and maintenance projects, contracts were slightly dominated by greenfield projects. Some of the resistance to private entrepreneurs in this sector may reflect the strong role of unions, many of which are reluctant to give up the rents that their control of the sector often yields. A new approach is being tried in Brazil's port sector, where unions have traditionally been quite strong. Unions are now working with logistics companies to develop reforms to create new businesses that can absorb labor no longer required in traditional port activities.

Much of the data in table 4 is somewhat surprising. Private participation is comparatively low in the airport industry, even though it is generally viewed as a relatively low-risk industry with good long-term growth prospects. Growth in air traffic has been strong, and most experts agree that it will continue to be strong for the foreseeable future. One explanation may be that the military, which has had a strong say (and often a good financial cut) in this sector, tends to be reluctant to relinquish profit.

Nonetheless, divestiture is generally picking up in the airport sector. Even in Asia the growth in airport projects is quite obvious. Japan, the Republic of Korea, Malaysia, and Thailand plan new airports. Many airports in industrial countries are being offered as divestitures rather than concessions, a trend that may spread to developing countries. A new pattern is the growth in efforts to obtain private financing for relatively small airport projects (cargo facilities, catering facilities, and so on) to complement public financing of core structures. One indicator of this trend is that many investment banks are reorganizing their airport advisory units to support more divestiture activities in addition to project financing activities. Another trend is that current airport operators in Amsterdam, Frankfurt, London, Rome, and Toronto are

Table 4. Types of Private Sector Involvement by Transport Sector (number of projects per contract type between 1990 and 1997)

Project	*Airport*	*Port*	*Rail*	*Roads*	*Total*
Divestiture	2	6	4	7	19
Greenfield projects	5	32	6	24	67
O&M projects	3	21	4	7	35
Concession contracts	15	31	23	170	239
Total	25	90	37	208	360

Source: World Bank PPI database.

bidding for contracts in developing countries. Most U.S. and U.K. rail and port operators are involved in the key rail bids in developing countries as well. In the roads sector, it is difficult to find an example in which the main local construction companies are not involved. This is a natural development because in many cases these companies were hired by public works departments to build, operate, and maintain many of the roads. At the same time, such activity could also indicate collusion between the government and a private sector partner.

How Competition Enters Transport Infrastructures

Historically, the economic and political reasons for public interest in transport—scale economies, externalities, and national security—led most countries to rely on public enterprises or ministries to operate or control their transport sectors. The United States was the only country that chose to rely on regulated private provision. The academic debate on the potential gains from privatization was premised on a perceived need for more competition in the market. In the United States, where deregulation of the transportation sector began in the late 1970s, increased competition meant lifting restrictions on entry (such as licenses) and operating rights as well as eliminating strict price and quality controls. The benefits of liberalizing the sector appeared to be quite obvious, not only to economists but also to the public. Support for private participation was based on the static and dynamic efficiency gains expected from increased competition (lower costs, fewer price-driven distortions, better user service, demand-driven investment) and was well publicized in the United States through extensive media coverage. But the United States may be an outlier and therefore less relevant than more recent experiences elsewhere. Indeed, in the rest of the world, all transport infrastructure tended to be run by strong public monopolies. In those countries where fiscal rationing prevented government from undertaking new transport projects, it was clear that there could be no liberalization without some type of restructuring in the sector. In that sense the reform experiences in such countries as Chile and the United Kingdom are more representative than is the U.S. experience.

Thus, the first question that must be answered any reformer aiming at increased competition in transport is how much restructuring is needed to make the most of the opportunities offered by a reasonable degree of competition in the sector. In practice, restructuring generally implies some degree of unbundling of the activities performed in each subsector. This is much more than a simple accounting separation; the monopoly must be dissolved into various business units. The restructuring can be horizontal, so that the effectiveness of various companies delivering similar activities can be compared (common in airports, ports, and railways), or vertical, so that a single firm can participate in different related stages of production. Vertical unbundling is often handy in reducing risk because the levels of risk for potential investors

are different at each stage of production. For instance, investing in an airport terminal is less risky than investing in a new runway, although the two investments have a clear degree of complementarity. In addition, unbundling either horizontally or vertically offers political advantages. It can be a way of getting rid of vested interests and introducing a new governance structure that reinforces the purely competitive and commercial incentives for seeking private participation in the first place.

When unbundling leads to competitive business units in overlapping segments of the business (as may be the case for bus services), the government's role becomes one of safeguarding the public's interest by monitoring safety, environmental concerns, and predatory behavior. In some cases competition in the market is limited; that is, there is little scope for horizontal unbundling, and the market structure retains a local monopoly even after the unbundling has been implemented. In this situation competition for the market through a government-sponsored auction can achieve many (but seldom all) of the gains from competition. Managing such auctions is quite complex and demanding; the outcome requires a strong government presence to ensure that the winners of the auctions meet their promised commitments and that the gains from competition are real rather than potential. Transparency is also essential to ensure that the award of the concessions is not marred by corruption.

Unbundling to Ensure Competition

Attracting private entrepreneurs to finance what the government can no longer afford to finance is the name of the game; therefore, the method that is used to unbundle the sector is extremely important. Experience shows that the transport pie can be sliced in many ways. Indeed, the type and degree of competition achieved by unbundling depends not only on the classical tradeoff between internal efficiency (the relative choice of inputs) and external efficiency (sales and pricing policies) but also on the level of risk perceived by potential private operators. Where economies of scale are not too strong relative to the size of the market, unbundling can reduce the aggregate commercial risk level perceived by private investors. Competition for the market in each activity can be sufficient to promote overall efficiency. Unbundling should stop at the level of activity that requires some type of material infrastructure (rail tracks, roads) that would make no sense to duplicate in a competitive environment. Moreover, too much unbundling can be harmful if it reduces the opportunity to hedge risk across activities in highly risky situations or to optimize economies of scale and scope. This may be why much less unbundling has taken place in smaller economies in Africa and Central America than in South America and East Asia.

An overview of the various sectoral experiences shows the creativity of the reformers; see Estache and de Rus (2000) or the papers by Juhel (1998) and Thompson and Budin (1998). Railway services can be unbundled vertically, by separating track from rolling stock, as in the United Kingdom, or horizontally, by establishing regional lines,

as in Argentina, Mexico, and the United States. Both types of unbundling permit firms to compete for the market. Bidding out the rights to deliver the services also creates an opportunity for competition between markets. No country—except the United States and, to a lesser extent, Australia—has actually made a serious effort to compare regional operators in terms of efficiency. Argentina and Brazil have taken a different tack, also separating freight and passenger rail to minimize the risks of cross-subsidies that distort investment decisions.

Similar strategies apply to roads, where horizontal separation forces operators to compete in different markets, enhancing the effects of competition for the markets by giving regulators enough information to compare the performances of the various local monopolies. This horizontal separation into corridors has been quite common in Latin America. Competition has been stimulated by vertical separation both in Latin America and in Asia through auctions that award separate contracts for access roads to interurban routes. A less familiar practice entails auctioning operations and management contracts to the private sector to minimize road maintenance costs and avoid demanding investments in equipment. This practice is quite common in Latin America and is picking up steam in the other parts of the world. Unbundling regional units of a business also allows the introduction of competition between markets by comparing the performance of the same types of service in different regions of the country.

The promotion of interregional competition among ports (as in Brazil and Chile) and of competition among terminals within ports (in Argentina and, to a lesser extent, Brazil) allows comparison of the performance of the winners in the various segments of the sector over time. In some countries, such as Sri Lanka and Peru, vertical separation between infrastructure and port services has been the most desirable solution.

Finally, for airports, horizontal separation across regions (as in Mexico) and vertical unbundling of air traffic control, terminals, runways, and passenger and commercial services are common (Canada and Colombia, for example). This experience shows that airports do not have to be treated as single, monolithic monopolies. It is also clear that interregional competition does work, as operators are sensitive to the potential competition from other operators in their area.

Multiple Objectives for Restructuring

Governments contemplating a restructuring of their transport sector generally seek to fulfill several objectives, including short- and long-term efficiency gains as well as fiscal goals (Crampes and Estache 1998). The relative importance of each objective has a strong influence on the type of restructuring that is adopted. In this respect, Argentina's first wholesale reform of the transport sector in the 1990s is quite revealing. This major restructuring, initiated in 1991 as part of a wider privatization and deregulation

strategy, was a precursor for transport sector reforms in other developing countries. Specifically, it showcased the complex interactions required to achieve efficiency gains and at the same time address the government's macroeconomic objectives. The most important of these objectives was to reduce subsidies to a sector traditionally funded by public financing while also keeping fares low enough to meet the needs of the poor. The outcome achieved the desired efficiency gains, but the sector continues to be heavily subsidized (although much less so than before the reforms). After difficult negotiations many of the rail and roads operators were awarded longer-term contracts than anyone initially thought would be required to minimize the subsidy requirements.

The dilemmas governments face in restructuring can best be understood by looking at the various ways that unbundling can address their fiscal concerns. First, governments can sell or rent assets to the private sector. Second, they can pass on the financing costs of operating and investing to private operators; this approach shifts the costs from the taxpayer to the user, which is quite important because many publicly operated services tend to be underpriced or subsidized. Third, governments can subject private operators to the standard tax regime rather than formally or informally exempting them, as is often the case for public enterprises. Most reforming governments with serious fiscal constraints prefer the first option. Governments have also recognized that it is profitable to privatize services that demand huge subsidies because private operators can often cut subsidy costs quite quickly. Even where subsidies are still needed, they can be obtained at a lower fiscal cost. This is the case for many railway services in Argentina, Brazil, and the United Kingdom.

Governments may also have to deal with the temptation that private investors may have to play perverse games that are not necessarily in the interest of consumers. Private investors may attempt to minimize service obligations that would benefit the poor but would increase commercial risk, for example, or they may try to shift as much risk as possible to the government and the user. The government may end up going along because of its commitment to restructuring. This situation automatically creates a tradeoff for the government. Indeed, the greater the retained degree of monopoly passed on by the government, the more willing private operators are to pay for the right to run a service. This means that the initial desire to liberalize to achieve efficiency gains may give way to the need to meet pressing fiscal needs. In the telecommunications sector, where temporary exclusivity periods are quite common, the evidence is quite strong that the high fees paid for concession licenses are financed by the rent that private monopolies capture from their customers. The rent is typically not as high in transport, where competition between modes of transport maintains pressure on the rent, thereby reducing the willingness of customers to pay excessively high prices for former public services. But for some airports and for ports with little competition in some market segments, this is an issue.

Recent experience in the airport sector points to another way that restructuring and fiscal concerns interact. In many countries, airports often benefit from cross-

subsidies financed through international traffic or through high-demand domestic airports. When restructuring the sector, privatization teams often recommend maintaining the cross-subsidies and selling or using concessions to operate airport packages (typically one major airport and a few local ones) rather than individual airports. The intention is to minimize the need for the government to record losses on airport activities, even if it pays out explicit subsidies. This debate is under way throughout Latin America, from Argentina to Mexico.

The incentive for governments to condone, even temporarily, some restrictions on competition is in fact quite common. Indeed, the government can use airports, ports, and railways with strong captive-client bases or with shared traffic to achieve high fiscal gains. This is why the pricing of the right to access on infrastructure owned and operated by a competitor is a key issue—and great business for consultants—in this sector. Unless access pricing rules are defined before the business is passed on to private operators, rents are being created that are clearly harmful to users. Long an issue in the United States, these harmful rents have become an issue in the United Kingdom and are proving to be a problem in most developing and transition economies, where the need to transfer the business to private operators is often so pressing that there is little time to work out the demanding details of access pricing.

The multiplicity of government objectives also explains the variation in award criteria for contracts. Governments that are concerned about users and that want to make the gains obtained through privatization more transparent will generally opt for awarding the concessions to the bidder that charges the lowest tariff. This is quite common for toll road or port contracts. Some governments with political concerns will award the contract to the bidder that offers to run the business for the shortest duration. This was the case for some toll roads in Mexico. An alternative is to award the concession to the bidder asking for the shortest time to recover the investment, as was the case for toll roads in Chile.

When fiscal concerns dominate, the concession can be awarded to the bidder willing to pay the most for the right to provide the service. Where demand for the service is not strong (such as low-traffic roads), obtaining the best fiscal outcome may mean picking the bidder that asks for the smallest subsidy. These examples show that the choice depends on the weights governments attach to their multiple goals. These weights are likely to vary over time as political concerns change.

The Role of Government after Privatization

Privatization requires a government to make numerous decisions about its priorities, the forms of competition it wants to promote, and the type of unbundling that will best meet its goals. Once those challenges are resolved, the government's role becomes one of monitoring compliance with and enforcement of the contractual commitments

made by the private operators. Thus, governments that privatize must also make several decisions involving their role in and capacity for regulating the conduct of the private participants.

Defining the Role of Economic Regulation

Once the contracts have been awarded, the government should intervene only to ensure that competition works and to check on safety and environmental concerns. If the government does not have the capacity to enforce economic regulation of the sector, it must develop the ability to make regulatory decisions that mimic the impact that competition would have had in the sector if it had been possible. Government intervention will be needed if:

- *High legal barriers* inherited from past regulatory regimes need to be sorted out (Kennedy 1997; Laffont and Tirole 1998; Valletti and Estache 1999).
- *The privatized services are natural monopolies* that might result in abusive pricing, harm to captive shippers (those that have no alternative for moving their goods), or harm to consumers from investment-related issues, such as access pricing.
- *Predatory pricing* takes place.
- *Safety cutbacks* are present.

An effective competition or antitrust agency can take care of the first three responsibilities (Kahn 1998). If no such agency exists, these concerns can be included in the mandate of the economic regulators. These are not the only responsibilities of these regulators. In addition, they need to monitor compliance and enforce the contractual commitments—investment, quality, safety, and service obligations—of the private operators.

Choosing the Appropriate Economic Regulatory Regime

In large measure economic regulators try to balance a fair price to consumers against reasonable returns to the operators. Traditionally, governments have relied on rate-of-return regulation, under which they guarantee that operators will recover their costs (within very general, often generous, guidelines) and make enough money to remunerate investors—thus the label "cost-plus" regime. Under these regimes operators do not have a strong incentive to cut costs, so government regulators have introduced price caps to show that the regulatory regime could be designed to minimize costs. Price caps allow operators to keep the cost savings they realize for the first three to five years. After that time any savings have to be shared with the other agents (users and sometimes governments). The high incentive to cut costs for the initial period makes this a desirable adjustment for operators and consumers. Many coun-

tries, including Argentina and Mexico, have designed hybrid systems that result in some degree of immediate rent-sharing at the beginning of private sector operations.

An often overlooked feature of the regulatory regime is that it also drives the distribution of risk in the business (Alexander, Estache, and Oliveri 2000). Cost-plus regimes entail little risk because cost recovery is almost guaranteed whatever the demand. Price-cap regimes, in contrast, shift all the risk onto the private sector. This is relevant to the extent that it influences the total level of risk faced by potential investors. In situations where the initial risk is very high, this choice can make or break a deal. In practice, of course, things are not always so clear-cut. Regulators of cost-plus regimes can disallow expenses they consider to be unnecessary, excessive, or inappropriate; that ability allows some degree of arbitrariness in the decisions. At the same time, simple price caps may lead operators to cut costs by reducing quality or disregarding safety. Moreover, the measurement of the efficiency gains that must be shared with users after the contract period expires can generate serious political conflicts, as happened in the United Kingdom.

Developing the Institutional Capacity to Regulate

The introduction of more sophisticated regulatory regimes has made it clear that countries need to develop a regulatory capacity. In practice, such entities face two main risks. The first is the possibility that operators will control the regulators and that the government will be lenient in the event of conflict. The second is the risk that users or customers will control the regulators and will impose demands that are not covered by the contract. There is also a risk that the government will not deliver on its own contractual commitments, which increases the operator's perception that the risk of expropriation exists. Sometimes subsidies are part of the commitments (usually implicitly, because risk assignment is typically built into the design of the regulatory regime). For instance, when reviewing tariffs, decisions involve such issues as cost allocation or the calculation of the cost of capital. These issues clearly influence the allocation of risk, profit, and rents among the operators, investors, users, and the government, and all of them can give the appearance of a conflict of interest.

Delivering on government commitments is a challenging task, as experience shows. Because contracts and the other supporting regulatory legal instruments are often incomplete, the government must be able to demonstrate fairness in settling issues and disputes that the legal instruments do not cover in detail. The restructuring of the sector should include a commitment device that guarantees fairness. The most common device is the creation of an independent regulatory authority, free from the control of politicians, the government, operators, or users of the service. Clearly, this authority must be both financially autonomous and accountable for its decisions (Broadley and Estache 1998).

Most countries still have a long way to go in developing adequate regulatory capacity. The oldest experience with an independent, integrated regulation of the transport sector is that of the Surface Transportation Board in the United States. Its principal strength is that it operates in a relatively transparent and accountable environment where all interested parties have an opportunity to present their views at all levels—before Congress, before the agencies, and before the courts. The process of judicial review generally ensures that the regulatory agency applies the regulatory law as intended by Congress and that the agency makes decisions based on evidence. The main weakness of the system is that it imposes very high compliance costs. This has proven to be very difficult to change in this sector, where there is a significant interest in the status quo.

The sad fact is that there is no good news to report on experiences with new regulatory regimes. Although regulatory processes in the United Kingdom have much that deserve emulation, the institutional design for regulation is probably not a model to follow. The United Kingdom has more regulatory agencies than it has transport sectors to regulate. In fact, the government is in the process of merging some of the agencies to ease the coordination of regulatory decisions. In most countries the solution has been to create units within the Ministry of Transport to monitor concessions or other contracts with private operators. The main disadvantage is that in the case of disagreement with the government, conflicts of interest emerge quite quickly. Various experiences in Latin America suggest that the lack of transparency in the decisionmaking by these monitoring units often creates tensions that are well reported by the press. Such disputes then become fodder for political debates about the privatization process—debates based on few facts and many rumors.

To minimize the excessive politicization of regulatory issues, a new generation of transport agencies is being introduced in Latin America, inspired by the integrated U.S. model and led by Bolivia and Peru. Both countries have regulatory agencies that are much more independent of policymakers and political influence than they were in the past. The agencies cover all transport sectors and have their own sources of funding—typically a "regulatory fee" paid by the operators. They also rely on this funding to subcontract activities that they do not have the skills to perform in house. In addition, Peru has built in an interesting twist. To ensure good coordination between the competition agency and the transport regulator, one of the members of the Transport Regulation Board is also a member of the Competition Commission. Although very promising and clearly an improvement over previous arrangements, the experience with these models is still too limited to lead to any conclusion. The challenge remains, however, and continues to be the biggest source of long-run risk to the success of privatization. An incompetent or controlled regulator is the best indicator that the outcome of privatization will be unfair. Previous experience shows that when contracts are poorly designed, any unfairness in them tends to favor the investors and operators rather than the users.

Developing the Tools of Regulation

This point brings up a second aspect of institution building that is needed for fair and effective regulation. Experience with the first generation of privatization suggests that without good tools, even a good regulator can be a source of conflict and unfairness. For all practical purposes, the main instrument of a regulator is the contract signed with the private operator. The tough question is this regard is to decide how much discretion to give the regulators in interpreting the contract (Gomez-Ibanez 1999). The larger the degree of discretion desired, the less detailed the contract will have to be, as the regulatory decisions will be based on laws or decrees that have to be interpreted by the regulators. The smaller the degree of discretion desired, the more detailed the contract will have to be, thus increasing the relative importance of contracts in the design of the regulatory environment. Because not all events can be foreseen—meaning the contract can never be complete—there will always be a residual degree of discretion. This means that the government will have to have a strong technical capacity to make right and fair decisions.

Generally, weak regulators have been given too much discretion without enough guidance to make good decisions on matters left out of the contracts. In developing countries the combination of weak regulators and poor contracts has resulted in the renegotiation of an extremely large percentage of contracts. The losers in these renegotiations have usually been the taxpayers, as governments often end up picking up the tab for the financial consequences of renegotiations.

An increasingly popular solution is to work with rule-based contracts because they tend to make regulation easier in the face of overwhelming uncertainty. The challenge is to pick rules that are fair and have minimal information requirements—one of the advantages of price cap regulation. In addition to their incentive structure, price caps have the tremendous advantage of having very light information requirements, at least when they are introduced. Five years down the road, when the caps have to be revised, the information load is similar to rate-of-return regulation. Rules make it easier for arbitration, when necessary, to be efficient. But here again, the concern is with the fairness of local arbitrators. Most infrastructure contracts written since 1998 have identified one of the international arbitration agencies as the appeal agency in case of conflict.

Rule-based contracts cannot cover every contingency, however, so regulators everywhere need to build up capacity in other areas. A common failure of privatization experiences in industrial, developing, and transition economies alike is the failure of governments to assess demand accurately. The two most common reasons private operators give for asking for a revision of their contracts are cost shocks and demand far different from predicted. That is because the public enterprises that were running the services before privatization had no incentive to be concerned with demand.

A more cynical interpretation is that governments and operators both have perverse incentives not to press initially for accurate information on demand. The government often wants to make business look better than it is because it wants to get the deal done. It bets that problems, if they emerge, will be far enough in the future that they will become the responsibility of the next government. The potential operators, for their part, actually know that they stand a good chance of going back to the government to negotiate better terms once they have started service. At that time, the transaction costs (including the political costs) for the government of canceling a contract without renegotiation are generally much higher than the costs of giving up some ground by accepting some of the demands made by the incumbent operator. Often the government gives up too much in an effort to resolve the conflict quickly. This raises the stakes for demands by private operators in the following round of privatization or renegotiations and possibly increases the incentive to renegotiate. Although this process may cut the regulatory risk premium, as operators become convinced that they can do business with the government, it may also mean that users or taxpayers end up paying the bills that result from renegotiations. Note that governments can rarely play hard ball because the operators can simply halt all operations and the users will be stranded.

A final problem common to all country types is the difficulty of designing access rules. Legal battles between operators needing access to infrastructure owned by other operators and these owners are the standard outcome of imperfect access rules. Railway regulators in Argentina, Brazil, France, and Spain are facing this problem. Similarly, in many countries safety is an issue that contracts do not address satisfactorily—a result of the risk of micromanagement if too much is said about it. Often the institutional assignment of responsibility for safety issues is not clear and may, in fact, be a symptom of another institutional problem. In addition to the multiplicity of agencies responsible for the economic regulation of transport, many other agencies typically are involved in enforcing some type of noneconomic regulation. Environmental regulation is common, but local land-use rules often conflict with contractual obligations as well. The point is that few countries are able to involve all the interested agencies in effective regulation strategies. The results instead show up as coordination problems, for which every agency blames the other. Finally, few countries have escaped some type of collusion, either actual or potential, between construction companies and the government, or among other potential members of consortiums that are interested in taking over a transport infrastructure project.

Conclusion

It is clear that the private sector will not be the main source of financing for every transport project. Highways and roads, for instance, are likely to continue to require

significant public funding. Even so, innovative ways to attract private financing for maintenance and investment needs (such as shadow tolls, where the government uses general tax revenue to reimburse operators costs based on the volume of traffic) may increase the cost-effectiveness of the sector. In fact, the experience of the 1990s suggests that private sector involvement in transport is expanding investment and cutting public sector financing requirements (Winston 1993). It shows that reforming governments can be quite creative in tapping this potential, as illustrated by the variety of restructuring models and financing designs that have been adopted across sectors and countries.

Many observers would also argue that the effectiveness of this public-private partnership in transport infrastructure has tended to improve quite dramatically with the introduction of competitive practices in the sector. This move suggests that the long-term prospects for increased private participation in transport, particularly in airports and ports, are encouraging.

The transport sector could attract additional competitive private capital if governments could improve their regulatory tools and sort out the institutional mess surrounding the regulatory process; the latter may be the biggest problem facing reformers. Knowing the cost of capital, knowing how to be fair to captive shippers, and having a better handle on demand will give regulators more credibility when conflicts arise. Governments have been too focused on getting deals done and not enough on their new job as regulators. Although they increasingly are switching to contract-based regulation to firm up the commitments of all parties involved, they are not putting enough emphasis on designing the contracts to anticipate conflicts and address unpredictable situations—an omission that increases the risk of arbitrary regulatory rulings. This, in turn, has increased the regulatory and political risks, raised the required expected rate of return for potential investors, and made future projects more difficult and more expensive; it has also exacerbated the effects of the 1998–99 financial crisis.

Increased risk has resulted in a self-selection bias in the type of potential entrants into the sector. The two main groups are, first, the large, strong operators in the sector—typically in tandem with local construction companies—that are confident they will be able to take on the regulators in case of conflict, and, second, newcomers that have to take some risks to penetrate the market. Either way, the taxpayers and the users are the most exposed to government, regulatory or operator failures that result in contract renegotiations. These seem to be the norm rather than the exception in infrastructure projects.

In short, there is a risk that the gains from privatization will not reach the people simply because governments are ignoring the importance of their responsibility for the fair distribution of the long-run gains through the early creation of independent and accountable regulatory institutions that work closely with effective competition agencies. Learning to regulate fairly and effectively at arm's length may be the main

challenge for governments in the next millennium. Those governments that are unwilling to take steps to meet this challenge may prevent users from making the most of the additional investments made by the private sector.

Notes

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1. A billion is one thousand million.

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Social Investment Funds: An Organizational Approach to Improved Development Assistance

William Jack

This paper examines the design of social investment funds (SIFs) and explores the ways they affect agents' incentives to propose, select, and implement good projects. Compared with other forms of decentralized service provision, SIFs possess features of administratively delegated authority and deep political devolution. Where existing political institutions fail to deliver assistance to vulnerable groups, a well-designed SIF may represent a useful administrative alternative. This article reviews several features that provide incentives for both SIF staff and project beneficiaries and concludes with practical guidelines for designing and appraising social investment funds.

Economists and development practitioners are paying increasing attention to the costs of implementing development assistance relative to the results. For example, although the cost of materials required to immunize children against a broad range of diseases is often trivial, such interventions have had disappointing results. In a particularly sobering and provocative analysis, Filmer and Pritchett (1999) suggest that under current practices, the total cost of averting the death of a child under age five is between $50,000 and $100,000, far more than the estimates of a few hundred dollars or less that are derived using purely technical data (Jamison and others 1993).

The way services are delivered clearly affects a project's cost and effectiveness. Thus, researchers and policy analysts have gone to considerable effort to investigate the design and performance of alternative institutional structures used to deliver development assistance. Calls for decentralization, local participation, inclusion of nongovernmental organizations (NGOs), local ownership, and good governance have been growing in number and volume, notwithstanding the fact that many of these concepts are difficult to define and measure.

One institution that has received growing attention and funding is the social investment fund (SIF), an administrative vehicle for selecting, funding, and implement-

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ing subprojects. The SIF is often established as a unit within the finance ministry or elsewhere in the central government and is used to channel funds to a large number of projects, typically small in size and local in nature. SIFs commonly place a high priority on poverty alleviation, either through the types of projects funded (social sector infrastructure, for example) or the production technology used (subsidized low-skill labor, for example). SIFs have proliferated since the first one was introduced in Bolivia in 1990 as a replacement for Bolivia's Emergency Social Fund (which was in place from 1986 through 1989), and the funds now constitute an increasing fraction of the World Bank's social sector lending in Africa and Latin America. They are also increasingly popular in Eastern Europe and in the countries of the former Soviet Union (Schmidt and Marc 1998) and have been adopted by the international donor community as mechanisms for delivering aid. In at least one country, Egypt, the government has set up social investment funds without external financial support.

This article investigates the design of social investment funds using the tools of contract theory, including the principal-agent paradigm, institutional economics, and the theory of incomplete contracts. These theories, which have been used predominantly to study the internal organization of industrial firms, have recently been adapted to facilitate the study of the internal organization of government (Tirole 1994). Because SIFs are generally intended to pursue the public interest (a goal that may not be attained by the private sector alone), these more recent applications should contribute to their analysis.

The first section provides a brief overview of related organizational concepts in the public sector and discusses how SIFs fit into this institutional framework. I then focus on the incentives of potential project beneficiaries, the control of incentives associated with collusion and corruption, and the need to foster cooperation. Finally, I offer some practical guidelines relating to qualitative features of SIFs that may be useful for development practitioners.

Institutional Design, Decentralization, and SIFs

The analysis of various organizational structures can be framed in terms of the types of agents that are responsible for making and implementing decisions and the scope of their authority over each type of task (Aghion and Tirole 1997). SIFs can be thought of as a form of decentralized service provision that combines elements of a centralized policy with implementation by local administrators who are outside the normal political institutions. The easiest way to define SIFs is by considering them relative to other organizational forms of public institutions.

As Oates (1999) recently observed, decentralization is in vogue. This is particularly true in the development community, which is mindful of the legacy of overcentralized public sectors in many developing and transition countries. The benefits and costs

of decentralization mirror those of laissez-faire capitalism at the individual level: Better information about project benefits and costs at the local level suggests that decisions will be improved under a decentralized system, but decisions about projects with externalities (that is, benefits or costs to persons not party to the transaction) or distributional effects may not be optimal. These costs of decentralization can be said to arise in general from a misalignment of the objectives of central and local decisionmakers.

Several alternative forms of decentralization have been discussed in the literature (Litvack, Ahmad, and Bird 1998). Analysts often use Rondinelli's (1981, 1989) characterization of three types of decentralization:

- *Deconcentration* involves a central planner who employs an (assumed obedient) agent to implement central policies.
- Under *delegation* decisionmaking authority and implementation are transferred to an agent whose performance is monitored by the central planner. When the agent's actions cannot be easily controlled, incentives can be implemented through conditional intergovernmental grants (for example, see Holmstrom 1979, Mirrlees 1971, and Oates 1999).
- Finally, under *devolution* the authority for decisionmaking and implementation is again transferred to subnational bodies, but the central planner does not attempt to monitor or influence the agent's choices. This regime is characterized by the allocation of authority and is better analyzed within the framework of the incomplete contracts literature (Grossman and Hart 1986; Hart 1995; Hart and Moore 1990).[1]

Where do SIFs fit in this framework? A defining feature of SIFs is that projects are considered for selection on a "demand-driven" basis—that is, in accordance with the requests of local communities and other organizations (Jorgensen, Grosh, and Schacter 1992). A second feature is that the projects are small. Finally, the projects have to comply with some stated criteria. For example, the projects may have to be chosen from a menu of alternatives, have a certain sectoral focus, or have an input-use requirement (see Grosh 1990 for the kinds of projects social investment funds should target).

A useful approach is to focus on the functions of the SIF staff. For clarity, assume for now that a single agent runs the SIF. A comparison with other forms of decentralization then revolves around such questions as how the agent is chosen, what actions the agent can take (that is, the extent of the agent's authority or autonomy), and what type of incentive and reward structure the agent faces.

Who Chooses the Agent?

Because SIFs are typically administered through the central government, the agent is in a position similar to those in deconcentrated and delegated regimes. This distin-

guishes the SIF from a *politically* decentralized system, in which the agent would be chosen by and accountable to a local electorate. Under a SIF citizens are empowered through an alternative route. The agent is chosen by the central government—not by the citizens—but it is the citizens, at least those who are mobilized (through NGOs or through local firms), who propose the projects directly. The agent has somewhat limited discretion in choosing among the various proposals.

Of course, shifting the responsibility for project selection to small local groups may entail costs. Some of these involve problems of coordination that are usually best alleviated by the central government. For example, free-riding may lead to a lack of proposals for public goods. Similarly, projects that impose costs (benefits) on outsiders will tend to be proposed more (less) often than is warranted. If the proposed projects are large, they are likely to suffer from one or both of these problems—they will either impose costs on other citizens or be undersupplied because of public goods problems. The smaller the projects, the more likely their costs and benefits will be internalized by the proposers, and the more likely they will be efficiently proposed. Delegation of project selection to a higher-level agent makes sense for larger projects.

These observations about the efficiency of project choices by small local groups have two immediate implications. First, because the SIF forgoes the potential benefits provided through a coordinating agent (such as a locally elected official), it must be presumed that such benefits would have been small, or negative. This would be the case if the mechanism by which local officials were chosen could have been expected to result in the selection of an unqualified administrator. Thus, a SIF may effectively bypass such institutions in communities with a poorly functioning public sector hierarchy, say, due to capture of public officials by local elites possibly arising from a high degree of inequality (Bardhan and Mookherjee 1999). The independence of the SIF in such cases can undermine the longer-term development of local institutional capacity, and one must be sure that the SIF is insulated from the effects of local capture.

The second implication is that the rationale for SIF projects must, by default, be redistributive rather than efficiency enhancing. As noted above, the only projects that are likely to be proposed through a SIF are small ones—indeed, investment criteria often stipulate that projects should be small. But these are precisely the projects one would expect the private sector to be able to supply unaided. Thus, those projects that are proposed either would have been adopted in the absence of the SIF or are too costly for poor households to afford without SIF resources. As long as the projects are small, only the second type of project should be accepted. If the SIF does not have distributional goals, it has little reason to focus on small projects that would otherwise probably have been funded. Finally, for the SIF to be the preferred institutional vehicle for effecting redistribution, it must have a comparative advantage over other institutions in targeting the delivery of services (such as a better knowledge of poverty patterns) and a better ability to implement self-targeting mechanisms (such as public works) (Datt and Ravallion 1994).

What Is the Scope of the Agent's Authority?

At one extreme, if the central government has precisely specified the menu of allowable projects (in terms of sectoral focus, types of inputs, and so on), the SIF agent can comply with these rules without having to exercise much discretion. Such precise specification of allowable projects, however, implies that the central government begins with perfect information about all potential projects (or at least can identify a welfare-maximizing set of projects), an assumption that is certainly counterfactual. With incomplete information about the range of good projects, the central government's partition of the universe of projects is likely to be coarse, and within the allowable set, the SIF agent will be required to exercise discretion.

The SIF agent is thus in a situation similar to that of local officials with delegated but not devolved authority. This delegation is accompanied by a set of formal links between the central government and the agent regarding the pool of available investment funds (the size of the SIF budget), their broad range of use (guidelines for the budget's allocation), and the specific rewards to the agent. Within the functional classification of decentralized regimes, the structure of the SIF agent's duties and responsibilities is closest to an administratively decentralized institution to which policy directives from the center are delegated. The agent has discretion for implementing these policies but is not necessarily responsible for developing them.[2]

Of course, a blurred line separates policymaking and implementation authority. The more general and vaguely defined the central policies and objectives, the more local choices about implementation begin to resemble policy formulation. For example, more local discretion is required to implement policies stipulating levels of school enrollments, levels of literacy, or even broader definitions of well-being than is required to comply with a policy target that specifies simply the number of schools. The appropriate scope of authority that the SIF agent should be accorded is an important design issue. One obvious set of factors is the agent's ability to make good decisions about projects and the local groups' ability to propose and implement good projects. Both aspects of this task involve issues of local capacity (possibly identified with human and social capital).

One approach to the question of organizational design is to examine the types of structures that result in good decisions. Sah and Stiglitz (1986, 1988), for example, concentrate on the nature of information flows within alternative organizational forms. They model hierarchies, polyarchies, and committees as organizations that aggregate information in different ways and hence arrive at different choices. In particular, in choosing whether to accept a project, some organizational structures (such as hierarchies) require greater consensus than others (such as polyarchies). Hierarchies are thus likely to select fewer bad projects than are polyarchies, but they are also likely to accept fewer good projects. Thus, the relative importance of type I (rejection of good projects) versus type II errors (acceptance of bad ones) will determine

the appropriate structure for decisionmaking. For example, if it is considered imperative to reach the poor, and the costs of leakage to the nonpoor are of less concern, a relatively flat hierarchy is desirable. Conversely, if budgets are so limited that controlling leakage is paramount, a structure that requires greater consensus may be preferred.

But the implicit view in the Sah and Stiglitz analyses of decisionmakers as passive information processors leaves no room for the effect of incentives and strategic behavior, even though there is increasing recognition that both are central to understanding behavior within organizations. As well as relying on the agents' comparative advantage as the basis for allocating authority, the need to motivate agents in the absence of formal incentive schemes may influence these allocation decisions. These design issues turn on the precise nature of the incentive structure within SIFs.

The Role of Incentives

Within government organizations, good performance can be rewarded with promotions, tenure, greater responsibility, more interesting work, and less supervision (Aghion and Tirole 1997; Campos and Pradhan 1998). Similarly, agents might be motivated by increased budgets rather than by higher salaries. Indeed, economists of the "public choice" school suggest that public sector bureaucrats are motivated as much by the size of their organizations as by their personal income (Brennan and Buchanan 1980). Furthermore, within public institutions, especially in countries with high levels of corruption, it is the *net* return to good performance that motivates effort. In some cases low effort is rewarded through corrupt side payments—for example, where an agent allocates funding to projects that are favored by powerful local officials but that are not considered appropriate by the central government. In such circumstances it becomes more costly to provide incentives for effort that contributes to the government's economic management because incentive payments, whether in cash or in kind, must be high enough to trump the returns to corruption. Penalties can reduce these returns, of course, if the chances of detection and conviction are high enough.

Within decentralized institutional structures, incentives can be provided either from the top down or from the bottom up. In deconcentrated and delegated regimes, the central government provides incentives from the top, whereas in devolved regimes, incentives must be generated by local citizens directly, through a monitoring and approval process. Communities with powerful minority elites or without a tradition of political participation might not be able to exert such bottom-up pressure, so devolution must be accompanied by political reforms that ensure that the priorities of local citizens are represented effectively.

Of course, SIFs are potentially vulnerable to capture by local elites. It is natural to assume that such capture has negative effects, for example, misappropriation of re-

sources by the well-to-do. At least in principle, however, local capture could improve matters for the poor, depending on how the preferences of the local elite and the central government are weighted; the local elite might be more pro-poor than the central elite, for example. Bardhan and Mookherjee (1999) have recently modeled the mechanisms and determinants of local capture. For descriptive purposes, it is sufficient to note that in such cases, SIF agents are answerable to at least two principals—the central government and local interests. Generally, as Dixit (1997) has shown, when two or more principals try to provide incentives for a single agent, the resulting incentives are weaker than when a single principal acts alone.[3] There is thus a tradeoff between expanding the scope of participation, that is, enlarging the number of principals, or stakeholders, who can influence the agent's decisions and thereby improve the information on which decisions are made, and generating incentives for the agent.

The Role of SIF Beneficiaries

Because expanded participation can weaken agents' incentives, it is costly. Proponents of social investment funds, however, have typically urged participatory approaches to development (World Bank 1996). Against the costs of expanded participation must be weighed the potential benefits, including a wider pool of (on average, better) projects and increases in local institutional capacity.

Incentives with Multiple Agents

In most cases, the project cycle involves not only a principal-agent type of arrangement between the central government and the social investment fund but also a multitiered system of interacting individuals. A SIF may choose the project, but it has to write contracts with or delegate authority to a group or a single subordinate, such as an NGO or a firm to carry out the project. Inputs need to be procured from suppliers, a process that might be undertaken by the SIF or by another intermediary, such as an NGO. In Zambia, for example, procurement is implemented by community groups or project committees responsible for the projects.

An immediate implication of this multitiered structure is that incentive problems may arise between the SIF and the contractor, as well as between the central government and the SIF. In such a situation, one would expect the principal (the central government) to specify the nature of the incentive contract between the SIF and the contractor. If, however, the SIF has better information about the incentives that the contractor faces (for example, outside opportunities), it may be preferable to allow the agent to specify the terms of the contract. Thus, one might recommend that the SIF be given authority to specify the extent of cost recovery through the user charges

imposed by the contractor and the extent of the community's contribution to recurrent costs. Although most SIFs encourage community groups to make visible financial or in-kind contributions to projects, few impose a set percentage. Armenia and Zambia are exceptions, however, requiring a 25 percent cofinancing component.

The most common mechanism for inducing good performance on the part of project participants is the requirement to repay the loan. Virtually all SIF funds are distributed to local communities as central government grants, however, and cost recovery is limited. This subsidization is entirely consistent with the objective of redistributing resources to target groups, but it also means that alternative incentives must be provided. The government may exert pressure on the SIF to monitor the use of funds more closely, but the SIF has little direct incentive to do so if it does not share in the returns from the good performance of the project beneficiaries (if, as noted, they do not charge—and remit—user fees). Incentives for good performance at the project level then must come from dynamic considerations, such as the prospects of future funding from the SIF.

Experience suggests that the incentives employed at the project level have entailed more stick than carrot. On the one hand good performance gives participants access to future funds, but not necessarily under relaxed eligibility requirements. On the other hand, poor performance, particularly by contractors, has led to blacklisting as a form of punishment. Alternatively, the enforcement of good performance can be delegated to local residents and community groups. Thus in Honduras, monthly reports of approved projects—including the amount of money that has been spent, the type of project, the identity of the recipient, and so on—are publicly posted. Poor performance can then lead to social sanctions, perhaps enforced through local media and community organizations.

The Effects of Collusion and Corruption

Less visible are the episodes of collusion and corruption that can occur in an environment with (potentially many) more than two players. For example, Tirole (1986) examined the design of contracts by a principal who employs both a supervisor and the supervisor's agent. The optimal contract must take into consideration the potential for the supervisor and the agent to collude, and this constraint reduces the degree to which efficient allocations can be implemented.

The literature on incomplete contracts provides further insights. Collusion among agents can lead to changes in the optimal choice of institutional structure in terms of delegated authority and discretion. Laffont and Tirole (1991) examine the case of procurement auctions where the auctioneer has the role of supervisor and controls the allocations of procurement contracts among a number of agents. If collusion is possible between the supervisor and one or more agents, the principal should limit the discretion of the supervisor. This explains why the central government might want to limit the types of projects a SIF can finance to those with easily observable

characteristics, such as size, sector, and input use. The central government may also seek to restrain collusive tendencies by declining to delegate such decisions as the extent of cost recovery to the SIF. These are specific examples of the more general proposition that the potential for collusion might lead a principal to reduce the discretion afforded a subordinate.

The potential problem of collusion in procurement has led to specific institutional choices. In principle, competitive bidding for procurement contracts is an effective mechanism for ensuring cost-efficient choices of input. But in cases where only a few contractors are available and where they interact repeatedly over time, they might find it relatively easy to rig the bidding process. This prospect has led many SIFs to adopt a more centralized approach to procurement by establishing detailed unit-cost databases, eliminating the need to solicit prices from input suppliers. There is clearly some tension between this approach and that of decentralizing input decisions to better-informed suppliers, but the need to control collusion might mean that some potential production efficiency gains are unobtainable. Honduras has attempted to offset losses from collusion by employing two full-time agents who are responsible for compiling monthly data on unit costs in every province.

In the spirit of cost-benefit analysis, even unproductive collusion (that is, collusion that one would consider corrupt) might still be optimal if the costs of controlling it are too high (Eskeland and Thiele 1999). For example, if collusion is controlled by tight restrictions on the kinds of projects chosen by a SIF, the benefits of decentralized choice might be lost. Retaining these benefits may be worth tolerating some collusion (or its potential). Requiring that projects be small, as SIFs typically do, may be a useful way of increasing the transaction costs associated with collusion while still allowing a wide range of potential projects.

Incentives to collude can be controlled in other ways, and restrictions on the kinds of (verifiable) decisions that intermediary supervisors can take may not be the most efficient. One obvious policy is to make sure that agents have to collude to appropriate rents and that they cannot access those rents unilaterally. SIFs and other organizations address this problem by separating the tasks of appraisal, approval, and supervision. In this sense, introducing some friction into the institution may be good for controlling collusion. For example, in Argentina, the SIF does not formally choose projects: Its role is to appraise projects, and even this function is performed by independent contractual staff, who are paid independently of the project's acceptance or performance. Based on these independent appraisals, projects are selected by a panel consisting of provincial and local government officials, nongovernmental organizations, universities, and civil society representatives. In contrast, the functions of appraisal and approval in Peru are more closely associated, probably because of the more decentralized nature of the SIF itself.

An important insight is that collusion must be enforceable. A formal promise of a payoff by one agent in return for a corrupt action by another must be credible if the

collusive action is to occur. Understanding the mechanism by which such enforcement is effected may be a way to reduce agents' ability to collude. It is unlikely that such contracts will be enforceable by law (imagine a motorist claiming in court that a police officer reneged on his commitment not to write a speeding ticket). But there are other mechanisms that sustain collusion. The individuals responsible for project implementation may have a reputation for fulfilling promises in return for taking bribes (or for punishing those who don't) in an environment in which colluding parties interact repeatedly over time. The organization's rules therefore might require personnel to be rotated at regular intervals to prevent the development of such long-term relationships. Again, such a solution would clearly be at the expense of the economies associated with more efficient production. For example, the potential efficiency of a SIF whose staff changes every year would be lower than one with agents who are familiar with every component of the project and with every agent in the particular environment in which they work.[4]

Local Capacity Building

Proponents of SIFs acknowledge that many poor communities face a severe lack of organizational capacity. This handicap constrains local participation even as it supports nontraditional interventions such as SIFs. Giving these communities responsibility for or local ownership of the project might be one way to build organizational capacity that could eventually make SIF interventions unnecessary.

What is the most efficient way to generate the organizational capacity needed to permit target groups that lack experience and resources to express their concerns and reveal their preferences? One way is to educate people by increasing literacy and numeracy. But these are themselves long-term projects and may not necessarily contribute to the kind of capacity required to attract funds. The other way is to exploit the possibility of "learning by doing" by giving communities direct experience in running projects. This approach is thought to be most effective when local capacity can be generated through "ownership." In this context, *ownership* usually refers loosely to each project as a whole and not only the physical assets associated with the investment. The idea is that such ownership facilitates the community's ability to sustain the current project and to identify and implement further projects. Moreover, ownership provides a strong incentive for individuals and groups to achieve the designated objectives.

Local ownership of development projects can be viewed in two ways. The first interpretation is best illustrated with an example: a project aimed at increasing school attendance. A good project should be designed to act both on the demand and the supply sides, first increasing the willingness of children (reflected in parental choices) to attend school, and second, improving the quality of the school. Part of the supply-side effect might be produced by improving the organization of the school system by,

say, improving incentives for teachers to show up for class or by appointing a new school principal to increase enrollment. In this context local ownership might mean simply that the central authorities cannot assign the principal to another school district that is also having trouble. Note that the concern is not with the incentives of the school principal but with those of the local community (thought of as a single decisionmaker). The aim is to reform the school environment so that the principal is able to be more productive and thus promote greater enrollments. If high-level civil servants can easily remove the principal from the community, local residents have no incentive to consider reforms to strengthen the principal's role. In this case, local ownership might represent a commitment by the authorities not to interfere with decisions such as curriculum or teachers' responsibilities. Such a commitment can lead to greater risk taking and innovation by local decisionmakers (Aghion and Tirole 1997). Identifying ways to make this commitment credible is part of the challenge of building participation into the project design (World Bank 1996).

A more subtle interpretation of ownership, and one that may underlie some less articulated expressions of its power, is its effects on group—as opposed to individual—incentives. According to standard agency theory (see, for example, Holmstrom 1982), group incentives are generally more difficult to generate than individual incentives because of the "public good" nature of each group member's output. At the same time, where members of a group interact repeatedly, cooperative behavior can be sustained, even when the individuals are not altruistic. Ownership that is identified with the conceptual formulation of projects at the group level, including their planning, design, and implementation, may promote an environment in which cooperation can be sustained. That is, even in the absence of potential outside interference (either through expropriation of assets or reversal of local decisions as above), ownership in the sense used here may improve internal incentives within the group. Such cooperation might be identified with the formation of social capital, although it is likely to be effective only when the groups are small.

Capacity Substitution

Economists are well aware that it is the net effects of public intervention that matter and that crowding out of private sector activities must be anticipated when public projects are undertaken (Devarajan, Squire, and Suthiwart-Narueput 1997). In the context of SIFs as generators of local capacity, the situation is reversed: the SIF might impede the development of or substitute for local government agencies. This dilemma is particularly relevant in SIFs that report directly to high-level central government bureaucrats and ministers, bypassing most of the existing line ministries charged with providing the bulk of public services.

It is important to recall that the goals of development are to improve people's lives, especially the poorest groups, not to improve public institutions. If a SIF is an effective

mechanism for achieving the underlying goal, it might indeed become a de facto local government of sorts. In some countries, local capacity is sufficiently thin that arguing that SIFs impede the development of local government serves only to obscure the plight of the poor.

From a longer-term perspective, one must ask whether a SIF is the preferred institutional structure rather than some other form of devolved local government. One would hope that as communities grow, their reliance on external funding would decline and that either the SIF projects would need to become self-funding or the SIF itself would be replaced by a more traditional local authority (with powers of taxation). The hope may not coincide with reality, however. For example, Bolivia's Emergency Social Fund was intended to be temporary. Even though it was followed by a SIF that continued to fund some of the same kinds of projects, other parts of the emergency fund were transferred to government agencies: The responsibility for road construction reverted to the ministry of transport; a rural development fund was established to focus on rural projects; and an urban infrastructure fund took over large-scale power and water projects in urban areas. Some attempt was made to train local government agents based on the experience and knowledge gained from the operation of the emergency fund, but with limited success. To the extent that SIF funding is erratic and varies according to the vagaries of donor support, short- and medium-term development of complementary local institutions seems a prudent insurance mechanism, if nothing else. Collier (1999) warns, however, that this argument should not be overplayed because aid flows to African countries, for example, are in fact much more reliable than domestically generated revenues.

Of course, there is no particular reason that a SIF must operate independently of existing public institutions. Indeed, acknowledging the potential problem of deteriorating existing public institutional capacity, Barrientos (1999) reports that Chile's social fund has adopted an integrated approach to the delivery of services for poverty alleviation, with regional and municipal government agencies involved in the allocation of funds. Clearly the appropriateness of alternative organizational approaches will be country-specific, depending greatly on the quality of the existing institutions.

Some Conclusions on SIF Design

Many authors have drawn attention to the fact that institutions and organizations matter (see, for example, Burki and Perry 1998; Savedoff 1998; Savedoff and Spiller 1999). But while advocates tout the merits of social investment funds, their arguments tend to be somewhat vague and rhetorical. Although I have not developed an explicit model of either the internal organization of SIFs or their position within the overall public sector, I have attempted to shed some light on the organizational issues

they raise, focusing mainly on the need to generate incentives for the various actors involved.

With their emphasis on microlevel participation, SIFs deprive themselves of the coordinating function of representative agents, thus reducing the likelihood that public goods with widespread benefits will be provided. Where local officials do not act in the interests of the poor, the social fund may be explicitly intended to bypass wasteful intermediaries and ensure that funds reach those most in need. Good intentions notwithstanding, one must question the ability of SIFs to provide the social and economic infrastructure on the scale that is probably required for meaningful and sustained poverty alleviation.

As a vehicle for identifying and implementing primarily redistributive projects, a SIF should have a particular capacity to target resource flows, either through surveys that provide useful poverty maps or through more demanding analyses of demand and supply characteristics that enable specific in-kind transfers with low distortionary costs. Links to agencies that have this type of analytical capacity (for example, national statistical offices or ministries of finance) are obviously useful.

The net impact of SIF projects will be a function of the quality of proposals made, the quality of those accepted, and the effectiveness with which they are implemented. Each of these components can be influenced by both the staff of the SIF and the (potential) project beneficiaries. The simple implication of this observation is that the SIF must be designed to ensure that all players have adequate incentives to exert effort in pursuit of these goals.

Because SIF outputs, often realized in the social sectors, are hard to quantify, explicit high-powered incentives are difficult to provide. Implicit incentives, associated with increased authority and flexibility within well-defined bounds, may be more effective in stimulating enterprise and what Campos and Pradhan (1998) identify as an esprit de corps among staff. Similarly, incentives for project beneficiaries can be improved by fostering a sense of ownership—either through a commitment by higher authorities not to expropriate fungible assets or reverse local decisions or as an instrument for fostering cooperation within community groups.

One incentive instrument that relies less on ideas of ownership and is more closely related to traditional principal-agent theory is cost sharing. SIFs might require the project beneficiaries to provide matching funds for certain project components as a way of inducing citizen participation in the implementation effort. Of course, this approach reduces the net transfer to the project, compromising the redistributive impact. Indeed, in using this kind of cofinancing to address a moral hazard issue, the SIF comes up against an adverse selection problem: relatively well-off communities will be better able to comply with cofinancing requirements and thus are more likely to have resources directed to them. Ideally, the cofinancing rate should vary with the ability of the community to generate local funds, but this is only possible if good indicators of local poverty rates are available.

Other sources of cofinancing might include local governments, procurement agencies, and other line ministries. As a source of additional funding, such cofinancing arrangements are worthwhile, but introducing links with these other agencies would appear to undermine the streamlined structure that SIFs aim to attain. If the cofinancing arrangements are at arm's length, then interference from the other sources may be limited. Once agencies start contributing financial resources to projects, however, they often assume an implicit right to get involved in project choices and other aspects of decisionmaking, such as procurement.

Notes

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1. An alternative characterization of decentralized systems can be made on a functional basis. Thus Litvack, Ahmad, and Bird (1998) distinguish among three alternatives. (Unlike Rondinelli's characterization, the three components of this functional representation are not necessarily mutually exclusive.)

- *Fiscal decentralization* is about the assignment of expenditure and taxation authority between levels of government.
- *Political decentralization* can be thought if as describing the mechanism by which agents that either make policy decisions or implement exogenous policies at the local level are chosen (for example, in local elections, but there are other procedures). Economic conditions (in particular, the extent of income inequality) and social and cultural norms determine the extent to which locally chosen agents are those who will make "good" decisions.
- *Administrative decentralization* allows local decisions to be acted on. It would be very rare to have locally formulated policies implemented by the central government, but local implementation is possible only where the necessary administrative infrastructure and resources are available.

2. As noted above, in terms of the actions of local groups and citizens, the SIF has features qualitatively similar to a politically decentralized structure.

3. In Dixit's model the agent takes a number of actions or efforts. Principals' preferences over the outcomes of different actions differ. Each principal will then propose a contract that offers the agent more insurance by making payment negatively correlated with performance in dimensions that the principal does not care for. All principals act the same, resulting in a dilution of incentives.

4. A final mechanism by which collusion may be retarded is to make the rewards to agents less responsive to reports to the principal by supervisors. Laffont (1990) shows that even when outcomes of different agents are uncorrelated, making each agent's reward dependent on the aggregate performance of the group reduces the incentive for collusion between the supervisor and the agents.

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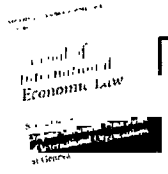

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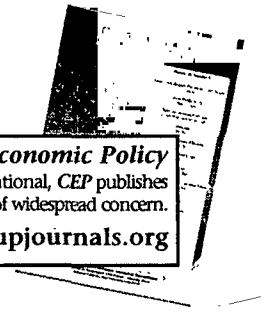

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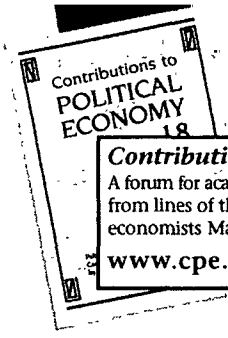

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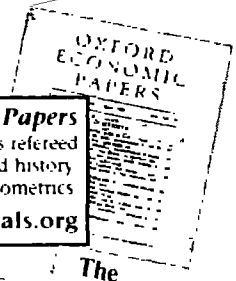

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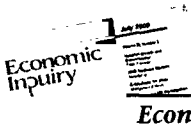

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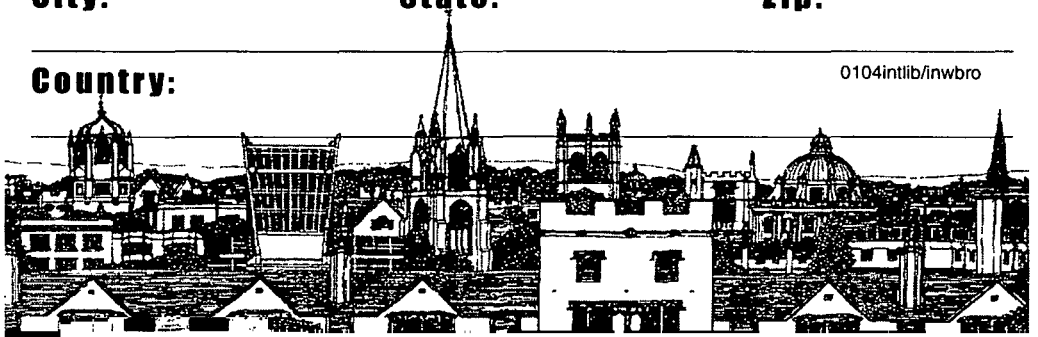

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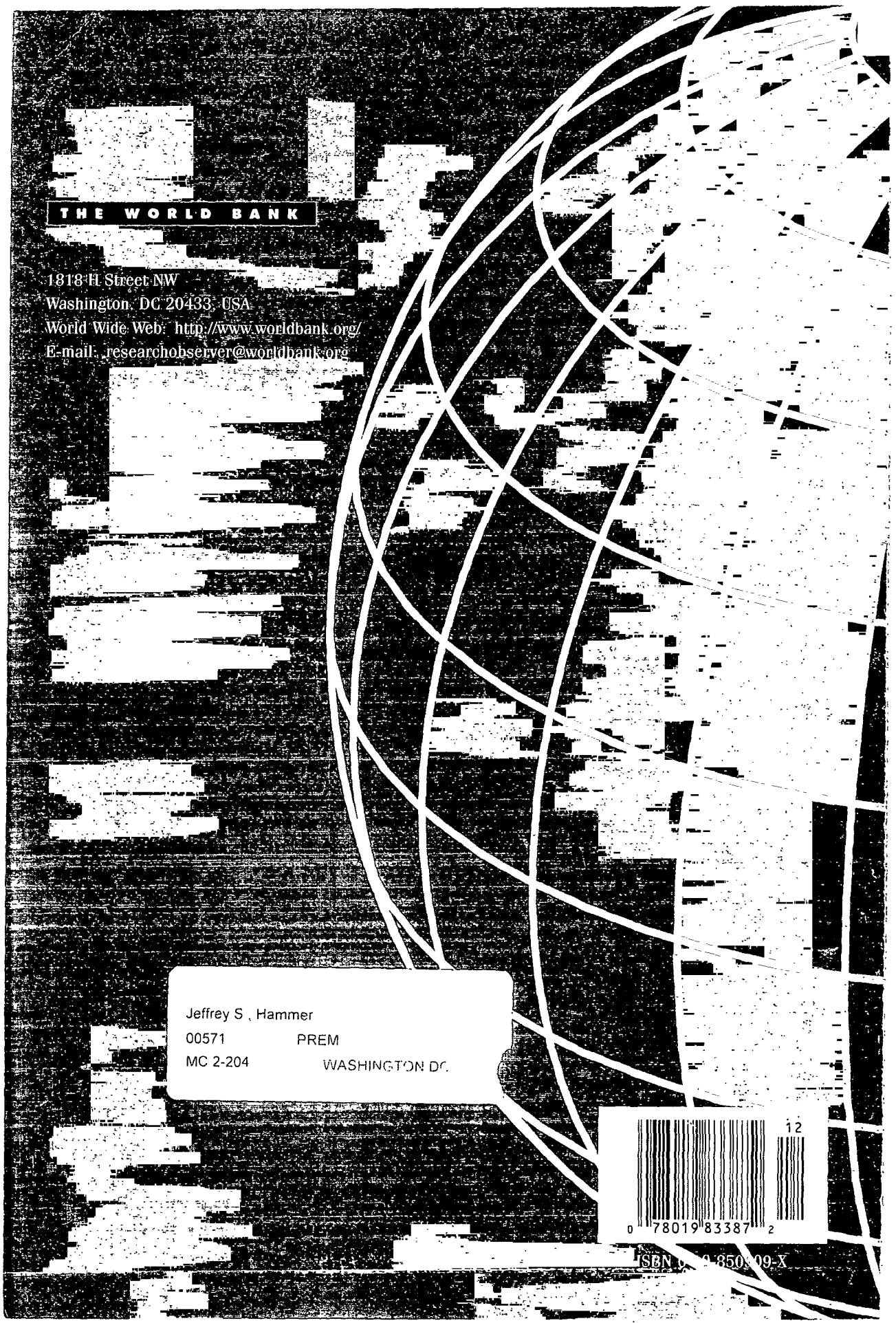

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