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Financial Policies

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Financial Policies and the Prevention of Financial Crises in Emerging Market Countries

2.1.1 Introduction

In recent years, financial crises have been a common occurrence in emerging market (and transition) countries, with devastating consequences for their economies. For example, the financial crises that struck Mexico in 1994 and the East Asian countries in 1997 led to a fall in the growth rate of gross domestic product (GDP) on the order of ten percentage points. The financial crises in Russia in 1998 and Ecuador in 1999 have had similar negative effects on real output. These crises led not only to sharp increases in poverty, but to political instability as well.

Given the harmful effects and increased frequency of financial crises in emerging market countries in recent years, an issue that is now high on the agenda of policymakers throughout the world is the prevention of these crises. Specifically, what financial policies can help make crises less likely?

This paper examines this question by first developing a framework for understanding what a financial crisis is in emerging market countries and the dynamic process through which these crises occur. It then uses this

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framework to examine what particular financial policies may help to prevent financial crises.

2.1.2 What is a Financial Crisis?

A financial system performs the essential function of channeling funds to those individuals or firms that have productive investment opportunities. To do this well, participants in financial markets must be able to make accurate judgments about which investment opportunities are more or less creditworthy. Thus, a financial system must confront problems of asymmetric information, in which one party to a financial contract has much less accurate information than the other party. For example, borrowers who take out loans usually have better information about the potential returns and risk associated with the investment projects they plan to undertake than lenders do. Asymmetric information leads to two basic problems in the financial system (and elsewhere): adverse selection and moral hazard.

Adverse selection occurs before the financial transaction takes place, when potential bad credit risks are the ones who most actively seek out a loan. For example, those who want to take on big risks are likely to be the most eager to take out a loan, even at a high rate of interest, because they are less concerned with paying the loan back. Thus, the lender must be concerned that the parties who are the most likely to produce an undesirable or adverse outcome are most likely to be selected as borrowers. Lenders may thus steer away from making loans at high interest rates because they know that they are not fully informed about the quality of borrowers, and they fear that someone willing to borrow at a high interest rate is more likely to be a low-quality borrower who is less likely to repay the loan. Lenders will try to tackle the problem of asymmetric information by screening out good from bad credit risks. However, this process is inevitably imperfect, and fear of adverse selection will lead lenders to reduce the quantity of loans they might otherwise make.

Moral hazard occurs after the transaction takes place. It occurs because a borrower has incentives to invest in projects with high risk in which the borrower does well if the project succeeds, but the lender bears most of the loss if the project fails. A borrower also has incentives to misallocate funds for personal use, to shirk and not work very hard, and to undertake investment in unprofitable projects that serve only to increase personal power or stature. Thus, a lender is subjected to the hazard that the borrower has incentives to engage in activities that are undesirable from the lender's point of view: that is, activities that make it less likely that the loan will be paid back. Lenders do often impose restrictions (restrictive covenants) on borrowers so that borrowers do not engage in behavior that makes it less likely that they can pay back the loan. However, such restrictions are costly to enforce and monitor and inevitably somewhat limited in their reach. The po-

tential conflict of interest between the borrower and lender stemming from moral hazard again implies that many lenders will lend less than they otherwise would, so that lending and investment will be at suboptimal levels.

The asymmetric information problems described above provide a definition of what a financial crisis is:

> A financial crisis is a disruption to financial markets in which adverse selection and moral hazard problems become much worse, so that financial markets are unable to channel funds efficiently to those who have the most productive investment opportunities.

A financial crisis thus results in the inability of financial markets to function efficiently, which leads to a sharp contraction in economic activity.

2.1.3 Factors Promoting Financial Crises

To flesh out how a financial crisis comes about and causes a decline in economic activity, we need to examine the factors that promote financial crises and then go on to look at how these factors interact dynamically to produce financial crises.

There are four types of factors that can lead to increases in asymmetric information problems and thus to a financial crisis: (a) deterioration of financial-sector balance sheets, (b) increases in interest rates, (c) increases in uncertainty, and (d) deterioration of nonfinancial balance sheets due to changes in asset prices.

Deterioration of Financial-Sector Balance Sheets

The literature on asymmetric information and financial structure (see Gertler 1988 and Bernanke, Gertler, and Gilchrist 1998 for excellent surveys), explains why financial intermediaries (commercial banks, thrift institutions, finance companies, insurance companies, mutual funds, and pension funds) play such an important role in the financial system. They have both the ability and the economic incentive to address asymmetric information problems. For example, banks have an obvious ability to collect information at the time they consider making a loan, and this ability is only increased when banks engage in long-term customer relationships and line-of-credit arrangements. In addition, their ability to scrutinize the checking account balances of their borrowers provides banks with an additional advantage in monitoring the borrowers' behavior. Banks also have advantages in reducing moral hazard because, as demonstrated by Diamond (1984), they can engage in lower-cost monitoring than individuals, and because, as pointed out by Stiglitz and Weiss (1983), they have advantages in preventing risk-taking by borrowers since they can use the threat of cutting off lending in the future to improve a borrower's behavior. Banks' natural advantages in collecting information and reducing moral hazard explain why

banks have such an important role in financial markets throughout the world. Indeed, the greater difficulty of acquiring information on private firms in emerging market countries explains why banks play a more important role in the financial systems in emerging market countries than they do in industrialized countries (Rojas-Suarez and Weisbrod 1994).

Banks (and other financial intermediaries) have an incentive to collect and produce such information because they make private loans that are not traded, which reduces free-rider problems. In markets for other securities, like stocks, if some investors acquire information that screens out which stocks are undervalued and then they buy these securities, other investors who have not paid to discover this information may be able to buy right along with the well-informed investors. If enough free-riding investors can do this and the price is bid up, then investors who have collected information will earn less on the securities they purchase and will thus have less incentive to collect this information. Once investors recognize that other investors in securities can monitor and enforce restrictive covenants, they will also want to free-ride on the other investors' monitoring and enforcement. As a result, not enough resources will be devoted to screening, monitoring, and enforcement. However, because the loans of banks are private, other investors cannot buy the loans directly, and free-riding on banks' restrictive covenants is much trickier than simply following the buying patterns of others. As a result, investors are less able to free-ride off of financial institutions making private loans like banks, and since banks receive the benefits of screening and monitoring they have an incentive to carry it out.

The special importance of banks and other financial intermediaries in the financial system implies that if their ability to lend is impaired, overall lending will decline and the economy will contract. A deterioration in the balance sheets of financial intermediaries indeed hinders their ability to lend and is thus a key factor promoting financial crises.

If banks (and other financial intermediaries making loans) suffer a deterioration in their balance sheets, and so have a substantial contraction in their capital, they have two choices: either they can cut back on their lending, or they can try to raise new capital. However, when these institutions experience a deterioration in their balance sheets, it is very hard for them to raise new capital at a reasonable cost. Thus, the typical response of financial institutions with weakened balance sheets is a contraction in their lending, which slows economic activity. Recent research suggests that weak balance sheets led to a capital crunch that hindered growth in the U.S. economy during the early 1990s (e.g., see Bernanke and Lown 1991; Berger and Udell 1994; Hancock, Laing, and Wilcox 1995; Peek and Rosengren 1995; and the symposium published in Federal Reserve Bank of New York 1993).

If the deterioration in bank balance sheets is severe enough, it can even lead to bank panics, in which there are multiple, simultaneous failures of banking institutions. Indeed, in the absence of a government safety net,

there is some risk that contagion can spread from one bank failure to another, causing even healthy banks to fail. The source of the contagion is again asymmetric information. In a panic, depositors, fearing the safety of their deposits and not knowing the quality of the banks' loan portfolios, withdraw their deposits from the banking system, causing a contraction in loans and a multiple contraction in deposits, which then causes other banks to fail. In turn, the failure of a bank means the loss of the information relationships in which that bank participated, and thus a direct loss in the amount of financial intermediation that can be done by the banking sector. The outcome is an even sharper decline in lending to facilitate productive investments, with an additional resulting contraction in economic activity.

Increases in Interest Rates

Asymmetric information and the resulting adverse selection problem can lead to "credit rationing," in which some borrowers are denied loans even when they are willing to pay a higher interest rate (Stiglitz and Weiss 1981). This occurs because as interest rates rise, prudent borrowers are more likely to decide that it would be unwise to borrow, whereas borrowers with the riskiest investment projects are often those who are willing to pay the highest interest rates, since if the high-risk investment succeeds, they will be the main beneficiaries. In this setting, a higher interest rate leads to even greater adverse selection; that is, the higher interest rate increases the likelihood that the lender is lending to a bad credit risk. Thus, higher interest rates can be one factor that helps precipitate financial instability, because lenders recognize that higher interest rates mean a dilution in the quality of potential borrowers, and lenders are likely to react by taking a step back from their business of financial intermediation and limiting the number of loans they make.

Increases in interest rates can also have a negative effect on bank balance sheets. The traditional banking business involves "borrowing short and lending long"; that is, taking deposits that can be withdrawn on demand (or certificates of deposit that can be withdrawn in a matter of months) and making loans that will be repaid over periods of years or sometimes even decades. In short, the assets of a bank typically have longer duration than its liabilities. Thus, a rise in interest rates directly causes a decline in net worth, because in present value terms, the interest rate rise lowers the value of assets, with their longer duration, more than it raises the value of liabilities, with their shorter duration.

Increases in Uncertainty

A dramatic increase in uncertainty in financial markets makes it harder for lenders to screen out good credit risks from bad. The lessened ability of lenders to solve adverse selection and moral hazard problems renders them less willing to lend, leading to a decline in lending, investment, and aggre-

gate activity. This increase in uncertainty can stem from a failure of a prominent financial or nonfinancial institution or from a recession, but, of even more importance in emerging market countries, it can result from uncertainty about the future direction of government policies.

Deterioration of Nonfinancial Balance Sheets

The state of the balance sheet of nonfinancial firms is the most critical factor for the severity of asymmetric information problems in the financial system. If there is a widespread deterioration of balance sheets among borrowers, it worsens both adverse selection and moral hazard problems in financial markets, thus promoting financial instability. This problem can arise in a variety of ways.

For example, lenders often use collateral as an important way of addressing asymmetric information problems. Collateral reduces the consequences of adverse selection or moral hazard because it reduces the lender's losses in the case of a default. If a borrower defaults on a loan, the lender can sell the collateral to make up for at least some of the losses on the loan. However, if asset prices in an economy fall, and the value of collateral falls as well, then the problems of asymmetric information suddenly become more severe.

Net worth can perform a similar role to collateral. If a firm has high net worth, then even if it defaults on its debt payments, the lender can take title to the firm's net worth, sell it off, and use the proceeds to recoup some of the losses from the loan. High net worth also directly decreases the incentives for borrowers to commit moral hazard, because borrowers now have more at stake, and thus more to lose, if they default on their loans. The importance of net worth explains why stock market crashes can cause financial instability. A sharp decline in the stock market reduces the market valuation of a firm's net worth and thus can increase adverse selection and moral hazard problems in financial markets (Bernanke and Gertler 1989; Calomiris and Hubbard 1990). Because the stock market decline that reduces net worth increases incentives for borrowers to engage in moral hazard, and because lenders are now less protected against the consequences of adverse selection because the value of net assets is worth less, lending decreases and economic activity declines.

Increases in interest rates not only have a direct effect on increasing adverse selection problems, as described earlier, but they may also promote financial instability through both firms' and households' balance sheets. A rise in interest rates will increase households' and firms' interest payments, decrease cash flow, and thus cause a deterioration in their balance sheets, as pointed out in Bernanke and Gertler's (1995) excellent survey of the credit view of monetary transmission. As a result, adverse selection and moral hazard problems become more severe for potential lenders to these firms and households, leading to a decline in lending and economic activity.

There is thus an additional reason that sharp increases in interest rates can be an important factor leading to financial instability.

Unexpected changes in the rate of inflation can also affect balance sheets of borrowers. In economies in which inflation has been moderate for a long period of time, debt contracts with long duration have interest payments fixed in nominal terms for a substantial period of time. When inflation turns out to be less than anticipated, which can occur either because of an unanticipated disinflation, as occurred in the United States in the early 1980s, or by an outright deflation, as has occurred in Japan more recently, the value of firms' liabilities in real terms rises, and its net worth in real terms declines. The reduction in net worth then increases the adverse selection and moral hazard problems facing lenders and reduces investment and economic activity.

In emerging market economies, a decline in unanticipated inflation does not have the unfavorable direct effect on firms' balance sheets that it has in industrialized countries. Debt contracts are of very short duration in many emerging market countries, and because the terms of debt contracts are continually repriced to reflect expectations of inflation, unexpected inflation has little real effect. Thus, one mechanism that has played a role in industrialized countries to promote financial instability has no role in many emerging market countries.

On the other hand, emerging market economies face at least one factor affecting balance sheets that can be extremely important in precipitating financial instability that is not important in most industrialized countries: unanticipated exchange rate depreciation or devaluation. Because of uncertainty about the future value of the domestic currency, many nonfinancial firms, banks, and governments in emerging market countries find it much easier to issue debt if the debt is denominated in foreign currencies. With debt contracts denominated in foreign currency, when there is an unanticipated depreciation or devaluation of the domestic currency, the debt burden of domestic firms increases. Since assets are typically denominated in domestic currency and so do not increase in value, there is a resulting decline in net worth. This deterioration in balance sheets then increases adverse selection and moral hazard problems, which leads to financial instability and a sharp decline in investment and economic activity.

2.1.4 Dynamics of Financial Crises

Financial crises in emerging markets undergo several stages. There is an initial stage during which a deterioration in financial and nonfinancial balance sheets occurs and which promotes the second stage, a currency crisis. The third stage is a further deterioration of financial and nonfinancial balance sheets that occurs as a result of the currency crisis, and this stage is the

one that tips the economy over into a full-fledged financial crisis, with its devastating consequences.

Initial Stage: Run-Up to the Currency Crisis

The first stage leading up to a financial crisis in emerging market countries has typically been a financial liberalization, which involved lifting restrictions on both interest rate ceilings and the type of lending allowed and often privatization of the financial system. As a result, lending increased dramatically, fed by inflows of international capital.

Of course, the problem was not that lending expanded, but rather that it expanded so rapidly that excessive risk-taking was the result, which led to an increase in nonperforming loans. For example, in Mexico and the East Asian crisis countries, the estimated percentage of loans that were nonperforming increased to over 10 percent before the financial crisis struck (Mishkin 1996b; Goldstein 1998; and Corsetti, Pesenti, and Roubini 1998), and these estimates were probably grossly understated. This excessive risk-taking occurred for two reasons. First, banks and other financial institutions lacked the well-trained loan officers, risk-assessment systems, and other management expertise to evaluate and respond to risk appropriately. This problem was made even more severe by the rapid credit growth in a lending boom, which stretched the resources of the bank supervisors, who also failed to monitor these new loans appropriately. Second, emerging market countries such as Mexico, Ecuador, the East Asian crisis countries, and Russia were notorious for weak financial regulation and supervision. (In contrast, the noncrisis countries in East Asia—Singapore, Hong Kong, and Taiwan—had very strong prudential supervision.) When financial liberalization yielded new opportunities to take on risk, these weak regulatory/supervisory systems could not limit the moral hazard created by the government safety net, and excessive risk-taking was one result. Even as the government failed in supervising financial institutions, it was effectively offering an implicit safety net that these institutions would not be allowed to go broke, thus reassuring depositors and foreign lenders that they did not need to monitor these institutions, since there were likely to be government bailouts to protect them.

It is important to note that banks were not the only source of excessive risk-taking in the financial systems of crisis countries. In Thailand, finance companies, which were essentially unregulated, were at the forefront of real estate lending, and they were the first to get into substantial difficulties before the 1997 crisis (Ito 1998). In Korea, merchant banks, which were primarily owned by the *chaebol* (conglomerates) and were again virtually unregulated, expanded their lending far more rapidly than the commercial banks and were extremely active in borrowing abroad in foreign currency (Hahm and Mishkin 2000). Banks in these countries also expanded their lending and engaged in excessive risk-taking as a result of financial liberal-

ization and weak prudential supervision, but the fact that they received more scrutiny did put some restraints on their behavior.

A dangerous dynamic emerged. Once financial liberalization was adopted, foreign capital flew into banks and other financial intermediaries in these emerging market countries because they paid high yields in order to attract funds to rapidly increase their lending, and because such investments were viewed as likely to be protected by a government safety net, either from the government of the emerging market country or from international agencies such as the International Monetary Fund (IMF). The capital inflow problem was further stimulated by government policies of keeping exchange rates pegged to the dollar, which probably gave foreign investors a sense of lower risk. In Mexico and East Asia, capital inflows averaged over 5 percent of GDP in the three years leading up to the crises. The private capital inflows led to increases in the banking sector, especially in the emerging market countries in the Asia-Pacific region (Folkerts-Landau et al. 1995). The capital inflows fueled a lending boom, which led to excessive risk-taking on the part of banks, which in turn led to huge loan losses and a subsequent deterioration of banks' and other financial institutions' balance sheets.

The inflow of foreign capital, particularly short-term capital, was often actively encouraged by governments. For example, the Korean government allowed *chaebol* to convert finance companies they owned into merchant banks, which were allowed to borrow freely abroad as long as the debt was short-term. A similar phenomenon occurred in Thailand, which allowed finance companies to borrow from foreigners. The result was substantial increases in foreign indebtedness relative to the country's holding of international reserves: Mexico, Thailand, Korea, and Indonesia all ended up with ratios of short-term foreign debt relative to reserves exceeding 1.5. The high degree of illiquidity in these countries suggests that they were vulnerable to a financial crisis (Radelet and Sachs 1998).

This deterioration in financial-sector balance sheets, by itself, might have been sufficient to drive these countries into financial and economic crises. As explained earlier, a deterioration in the balance sheets of financial firms can lead them, at a minimum, to restrict their lending or can even lead to a full-scale banking crisis, which forces many banks into insolvency, thereby nearly removing the ability of the banking sector to make loans. The resulting credit crunch can stagger an economy.

Another consequence of financial liberalization was a huge increase in leverage in the corporate sector. For example, in Korea, debt relative to equity for the corporate sector as a whole shot up to 350 percent before the crisis, and it was over 400 percent for the *chaebol*. The increase in corporate leverage was also very dramatic in Indonesia, where corporations often borrowed directly abroad by issuing bonds, rather than borrowing from banks. This increase in corporate leverage increased the vulnerability to a financial

crisis, because negative shocks would now be far more likely to tip corporations into financial distress.

Stock market declines and increases in uncertainty were additional factors precipitating the full-blown crises in Mexico, Thailand, and South Korea. (The stock market declines in Malaysia, Indonesia, and the Philippines occurred simultaneously with the onset of the crisis.) The Mexican economy was hit by political shocks in 1994 that created uncertainty, specifically the assassination of Luis Donaldo Colosio, the ruling party's presidential candidate, and an uprising in the southern state of Chiapas. By the middle of December 1994, stock prices on the Bolsa (stock exchange) had fallen nearly 20 percent from their September 1994 peak. In January 1997, a major Korean *chaebol,* Hanbo Steel, collapsed; it was the first bankruptcy of a *chaebol* in a decade. Shortly thereafter, Sammi Steel and Kia Motors also declared bankruptcy. In Thailand, Samprosong Land, a major real estate developer, defaulted on its foreign debt in early February 1997, and financial institutions that had lent heavily in the real estate market began to encounter serious difficulties, requiring over $8 billion of loans from the Thai central bank to prop them up. Finally, in June, the failure of a major Thai finance company, Finance One, imposed substantial losses on both domestic and foreign creditors. These events increased general uncertainty in the financial markets of Thailand and South Korea, and both experienced substantial declines in their securities markets. From peak values in early 1996, Korean stock prices fell by 25 percent and Thai stock prices fell by 50 percent.

As we have seen, an increase in uncertainty and a decrease in net worth as a result of a stock market decline increases asymmetric information problems. It became harder to screen out good from bad borrowers, and the decline in net worth decreased the value of firms' collateral and increased their incentives to make risky investments, because there is less equity to lose if the investments are unsuccessful. The increase in uncertainty and stock market declines that occurred before the crisis, along with the deterioration in banks' balance sheets, worsened adverse selection and moral hazard problems and made the economies ripe for a serious financial crisis.

Second Stage: Currency Crisis

The deterioration of financial- and nonfinancial-sector balance sheets is a key factor leading to the second stage, a currency crisis. A weak banking system makes it less likely that the central bank will take the steps to defend a domestic currency, because if it raises rates, bank balance sheets are likely to deteriorate further. In addition, raising rates sharply increases the cost of financing for highly leveraged corporations, which typically borrow short-term, making them more likely to experience financial distress. Once investors recognize that a central bank is less likely to take the steps to successfully defend its currency, expected profits from selling the currency will

rise, and the incentives to attach the currency have risen. Also, the recognition that the financial sector may collapse and require a bailout that would produce substantial fiscal deficits in the future also makes it more likely that the currency will depreciate (Burnside, Eichenbaum, and Rebelo 1998).

The weakened state of the financial and nonfinancial balance sheets, along with the high degree of illiquidity in Mexico and East Asian countries before the crisis, then set the stage for their currency crises. With these vulnerabilities, speculative attacks on the currency could have been triggered by a variety of factors. In the Mexican case, the attacks came in the wake of political instability in 1994, such as the assassination of political candidates and an uprising in Chiapas. Even though the Mexican central bank intervened in the foreign exchange market and raised interest rates sharply, it was unable to stem the attack and was forced to devalue the peso on 20 December 1994. In Thailand, the attacks followed unsuccessful attempts of the government to shore up the financial system, culminating in the failure of Finance One. Eventually, the inability of the central bank to defend the currency because the required measures would do too much harm to the weakened financial sector meant that the attacks could not be resisted. The outcome was therefore a collapse of the Thai baht in early July 1997. Subsequent speculative attacks on other Asian currencies led to devaluations and floats of the Philippine peso and Malaysian ringgit in mid-July, the Indonesian rupiah in mid-August, and the Korean won in October. By early 1998, the currencies of Thailand, the Philippines, Malaysia, and Korea had fallen by over 30 percent, with the Indonesian rupiah falling by over 75 percent.

Third Stage: Currency Crisis to Full-Fledged Financial Crisis

Once a full-blown speculative attack occurs and causes a currency depreciation, the institutional structure of debt markets in emerging market countries—the short duration of debt contracts and their denomination in foreign currencies—now interacts with the currency devaluation to propel the economies into full-fledged financial crises. These features of debt contracts generate three mechanisms through which the currency crises increase asymmetric information problems in credit markets, thereby causing a financial crisis to occur.

The first mechanism involves the direct effect of currency devaluation on the balance sheets of firms. As discussed earlier, the devaluations in Mexico and East Asia increased the debt burden of domestic firms that were denominated in foreign currencies. This mechanism was particularly strong in Indonesia, the worst hit of all the crisis countries, which saw the value of its currency decline by over 75 percent, thus increasing the rupiah value of foreign-denominated debts by a factor of four. Even a healthy firm is likely to be driven into insolvency by such a shock if it had a significant amount of foreign-denominated debt.

A second mechanism linking the financial crisis and the currency crisis arises because the devaluation of the domestic currency led to further deterioration in the balance sheets of the financial sector, provoking a large-scale banking crisis. In Mexico and the east Asian countries, banks and many other financial institutions had many liabilities denominated in foreign currency, which increase sharply in value when a depreciation occurs. On the other hand, the problems of firms and households meant that they were unable to pay off their debts, also resulting in loan losses on the asset side of financial institutions' balance sheets. The result was that banks' and other financial institutions' balance sheets were squeezed from both the assets and liabilities side. Moreover, many of these institutions' foreign currency–denominated debt was very short-term, so that the sharp increase in the value of this debt led to liquidity problems because this debt needed to be paid back quickly. The result of the further deterioration in banks' and other financial institutions' balance sheets and their weakened capital base is that they cut back lending. In the case of Indonesia, these forces were severe enough to cause a banking panic in which numerous banks were forced to go out of business.

The third mechanism linking currency crises with financial crises in emerging market countries is that the devaluation can lead to higher inflation. The central bank in an emerging market country may have little credibility as an inflation fighter. Thus, a sharp depreciation of the currency after a speculative attack leads to immediate upward pressure on import prices, which can lead to a dramatic rise in both actual and expected inflation. This is exactly what happened in Mexico and Indonesia, where inflation surged to over a 50 percent annual rate after the currency crisis. (Thailand, Malaysia, and South Korea avoided a large rise in inflation, which partially explains their better performance relative to Indonesia.) The rise in expected inflation after the currency crises in Mexico and Indonesia led to a sharp rise in nominal interest rates, which, given the short duration of debt, led to huge increases in interest payments by firms. The outcome was a weakening of firms' cash flow position and a further weakening of their balance sheets, which then increased adverse selection and moral hazard problems in credit market.

All three of these mechanisms indicate that the currency crisis caused a sharp deterioration in both financial and nonfinancial firms' balance sheets in the crisis countries, which then translated to a contraction in lending and a severe economic downturn. Financial markets were then no longer able to channel funds to those with productive investment opportunities, which led to devastating effects on the economies of these countries.

Note that the 1999 Brazilian crisis was not a financial crisis of the type described here. Brazil experienced a classic balance-of-payments crisis of the type described in Krugman (1979), in which concerns about unsustainable fiscal policy led to a currency crisis. The Brazilian banking system was

actually quite healthy before the crisis because it had undergone substantial reform after a banking crisis in 1994–96 (see Caprio and Klingbiel 1999). Furthermore, Brazilian banks were adequately hedged against exchange rate risk before the devaluation in 1999 (Adams, Mathieson, and Schinasi 1999). As a result, the devaluation did not trigger a financial crisis, although the high interest rates after the devaluation did lead to a recession. The fact that Brazil did not experience a financial crisis explains why Brazil fared so much better after its devaluation than did Mexico or the East Asian crisis countries.

Russia's financial crisis in 1998 also had a strong fiscal component but was actually a symptom of widespread breakdown of structural reform and institution-building efforts (see IMF 1998). When the debt moratorium/restructuring and ruble devaluation were announced on 17 August, Russian banks were subject to substantial losses on $27 billion face value of government securities and increased liabilities from their foreign debt. The collapse of the banking system and the negative effects on balance sheets on the nonfinancial sector from the collapse of the ruble then led to a financial crisis along the lines outlined above.

2.1.5 Financial Policies to Prevent Financial Crises

Now that we have developed a framework for understanding why financial crises occur, we can look at what financial policies can help prevent these crises from occurring. We examine twelve basic areas of financial reform: (a) prudential supervision, (b) accounting and disclosure requirements, (c) legal and judicial systems, (d) market-based discipline, (e) entry of foreign banks, (f) capital controls, (g) reduction of the role of state-owned financial institutions, (h) restrictions on foreign-denominated debt, (i) elimination of too-big-to-fail policies in the corporate sector, (j) sequencing financial liberalization, (k) monetary policy and price stability, and (l) exchange rate regimes and foreign exchange reserves.

Prudential Supervision

As we have seen, banks play a particularly important role in the financial systems of emerging market countries, and problems in the banking sector have been an important factor promoting financial crises in recent years. Deterioration in banks' balance sheets, which can lead to banking crises, increase asymmetric information problems, which bring on financial crises. Furthermore, problems in the banking sector make a foreign exchange crisis more likely, which, by harming nonfinancial balance sheets, leads to a full-blown financial crisis. Because banking panics have such potentially harmful effects, governments almost always provide an extensive safety net for the banking system to prevent banking panics. The downside of the safety net is that it increases moral hazard incentives for excessive risk-

taking on the part of the banks, which makes it more likely that financial crises will occur. To prevent financial crises, governments therefore need to pay particular attention to creating and sustaining a strong bank regulatory/supervisory system to reduce excessive risk-taking in their financial systems.

Because the government safety net in emerging market countries has invariably been extended to other financial intermediaries—for example, the Thai central bank provided liquidity assistance to insolvent finance companies—these other financial institutions also have strong incentives to engage in excessive risk-taking. Indeed, deterioration in the balance sheets of these financial institutions played an important role in the financial crises in East Asia. Effective prudential supervision of these nonbank financial institutions is also critical to promote financial stability.

Encouraging a strong regulatory/supervisory system for the financial system takes seven basic forms.

Prompt Corrective Action

Quick action by prudential supervisors to stop undesirable activities by financial institutions and, even more importantly, to close down institutions that do not have sufficient capital is critical if financial crises are to be avoided. Regulatory forbearance that leaves insolvent institutions operating is disastrous because it dramatically increases moral hazard incentives to take on excessive risk, because an operating but insolvent institution has almost nothing to lose by taking on colossal risks. If they get lucky and the risky investments pay off, they get out of insolvency. On the other hand, if, as is likely, the risky investments don't pay off, insolvent institutions' losses will mount, weakening the financial system further and leading to higher taxpayer bailouts in the future. Indeed, this is exactly what occurred in the savings and loan (S&L) industry in the United States when insolvent S&Ls were allowed to operate during the 1980s and was a feature of the situation in Mexico, East Asia, and Japan in the 1990s.

An important way to ensure that bank supervisors do not engage in regulatory forbearance is through implementation of prompt corrective action provisions that require supervisors to intervene earlier and more vigorously when a financial institution gets into trouble. Prompt corrective action is crucial to preventing problems in the financial sector because it creates incentives for institutions not to take on too much risk in the first place, knowing that if they do so, they are more likely to be punished.

The outstanding example of prompt corrective action is the provision in the Federal Deposit Insurance Corporation Improvement Act (FDICIA) legislation implemented in the United States in 1991. Banks in the United States are classified into five groups based on bank capital. Group 1, classified as "well capitalized," consists of banks that significantly exceed minimum capital requirements and are allowed privileges such as insurance on

brokered deposits and the ability to do some securities underwriting. Banks in group 2, classified as "adequately capitalized," meet minimum capital requirements and are not subject to corrective actions but are not allowed the privileges of the well-capitalized banks. Banks in group 3, "undercapitalized," fail to meet risk-based capital and leverage ratio requirements. Banks in groups 4 and 5 are "significantly undercapitalized" and "critically undercapitalized," respectively, and are not allowed to pay interest on their deposits at rates that are higher than average. Regulators still retain a fair amount of discretion in their actions to deal with undercapitalized banks and can choose from a smorgasbord of actions, such as restricting asset growth, requiring the election of a new board of directors, prohibiting acceptance of deposits from correspondent depository institutions, prohibiting capital distributions from any controlling bank holding company, and terminating activities that pose excessive risk or performing divestiture of nonbank subsidiaries that pose excessive risk.[1] On the other hand, FDICIA mandates that regulators must require undercapitalized banks to submit an acceptable capital restoration plan within forty-five days and implement the plan. In addition, the regulatory agencies must take steps to close down critically undercapitalized banks (whose tangible equity capital is less than 2 percent of assets) by putting them in receivership or conservatorship within ninety days, unless the appropriate agency and the Federal Deposit Insurance Corporation (FDIC) concur that other action would better achieve the purpose of prompt corrective action. If the bank continues to be critically undercapitalized, it must be placed in receivership, unless specific statutory requirements are met.

A key element of making prompt corrective action work is that bank supervisors have sufficient government funds to close down institutions when they become insolvent. It is very common that politicians and regulatory authorities engage in wishful thinking when their banking systems are in trouble, hoping that a large injection of public funds into the banking system will be unnecessary.[2] The result is regulatory forbearance, with insolvent institutions allowed to keep operating, which ends up producing disastrous consequences. The Japanese authorities have engaged in exactly this kind of behavior, but this was also a feature of the American response to the S&L crisis up until 1989.

Not only must weak institutions be closed down, but it must be done in the right way: funds must not be supplied to weak or insolvent banking institutions to keep them afloat. To do so will just be throwing good taxpayer

1. See Sprong (1994) for a more detailed discussion of the prompt corrective action provisions in FDICIA.

2. In addition, banking institutions often lobby vigorously to prevent the allocation of public funds to close down insolvent institutions because this allows them to stay in business and they hope, get out of the hole. This is exactly what happened in the United States in the 1980s, as is described in Mishkin (2001).

money after bad. In the long run, injecting public funds into weak banks does not deliver a restoration of the balance sheets of the banking system because these weak banks continue to be weak and have strong moral hazard incentives to take on big risks at the taxpayers' expense. This is the lesson learned from the U.S. experience in the 1980s as well as other countries more recently. The way to recapitalize the banking system is to close down all insolvent and weak institutions and sell off their assets to healthy institutions with public funds used to make the assets whole. If this is not possible, a public corporation, like the Resolution Trust Corporation (RTC) in the United States or KAMCO in Korea, can be created that will have the responsibility to sell off the assets of these closed banks as promptly as possible, so that the assets can be quickly put to productive uses by the private sector.

To prevent financial crises, it is also imperative that stockholders, managers, and large uninsured creditors be punished when financial institutions are closed and public funds are injected into the financial system. Protecting managers, stockholders, and large uninsured creditors from the consequences of excessive risk-taking increases the moral hazard problem immensely and is thus highly dangerous, although it is common.

Focus on Risk Management

The traditional approach to bank supervision has focused on the quality of the bank's balance sheet at a point in time and whether the bank complies with capital requirements. Although the traditional focus is important for reducing excessive risk-taking by banks, it may no longer be adequate. First is the point that capital may be extremely hard to measure. Furthermore, in today's world, financial innovation has produced new markets and instruments that make it easy for financial institutions and their employees to make huge bets quickly. In this new financial environment, an institution that is quite healthy at a particular point in time can be driven into insolvency extremely rapidly from trading losses, as has been forcefully demonstrated by the failure of Barings in 1995, which, although initially well capitalized, was brought down by a rogue trader in a matter of months. Thus an examination that focuses only on a bank's or other financial institution's balance sheet position at a point in time may not be effective in indicating whether a bank will in fact be taking on excessive risk in the near future.

For example, bank examiners in the United States are now placing far greater emphasis on evaluating the soundness of bank's management processes with regard to controlling risk. This shift in thinking was reflected in a new focus on risk management in the Federal Reserve System's 1993 guidance to examiners on trading and derivatives activities. The focus was expanded and formalized in the Trading Activities Manual issued early in 1994, which provided bank examiners with tools to evaluate risk management systems. In late 1995, the Federal Reserve and the comptroller of the

currency announced that they would be assessing risk management processes at the banks they supervise. Now bank examiners give a separate risk management rating from 1 to 5, which feeds into the overall management rating as part of the CAMELS system (the acronym is based on the six areas assessed: capital adequacy, asset quality, management, earnings, and sensitivity to market risk). Four elements of sound risk management are assessed to come up with the risk management rating: (a) the quality of oversight provided by the board of directors and senior management, (b) the adequacy of policies and limits for all activities that present significant risks, (c) the quality of the risk measurement and monitoring systems, and (d) the adequacy of internal controls to prevent fraud or unauthorized activities on the part of employees. Bank examiners get to see what best practice for risk management is like in the banks they examine, and they can then make sure that best practice spreads throughout the banking industry by giving poor rankings to banks that are not up to speed.

Bank supervision in countries outside the United States would also help promote a safer and sounder financial sector by adopting similar measures to ensure that risk management procedures in their banks are equal to the best practice in financial institutions elsewhere in the world.

Limiting Too-Big-To-Fail Policies

Because the failure of a very large financial institution makes it more likely that a major, systemic financial disruption will occur, supervisors are naturally reluctant to allow a big financial institution to fail and cause losses to depositors. The result is that most countries either explicitly or implicitly have a too-big-to-fail policy, in which all depositors at a big bank, both insured and uninsured, are fully protected if the bank fails. The problem with the too-big-to-fail policy is that it reduces market discipline on large financial institutions and thus increases their moral hazard incentives to take on excessive risk. This problem is even more severe in emerging market countries because their financial systems are typically smaller than those of industrialized countries and so tend to be dominated by fewer institutions. Furthermore, the connections with the government and political power of large financial institutions are often much greater in emerging market countries, thus making it more likely that they will be bailed out if they experience difficulties. Indeed, not only have uninsured depositors been protected in many emerging market countries when large institutions have been subject to failure, but other creditors and even equity holders have been also.

Limiting moral hazard that arises from financial institutions that are too big or too politically connected to fail is a critical problem for prudential supervision in emerging market countries. Thus, in order to reduce increased incentives to take on excessive risk by large institutions, prudential supervisors need to scrutinize them even more rigorously than smaller ones and,

at a minimum, must impose losses on shareholders and managers when these institutions are insolvent. However, supervisors still have to face the quandary of not wanting to allow a failure of a large financial institution to destabilize the financial system, while keeping the moral hazard problem created by too-big-to-fail institutions under control.

One proposal, outlined in Mishkin (1999), is for the supervisory agencies to announce that there is a strong presumption that when there is a bank failure, uninsured depositors would not be fully protected unless this is the cheapest way to resolve the failure. It is important to recognize that although large banking institutions may be too big to liquidate, they can be closed, with losses imposed on uninsured creditors. Indeed, this is exactly what FDICIA suggests should be done by specifying that, except under very unusual circumstances when the a bank failure poses "serious adverse effects on economic conditions or financial stability," a least-cost resolution procedure will be used to close down the bank. Ambiguity is created about the use of this systemic-risk exception to the least-cost resolution rule because to invoke it requires a two-thirds majority of both the board of governors of the Federal Reserve System and the directors of the FDIC, as well as the approval of the secretary of the treasury.

An important concern is that the systemic-risk exception to least-cost resolution will always be invoked when the failing bank is large enough because the government and central bank will be afraid to impose costs on depositors and other creditors when a potential financial crisis is looming. Thus, too-big-to-fail policies will still be alive, with all the negative consequences for moral hazard risk-taking by the largest institutions. One way to cope with this problem is for the authorities to announce that although they are concerned about systemic risk possibilities, there will be a strong presumption that the *first* large bank to fail will not be treated as too big to fail and that costs will be imposed on uninsured depositors and creditors when the bank is closed. Rather than bailing out the uninsured creditors at the initial large bank that fails, the authorities will stand ready to extend the safety net to the rest of the banking system if they perceive that there is a serious systemic risk problem.

The advantage of announcing such a stance is that uninsured depositors and creditors now have to worry that if this bank is the first one to fail, they will not be bailed out. As a result, these depositors and creditors will now have an incentive to withdraw their funds if they worry about the soundness of the bank, even if it is very large, and this will alter the incentives of the bank away from taking on too much risk. Clearly, moral hazard still remains in the system, because the authorities stand ready to extend the safety net to the rest of the system after the initial large institution fails if its failure creates the potential for a banking crisis. However, the extent of moral hazard is greatly reduced by the use of this form of constructive ambiguity. Furthermore, the cost of this remaining moral hazard must be bal-

anced against the benefits of preventing a banking crisis if the initial bank failure is likely to snowball into a systemic crisis.

Adequate Resources and Statutory Authority for Prudential Regulators/Supervisors

In many emerging market countries, prudential supervisors are not given sufficient resources or statutory authority (the ability to issue cease and desist orders and to close down insolvent banks) to do their jobs effectively. For example, in many emerging market countries, including even middle-income countries such as Argentina and the Philippines, supervisors are subject to lawsuits for their actions and can be held personally liable. Their salaries are typically quite low and are much smaller relative to private-sector salaries than in industrialized countries. Without sufficient resources and incentives, not surprisingly, supervisors will not monitor banks sufficiently in order to keep them from engaging in inappropriately risky activities, to have the appropriate management expertise and controls to manage risk, or to have sufficient capital so that moral hazard incentives to take on excessive risk are kept in check. Indeed, sufficient monitoring of banking institutions, not surprisingly, has been absent in many emerging market and transition countries (Mexico, Ecuador, and East Asia being recent examples), and this has also been a very serious problem in industrialized countries. The resistance to providing the S&L supervisory agencies with adequate resources to hire sufficient bank examiners by the U.S. Congress was a key factor in making the S&L crisis in the United States in the 1980s much worse. The inadequacy of bank supervision in Japan and the problems it has caused are well known, with the lack of resources for bank supervision being exemplified by the fact that the number of bank examiners in Japan is on the order of 400, in contrast to around 7,000 in the United States.

Giving supervisors sufficient resources and statutory authority to do their jobs is thus crucial to promoting a safe and sound financial system that is resistant to financial crises. Ruth Krivoy (2000), an ex-supervisor from Venezuela during its banking crisis, has put the point very nicely by saying that supervisors in emerging market countries must be given respect. If they are paid poorly, the likelihood that they can be bribed either directly or through promises of high-paying jobs by the institutions they supervise will be very high. Making them personally liable for taking supervisory action also makes it less likely that they will take the appropriate actions. Furthermore, if they do not have sufficient resources, particularly in information technology, to monitor financial institutions, then they will be unable to spot excessive risk-taking.

Independence of Regulatory/Supervisory Agencies

Because prompt corrective action is so important, the bank regulatory/supervisory agency requires sufficient independence from the political pro-

cess so that it is not encouraged to sweep problems under the rug and engage in regulatory forbearance. One way to ensure against regulatory forbearance is to give the bank supervisory role to a politically independent central bank. This has desirable elements, as pointed out in Mishkin (1991), but some central banks might not want to have the supervisory task thrust upon them because they worry that it might increase the likelihood that the central bank would be politicized, thereby impinging on the independence of the central bank. Alternatively, bank supervisory activities could be housed in a bank regulatory authority that is independent of the government.

Supervisory agencies will also not be sufficiently independent if they are starved for resources. If supervisory agencies have to come hat in hand to the government for resources or funds to close down insolvent institutions, they will be more subject to political pressure to engage in regulatory forbearance. Supervisors must have adequate financial resources at their fingertips to prevent this from occurring.

Accountability of Supervisors

An important impediment to successful supervision of the financial system is that the relationship between taxpayers on the one hand and the supervisors on the other creates a particular type of moral hazard problem, the principal-agent problem. The principal-agent problem occurs because the agents (the supervisors) do not have the same incentives as the principal (the taxpayer they ultimately work for) and so act in their own interest rather than in the interest of the principal.

To act in the taxpayer's interest, regulators have several tasks, as we have seen. They must set restrictions on holding assets that are too risky, impose sufficiently high capital requirements, and close down insolvent institutions. However, because of the principal-agent problem, supervisors have incentives to do the opposite and engage in regulatory forbearance. One important incentive for supervisors that explains this phenomenon is their desire to escape blame for poor performance by their agency. By loosening capital requirements and pursuing regulatory forbearance, supervisors can hide the problem of an insolvent bank and hope that the situation will improve, a behavior that Kane (1989) characterizes as "bureaucratic gambling." Another important incentive for supervisors is that they may want to protect their careers by acceding to pressures from the people who strongly influence their careers, the politicians.

Supervisors must be accountable if they engage in regulatory forbearance in order to improve incentives for them to do their job properly. For example, as pointed out in Mishkin (1997), an important but very often overlooked part of FDICIA that has helped make this legislation effective is that there is a mandatory report that the supervisory agencies must produce if the bank failure imposes costs on the FDIC. The resulting report is

made available to any member of Congress and to the general public upon request, and the general accounting office must do an annual review of these reports. Opening up the actions of bank supervisors to public scrutiny makes regulatory forbearance less attractive to them, thereby reducing the principal-agent problem. In addition, subjecting the actions of bank supervisors to public scrutiny reduces the incentives of politicians to lean on supervisors to relax their supervision of banks.

In order for supervisors to do their jobs properly, they must also be subject to criminal prosecution if they are caught taking bribes and must also be subject to censure and penalties if they take jobs with institutions that they have supervised recently. This entails a change in culture for supervisors in many emerging market countries, where some are allowed to get too close to the institutions they supervise.

Restrictions on Connected Lending

A particular problem in the financial sector, particularly in emerging market countries, is connected lending, lending to the financial institutions' owners or managers or their business associates. Financial institutions clearly have less incentive to monitor loans to their owners or managers, thus increasing the moral hazard incentives for the borrowers to take on excessive risk, thereby exposing the institution to potential loan losses. In addition, connected lending in which large loans are made to one party can result in a lack of diversification for the institution, thus increasing the risk exposure of the bank.

Prudential supervision to restrict connected lending is clearly necessary to reduce banks' risk exposure. It can take several forms. One is disclosure of the amount of connected lending. Indeed, one prominent feature of New Zealand's disclosure requirements is that the amount of lending to connected persons is mandatory. Another is limits on the amount of connected lending as a share of bank capital. Indeed, although New Zealand has gotten rid of many of the traditional regulatory guidelines, it still has chosen to have prudential limits on the amount of connected lending. Most countries have regulations limiting connected lending, and many emerging market countries have stricter limits than in industrialized countries. However, a key problem in emerging market and transition countries is that connected lending limits are often not enforced effectively. Folkerts-Landau et al. (1995) have pointed out that bank examiners in Asia were often unable to assess the exposure of banks to connected lending because of the use of dummy accounts or the lack of authority for the examiners to trace where the funds are used. Strong efforts to increase disclosure and increased authority for bank examiners to examine the books of the banks to root out connected lending are crucial if this source of moral hazard is to be kept under control.

Having commercial businesses owning large shares of financial institu-

tions increases the incentives for connected lending. A prominent feature of the Korean financial crisis was that the *chaebol* were allowed large ownership stakes in merchant banks, which were virtually unsupervised. The merchant banks were then used as a conduit for greatly increasing the *chaebol*'s leverage by supplying them with large amounts of funds by borrowing abroad and then lending the proceeds to them. The excessive risk-taking by the merchant banks eventually resulted in insolvency for most of them and was an important factor that led to the Korean financial crisis (Hahm and Mishkin 2000). Preventing commercial enterprises from owning financial institutions is crucial for promoting financial stability in emerging market countries.

Accounting Standards and Disclosure Requirements

Accounting standards and disclosure requirements for financial institutions are often particularly lacking in emerging market and transition countries but also in a number of industrialized countries (Japan being the most prominent example). Without the appropriate information, both markets and supervisors will not be able adequately to monitor financial institutions to deter excessive risk-taking.[3] One prominent example is that accounting and supervisory conventions in many countries allow banks to make nonperforming loans look good by lending additional money to the troubled borrower, who uses the proceeds to make the payments on the nonperforming loan, thus keeping it current, a practice known as "evergreening." The result is that nonperforming loans are significantly understated, which makes it harder for the markets to discipline financial institutions or for supervisors to decide when banks are insolvent and need to be closed down. Many countries also do not require the reporting of key financial data by individual financial institutions, including their consolidated financial exposure, which makes it hard to sort out healthy from unhealthy institutions. Implementing proper accounting standards and disclosure requirements is an important first step in promoting a healthy financial system.[4]

An interesting example of an attempt to beef up disclosure requirements and raise their prominence in prudential supervision is the system put in place in New Zealand in 1996 (see Mortlock 1996 and Nicholl 1996). New Zealand scrapped its previous system of regular bank examinations and replaced it with one based on disclosure requirements that uses the market to police the behavior of the banks. Every bank in New Zealand must supply a comprehensive quarterly financial statement that provides, among other

3. The importance of disclosure is illustrated in Garber and Lall (1996), which suggests that off-balance-sheet and offshore derivatives contracts were used by Mexican banks before the Tequila crisis to get around regulations that were intended to prevent them from taking on foreign exchange risk, and this played an important role in the Mexican crisis.

4. See Goldstein and Turner (1996) and Goldstein (1997) for a further discussion of what steps need to be taken to beef up accounting standards and disclosure requirements.

things, information on the quality of its assets, capital adequacy, lending activities, profitability, and its ratings from private credit-rating agencies and whether it has a credit rating. These financial statements must be audited twice a year, and not only must they be provided to the central bank, but they must also be made public, with a two-page summary posted in all bank branches. In addition, bank directors are required to validate these statements and state publicly that their bank's risk management systems are adequate and being properly implemented. A most unusual feature of this system is that bank directors face unlimited liability if they are found to have made false or misleading statements.

The New Zealand example illustrates that disclosure requirements can be strengthened appreciably. However, suggesting that sole reliance on disclosure requirements to police the banking system is a workable model for other countries is going too far. Depositors are unlikely to have the sophistication to understand fully the information provided and thus may not impose the necessary discipline on the banks. Furthermore, unlimited liability for directors might discourage top people from taking these positions, thereby weakening the management of the banks. Although disclosure requirements might be sufficient in New Zealand because almost all New Zealand banks are foreign-owned, so that bank supervision has been in effect outsourced to the supervisors of the foreign banks that own the New Zealand banks, it is unlikely to work in countries where most of the banking system is domestically owned.

Legal and Judicial Systems

The legal and judicial systems are very important for promoting the efficient functioning of the financial system, and the inadequacies of legal systems in many countries are a serious problem for financial markets. If property rights are unclear or hard to enforce, the process of financial intermediation can be severely hampered. Collateral can be an effective mechanism to reduce adverse selection and moral hazard problems in credit markets because it reduces the lender's losses in the case of a default. However, in many developing countries, the legal system prevents the use of certain assets as collateral or makes attaching collateral a costly and time-consuming process, thereby reducing the effectiveness of collateral to solve asymmetric information problems (Rojas-Suarez and Weisbrod 1996). Similarly, bankruptcy procedures in developing countries are frequently very cumbersome (or even nonexistent), resulting in lengthy delays in resolving conflicting claims. Resolution of bankruptcies in which the books of insolvent firms are opened up and assets are redistributed can be viewed as a process to decrease asymmetric information in the marketplace. Furthermore, slow resolution of bankruptcies can delay recovery from a financial crisis, because only when bankruptcies have been resolved is there enough information in the financial system to restore it to healthy operation.

Encouraging Market-Based Discipline

There are two problems with relying on supervisors to control risk-taking by financial institutions. First, financial institutions have incentives to keep information away from bank examiners so that they are not restricted in their activities. Thus, even if supervisors are conscientious, they may not be able to stop institutions from engaging in risky activities. Second, because of the principal-agent problem, supervisors may engage in regulatory forbearance and not do their jobs properly.

An answer to these problems is to have the market discipline financial institutions if they are taking on too much risk. We have already mentioned that disclosure requirements can help provide information to the markets that may help them monitor financial institutions and keep them from taking on too much risk. Two additional steps may help increase market discipline. One is to require that financial institutions have credit ratings. Part of the bonds, auditing, supervision, information, and credit ratings (BASIC) supervisory system implemented in Argentina in December 1996 is the requirement that every bank have an annual rating provided by a rating agency registered with the central bank.[5] Institutions with more than $50 million in assets are required to have ratings from two rating agencies. As part of this scheme, the Argentine central bank is responsible for performing an after-the-fact review of the credit ratings to check if the rating agencies are doing a reasonable job. As of January 1998, these credit ratings must be published on billboards in the banks and must also appear on all deposit certificates and all other publications related to obtaining funds from the public. As part of New Zealand's disclosure requirements, all banks must prominently display their credit ratings on their long-term senior unsecured liabilities payable in New Zealand or, alternatively, indicate if they do not have a credit rating. Clearly, the lack of a credit rating or a poor credit rating is expected to cause depositors and other creditors to be reluctant to put their funds in the bank, thus giving the bank incentive to reduce its risk-taking and boost its credit rating. This has a higher likelihood of working in Argentina and New Zealand because both countries do not have government deposit insurance.

Another way to impose market discipline on banks is to require that they issue subordinated debt (uninsured debt that is junior to insured deposits, but senior to equity). Subordinated debt, particularly if it has a ceiling on the spread between its interest rate and that on government securities, can be an effective disciplining device. If the bank is exposed to too much risk, it is unlikely to be able to sell its subordinated debt. Thus, compliance with the subordinated debt requirement will be a direct way for the market to

5. See Banco Central de la Republica Argentina (1997) and Calomiris (1998) for a description of the Argentine BASIC system.

force banks to limit their risk exposure. Alternatively, deposit insurance premiums could be charged according to the interest rate on the subordinated debt. Not only would the issuance of subordinated debt directly help reduce incentives for banks to engage in risky activities, but it could also provide supplemental information to bank examiners that could help them in their supervisory activities. In addition, information about whether banks are successful in issuing subordinated debt and the interest rate on this debt can help the public evaluate whether supervisors are being sufficiently tough on a particular banking institution, thus reducing the scope of the principal-agent problem.

Argentina has implemented a subordinated debt requirement in its BASIC program, although without an interest rate cap, which took effect on January 1998. As reported in Calomiris (1998), initially about half of the banks have been able to comply with this requirement. Interestingly, as expected, it is the weakest banks that have had trouble issuing subordinated debt. Furthermore, banks that compiled with the requirement had lower deposit rates and larger growth in deposits. Thus, the subordinated debt requirement looks like it has had the intended effect of promoting discipline on the banks (Calomiris and Powell 2001).

Entry of Foreign Banks

Many countries have restrictions on the entry of foreign banks. The entry of foreign banks should be seen not as a threat but as an opportunity to strengthen the banking system. In all but a few large countries, domestic banks are unable to diversify because their lending is concentrated in the home country. In contrast, foreign banks have more diversified portfolios and also usually have access to sources of funds from all over the world through their parent company. This diversification means that these foreign banks are exposed to less risk and are less affected by negative shocks to the home country's economy. Because many emerging market and transition economies are more volatile than industrialized countries, having a large foreign component to the banking sector is especially valuable, because it helps insulate the banking system from domestic shocks. Encouraging entry of foreign banks is thus likely to lead to a banking and financial system that is substantially less fragile and far less prone to crisis.

Another reason for encouraging the entry of foreign banks is that this can encourage adoption of best practice in the banking industry. Foreign banks come with expertise in areas like risk management. As mentioned earlier, when bank examiners in a country see better practices in risk management, they can spread these practices throughout their country's banking system by downgrading banks that do not adopt these practices. Having foreign banks demonstrate the latest risk management techniques can thus lead to improved control of risk in the home country's banking system. Clearly, there are also benefits from the increased competition that foreign bank en-

try brings to the banking industry in the home country. The entry of foreign banks will also lead to improved management techniques and a more efficient banking system.

Encouraging the entry of foreign banks also makes it more likely that uninsured depositors and other creditors of banks will not be bailed out. Governments are far less likely to bail out the banking sector when it gets into trouble if many of the banks are foreign-owned because it will be politically unpopular. Thus uninsured depositors and other creditors will have greater incentives to monitor the banks and pull out funds if these institutions take on too much risk. The resulting increase in market discipline is therefore likely to encourage more prudent behavior by banking institutions.

Capital Controls

In the aftermath of the recent financial crises in Mexico and East Asia, in which the crisis countries experienced large capital inflows before the crisis and large capital outflows after the crisis, much attention has been focused on whether international capital movements are a major source of financial instability. The asymmetric information analysis of the crisis suggests that international capital movements can have an important role in producing financial instability, but as we have seen this is because the presence of a government safety net with inadequate supervision of banking institutions encourages capital inflows, which lead to a lending boom and excessive risk-taking on the part of banks.[6] Consistent with this view, works by Gavin and Hausman (1996) and Kaminsky and Reinhart (1999) do find that lending booms are a predictor of banking crises, yet it is by no means clear that capital inflows will produce a lending boom that causes a deterioration in bank balance sheets. Indeed, Kaminsky and Reinhart find that financial liberalization, rather than balance-of-payments developments inflows, appears to be an important predictor of banking crises.

Capital outflows have also been pointed to as a source of foreign exchange crises, which, as we have seen, can promote financial instability in emerging market countries. In this view, foreigners pull their capital out of country, and the resulting capital outflow is what forces a country to devalue its currency. However, as pointed out earlier, a key factor leading to foreign exchange crises are problems in the financial sector that lead to the speculative attack and capital outflows. With this view, the capital outflow associated with the foreign exchange crisis is a symptom of underlying fundamental problems rather than a cause of the currency crisis. The consensus from many empirical studies (see the excellent survey in Kaminsky, Lizondo, and Reinhart [1997]) provides support for this view because capital flow or current account measures do not have predictive power in forecast-

6. See Calvo, Leiderman, and Reinhart (1994) for a model of this process.

ing foreign exchange crises, whereas a deeper fundamental such as problems in the banking sector helps predict currency crises.

The analysis here therefore does not provide a case for capital controls such as the exchange controls that have recently been adopted in Malaysia. Exchange controls are like throwing out the baby with the bathwater. Capital controls have the undesirable feature that they may block funds from entering a country that will be used for productive investment opportunities. Although these controls may limit the fuel supplied to lending booms through capital flows, over time they produce substantial distortions and misallocation of resources as households and businesses try to get around them. Indeed, there are serious doubts as to whether capital controls can be effective in today's environment, in which trade is open and there are many financial instruments that make it easier to get around these controls.

On the other hand, there is a strong case to improve bank regulation and supervision so that capital inflows are less likely to produce a lending boom and excessive risk-taking by banking institutions. For example, banks might be restricted in how fast their borrowing could grow, and this might have the impact of substantially limiting capital inflows. These prudential controls could be thought of as a form of capital controls, but they are quite different from the typical exchange controls. They focus on the sources of financial fragility, rather than the symptoms, and supervisory controls of this type can enhance the efficiency of the financial system rather than hampering it.

Reduction of the Role of State-Owned Financial Institutions

A feature of many countries' financial systems, particularly in emerging market and transition countries, is government interventions to direct credit either to themselves or to favored sectors or individuals in the economy. Governments do this either by setting interest rates at artificially low levels for certain types of loans, by creating development finance institutions to make specific types of loans, by setting up state-owned banks that can provide funds to favored entities, or by directing private institutions to lend to certain entities. Private institutions clearly have an incentive to solve adverse selection and moral hazard problems and lend to borrowers who have productive investment opportunities. Governments have less incentive to do so because they are not driven by the profit motive, so their directed credit programs or state-owned banks are less likely to channel funds to those borrowers who will help produce high growth of the economy. This type of government intervention in the credit markets is therefore likely to result in less efficient investment and slower growth. Curtailing this government activity is therefore important for promoting economic growth (Caprio and Honohan 2000).

The absence of a profit motive also means that state-owned banks are less likely to manage risk properly and be efficient. Thus it is not surprising that

state-owned banks usually end up having larger loan loss ratios than private institutions, and countries with the highest share of state-owned banks, on average, are also the ones with a higher percentage of nonperforming loans and higher operating costs (Goldstein and Turner 1996; Caprio and Honohan 2000). Thus, the presence of state-owned banks can substantially weaken the banking system. The inefficiency of state-owned banks and their higher loan losses strongly argue for privatization of the banking sector. However, even privatization must be managed properly or it can lead to disaster. If purchasers of banks are those who are likely to engage in excessive risk-taking or even fraud, the possibility that banking problems will arise in the future is high. Also, if purchasers of banks are allowed to put very little of their own capital into the bank, they may also have strong incentives to engage in risky activities at the depositors' and taxpayers' expense. These potential downsides of privatization do not indicate that privatization should be avoided, but rather suggest that the chartering or licensing process be sufficiently stringent to screen out bad owners, making sure that bank ownership goes to individuals who will improve bank performance over the previous government managers.

Restrictions on Foreign-Denominated Debt

The asymmetric information view of financial crises indicates that a debt structure with substantial foreign-denominated debt, which is typical in many emerging market countries, makes the financial system more fragile. Currency crises and devaluations do trigger full-fledged financial crises in countries with foreign-denominated debt, whereas this is not the case for countries whose debt is denominated in domestic currency.

The presence of foreign-denominated debt also makes it far more difficult for a country to recover from a financial crisis. Industrialized countries with debt denominated in domestic currency can promote recovery by pursuing expansionary monetary policy by injecting liquidity (reserves) into the financial system. Injecting reserves, either through open-market operations or by lending to the banking sector, causes the money supply to increase, which in turn leads to a higher price level. Given that debt contracts are denominated in domestic currency and many are often of fairly long duration, the reflation of the economy causes the debt burden of households and firms to fall, thereby increasing their net worth. As outlined earlier, higher net worth then leads to reduced adverse selection and moral hazard problems in financial markets, undoing the increase in adverse selection and moral hazard problems induced by the financial crisis. In addition, injecting liquidity into the economy raises asset prices such as land and stock market values, which also causes an improvement in net worth and a reduction in adverse selection and moral hazard problems. Also, as discussed in Mishkin (1996a), expansionary monetary policy promotes economic recovery through other mechanisms involving the stock market and the foreign exchange market.

A second method for a central bank to promote recovery from a financial crisis is to pursue the so-called lender-of-last-resort role, in which the central bank stands ready to lend freely during a financial crisis. By restoring liquidity to the financial sector, the lender of last resort can help shore up the balance sheets of financial firms, thereby preventing a systemic shock from spreading and bringing down the financial system. There are many instances of successful lender-of-last-resort operations in industrialized countries (see, e.g., Mishkin 1991); the Federal Reserve's intervention on the day after the 19 October 1987 stock market crash is one example. Indeed, what is striking about this episode is that the extremely quick intervention of the Federal Reserve not only resulted in a negligible impact on the economy of the stock market crash, but also meant that the amount of liquidity that the Federal Reserve needed to supply to the economy was not very large (see Mishkin 1991).

However, if the financial system has a large amount of foreign-denominated debt it may be far more difficult for the central bank to promote recovery from a financial crisis. With this debt structure, a central bank can no longer use expansionary monetary policy to promote recovery from a financial crisis. Suppose that the policy prescription for countries with little foreign-denominated debt—that is, expansionary monetary policy and reflation of the economy—were followed in an emerging market country with a large amount of foreign-denominated debt. In this case the expansionary monetary policy is likely to cause the domestic currency to depreciate sharply. As we have seen before, the depreciation of the domestic currency leads to a deterioration in firms' and banks' balance sheets because much of their debt is denominated in foreign currency, thus raising the burden of indebtedness and lowering banks' and firms' net worth.

The net result of an expansionary monetary policy in an emerging market country with a large amount of foreign-denominated debt is that it hurts the balance sheets of households, firms, and banks. Thus, expansionary monetary policy has the opposite result to that found in industrialized countries after a financial crisis: it causes a deterioration in balance sheets and therefore amplifies adverse selection and moral hazard problems in financial markets caused by a financial crisis, rather than ameliorating them, as in the industrialized country case.

For similar reasons, lender-of-last-resort activities by a central bank in an emerging market country with substantial foreign-denominated debt may not be as successful as in an industrialized country. Central bank lending to the financial system in the wake of a financial crisis that expands domestic credit might lead to a substantial depreciation of the domestic currency, with the result that balance sheets will deteriorate, making recovery from the financial crisis less likely. The use of the lender-of-last-resort role by a central bank is therefore much trickier in countries with a large amount of foreign-denominated debt because central bank lending is now a two-edged sword.

The above arguments suggest that the economy would be far less prone to financial crises and could recover far more easily if the issuance of foreign-denominated debt was discouraged. Because much foreign-denominated debt is intermediated through the banking system, regulations to restrict both bank lending and borrowing in foreign currencies could greatly enhance financial stability. Similarly, restrictions on corporate borrowing in foreign currency or tax policies to discourage foreign-currency borrowing could help make the economy better able to withstand a currency depreciation without undergoing a financial crisis. Krueger (2000) has also suggested that restrictions should be placed on financial institutions in industrialized countries to limit lending to emerging market countries using industrialized-country currencies.

Elimination of Too-Big-To-Fail in the Corporate Sector

We have already discussed why a too-big-to-fail policy leads to increased risk-taking by financial institutions. The same incentives clearly apply to corporations if they are considered to be too big to fail (or too politically influential) by the government. Lenders, knowing that they are unlikely to be subjected to losses if the corporation gets into trouble, will not monitor the corporation and withdraw funds if it is taking on excessive risk. In many emerging market countries, governments have propped up large and politically connected corporations when they suffer financial distress, and this has been a source of increased risk-taking by these companies, especially when they face difficult times. For example, as pointed out in Hahm and Mishkin (2000), the Korean government was perceived to have a too-big-to-fail policy for the *chaebol*, whose profitability dropped in the 1990s. Given the resulting lack of market discipline, they proceeded to try to grow out of their problems by borrowing, frequently in foreign currency, and dramatically increasing their leverage. This increase in risk-taking then was a key factor generating the financial crisis in Korea.

To contain incentives for the corporate sector to increase leverage and take on too much risk that leaves them extremely vulnerable to adverse shocks, it is imperative that too-big-to-fail policies be eliminated. This implies a greater separation between the corporate sector and the government, something that also requires a change in business culture in many emerging market countries.

Sequencing Financial Liberalization

Deregulation and liberalization of the financial system have swept through almost all countries in recent years. Although deregulation and liberalization are highly desirable objectives, the analysis of financial crises in this paper indicates that if this process is not managed properly, it can be disastrous. If the proper bank regulatory/supervisory structure, accounting and disclosure requirements, restrictions on connected lending, and well-

functioning legal and judicial systems are not in place when liberalization comes, the appropriate constraints on risk-taking behavior will be far too weak. The result will be that bad loans are likely, with potentially disastrous consequences for bank balance sheets at some point in the future.

In addition, before liberalization occurs, banks may not have the expertise to make loans wisely, so opening them up to new lending opportunities may also lead to poor quality of the loan portfolio. We have also seen that financial deregulation and liberalization often lead to a lending boom, because of both increased opportunities for bank lending and financial deepening, in which more funds flow into the banking system. Although financial deepening is a positive development for the economy in the long run, in the short run the lending boom may outstrip the available information resources in the financial system, helping to promote a financial collapse in the future.

The dangers in financial deregulation and liberalization do not imply that countries would be better off by not pursuing a liberalization strategy. To the contrary, financial liberalization is critical to the efficient functioning of financial markets so that they can channel funds to those with the most productive investment opportunities. Getting funds to those with the most productive investment opportunities is especially critical to emerging market countries because these investments can have especially high returns, thereby stimulating rapid economic growth. However, proper sequencing of financial deregulation and liberalization is critical to its success. It is important that policymakers put in place the proper institutional structure before liberalizing their financial systems, especially if there are no restrictions on financial institutions' seeking funds abroad or issuing foreign-denominated debt. Before financial markets are fully liberalized, it is crucial that the precepts outlined above be implemented: provision of sufficient resources and statutory authority to bank supervisors, adoption of prompt corrective action provisions, an appropriate focus on risk management, independence of bank regulators/supervisors from short-run political pressure, increased accountability of bank supervisors, limitations on too-big-to-fail policies, adoption of adequate accounting standards and disclosure requirements, sufficient restrictions on connected lending, improvements in the legal and judicial systems, encouragement of market-based discipline, and encouragement of entry of foreign banks.

Because the above measures are not easy to install quickly and because of the stresses that rapid expansion of the financial sector puts on both managerial and supervisory resources, restricting the growth of credit when financial liberalization is put into place makes a lot of sense. This can take the form of putting upper limits on ratios of loans to value, or, for consumer credit, setting maximum repayment periods and minimum down payment percentages. Banks could also be restricted in how fast certain types of their loan portfolios are allowed to grow. In addition, at the beginning of the lib-

eralization process, restrictions on foreign-denominated debt and prudential controls that might limit capital inflows may be necessary to reduce the vulnerability of the financial system. As the appropriate infrastructure is put into place, these restrictions can be reduced. The bottom line is that, although eventually a full financial liberalization is a worthy goal, to avoid financial crises financial liberalization needs to proceed at a measured pace, with some restrictions imposed along the way.

Monetary Policy and Price Stability

It is also important to recognize that, although it is only indirectly a financial policy, monetary policy can play an important role in promoting financial stability. Price stability is a worthy goal in its own right. Not only do public opinion surveys indicate that the public is very hostile to inflation, but there is also mounting evidence from econometric studies that inflation is harmful to the economy.[7]

The asymmetric information analysis of financial crises provides additional reasons why price stability is so important. As was mentioned earlier, when countries have a past history of high inflation, debt contracts are often denominated in foreign currencies. As we have seen, this feature of debt contracts makes the financial system more fragile because currency depreciation can trigger a financial crisis. Achieving price stability is a necessary condition for having a sound currency, and with a sound currency, it is far easier for banks, nonfinancial firms, and the government to raise capital with debt denominated in domestic currency. Thus, another method for reducing an economy's dependence on foreign-denominated debt and enhancing financial stability is the successful pursuit of price stability.

Furthermore, central banks that have successfully pursued price stability have sufficient credibility that expansionary monetary policy or a lender-of-last-resort operation in the face of a financial crisis is less likely to result in a rise in inflation expectations and a sharp depreciation of the currency that would harm balance sheets. Thus countries that have successfully pursued price stability have an enhanced ability to use monetary policy tools to promote recovery from a financial crisis.

Exchange Rate Regimes and Foreign Exchange Reserves

Although we have seen that the pursuit of price stability can enhance financial stability and is thus desirable, some methods of pursuing price stability can unfortunately promote financial instability. One commonly used method to achieve price stability is to peg the value of currency to that of a large, low-inflation country. In some cases, this strategy involves pegging

7. Inflation, particularly at high levels, is found to be negatively associated with growth. At lower levels, inflation is found to lower the level of economic activity, although not necessarily the growth rate. See the survey in Anderson and Gruen (1995) and Fischer (1993), one of the most cited papers in this literature.

the exchange rate at a fixed value to that of the other country's currency so that its inflation rate will eventually gravitate to that of the other country. In other cases, the strategy involves a crawling peg or target in which one country's currency is allowed to depreciate at a steady rate against that of another country so that its inflation rate can be higher than that of the country to which it is pegged.

Although adhering to a fixed or pegged exchange rate regime can be a successful strategy for controlling inflation, the analysis of financial crises in this paper illustrates how dangerous this strategy can be for an emerging market country with a large amount of foreign-denominated debt. Under a pegged exchange rate regime, when a successful speculative attack occurs, the decline in the value of the domestic currency is usually much larger, more rapid, and more unanticipated than when a depreciation occurs under a floating exchange rate regime. For example, during the Mexican crisis of 1994–95, the value of the peso fell by half in only a few months time, whereas in the recent Southeast Asian crisis, the worst-hit country, Indonesia, saw its currency decline to less than one-quarter of its precrisis value, also in a very short period of time. The damage to balance sheets after these devaluations was extremely severe. In Mexico, the net debtor position of business enterprises increased several times from before the devaluation in December 1994 until March 1995, whereas in Indonesia the greater than fourfold increase in the value of foreign debt arising from the currency collapse made it very difficult for Indonesian firms with appreciable foreign debt to remain solvent. The deterioration of nonfinancial firms' balance sheets leads to a deterioration in bank balance sheets because borrowers from the banks are now less likely to be able to pay off their loans. The result of this collapse in balance sheets was sharp economic contractions. In Mexico, real GDP growth in the second and third quarters of 1995 fell to rates around –10 percent, whereas Indonesia experienced an even worse rate of decline, with GDP falling by close to 15 percent in 1998, and has an economy still in shambles.

Another potential danger from an exchange rate peg is that, by providing a more stable value of the currency, it might lower risk for foreign investors and thus encourage capital inflows. Although these capital inflows might be channeled into productive investments and thus stimulate growth, they might promote excessive lending, manifested by a lending boom, because domestic financial intermediaries such as banks play a key role in intermediating these capital inflows (Calvo, Leiderman, and Reinhart 1994). Indeed, Folkerts-Landau et al. (1995) found that emerging market countries in the Asia-Pacific region with large net private capital inflows also experienced large increases in their banking sectors. Furthermore, if the bank supervisory process is weak, as it often is in emerging market and transition countries, so that the government safety net for banking institutions creates incentives for them to take on risk, the likelihood that a capital inflow will

produce a lending boom is that much greater. With inadequate bank supervision, the likely outcome of a lending boom is substantial loan losses, a deterioration of bank balance sheets, and a possible financial crisis.[8]

A flexible exchange rate regime has the advantage that movements in the exchange rate are much less nonlinear than in a pegged exchange rate regime. Indeed, the daily fluctuations in the exchange rate in a flexible exchange rate regime have the advantage of making clear to private firms, banks, and governments that there is substantial risk involved in issuing liabilities denominated in foreign currencies. Furthermore, a depreciation of the exchange rate may provide an early warning signal to policymakers that their policies may have to be adjusted in order to limit the potential for a financial crisis.

The conclusion is that a pegged exchange rate regime may increase financial instability in emerging market countries. However, this conclusion does not indicate that fixing or pegging an exchange rate to control inflation is always inappropriate. Indeed, countries with a past history of poor inflation performance may find that only with a very strong commitment mechanism to an exchange rate peg (as in a currency board or full dollarization) can inflation be controlled (Mishkin 1998; Mishkin and Savastano 2001). However, the analysis does suggest that countries using this strategy to control inflation must actively pursue policies that will promote a healthy banking system. Furthermore, if a country has an institutional structure of a fragile banking system and substantial debt denominated in foreign currencies, using an exchange rate peg, particularly one with a weak commitment mechanism, to control inflation can be a very dangerous strategy indeed.[9] This is one reason that countries, like Korea, that in the past year have de facto pegged their exchange rate by allowing it to fluctuate only within very narrow bounds may be leaving themselves more exposed to future financial crises than they realize.

Another feature of recent currency and financial crises is that countries with low amounts of international reserves relative to short-term foreign liabilities seemed to be more vulnerable to crises. This has led some researchers (e.g., Radelet and Sachs 1998) to advocate increased holdings of international reserves to insulate countries from financial crises. Indeed, many emerging market countries have taken this recommendation to heart by accumulating large amounts of reserves after their financial crises. For example, Korea currently has accumulated international reserves near the $100 billion level. Although the accumulation of large amounts of interna-

8. Gavin and Hausman (1996) and Kaminsky and Reinhart (1999) do find that lending booms are a predictor of banking crises, yet it is less clear that capital inflows will produce a lending boom that causes a deterioration in bank balance sheets. Kaminsky and Reinhart (1999), for example, find that financial liberalization appears to be a more important predictor of banking crises than balance-of-payments developments inflows.

9. See Obstfeld and Rogoff (1995) for additional arguments as to why pegged exchange rate regimes may be undesirable.

tional reserves may make emerging market countries less vulnerable to currency crises, it is unlikely to insulate them from a financial crisis if the financial sector is sufficiently weakened. A large accumulation of international reserves has the potential to lull an emerging market country into complacency about taking the steps to ensure a safe and sound financial system and thus could have a hidden danger.

2.1.6 Concluding Remarks

The bad news is that in recent years we have seen a growing number of banking and financial crises in emerging market countries, with great costs to their economies. The good news, however, is that we now have a much better understanding of why banking and financial crises occur in emerging market countries and so have a better idea of how these crises can be prevented. This paper has outlined a set of financial policies that can help make financial crises less likely. If the political will to adopt these policies in emerging market countries grows, then we should see healthier financial systems in these countries in the future, with substantial gains both from higher economic growth and smaller economic fluctuations.

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2. Andrew Crockett

Mishkin's paper defines a financial crisis as a breakdown of financial intermediation due to an intensification of asymmetric information problems. Although this definition may not capture all elements of all financial crises, it has several important merits.

1. It focuses on the ways in which financial crisis impairs the performance of the real economy, and not just the fiscal or resolution costs.
2. It forces us to ask what causes moral hazard and adverse selection and thus to see more clearly the danger signals of impending crisis as well as the possible remedies.
3. It is a helpful framework for interpreting the feedback mechanisms between currency and financial crises.

The heart of Mishkin's paper is the analysis of twelve features of the financial system, through which actions could usefully be taken to limit the scope for moral hazard and adverse selection, and thus reduce the likelihood of crisis. To simplify, I will group his proposals into five broad families and comment on each. The five families are

1. The macroeconomic environment
2. Competition and market discipline
3. The infrastructure for financial activity
4. Prudential supervision
5. Restrictions and controls

The Macroeconomic Environment

A stable financial environment is obviously important for the effective pricing and management of risk. Financial intermediaries can do a better job, and are less likely to get into trouble, if inflation is low and stable and the budgetary position is sustainable. There is little dispute about this.

More controversial is the exchange rate regime. For the same reason that

financial intermediation benefits from internal price stability, it also benefits from stability in the exchange rate. The question is what regime delivers the greater degree of stability. Our discussion this morning covered this matter extensively.

Here, I want to make only one additional observation. The least satisfactory regime is one of the fixed-but-adjustable rates in which the authorities invest political credibility in defending an announced rate but are not prepared to accept the full discipline of a currency board. Almost without exception, such regimes have encouraged resistance to market pressures beyond the point at which such resistance could be justified.

Fixed-but-adjustable rates contribute to the buildup of financial imbalances by encouraging the mispricing of risk while the rate is fixed. And when a peg is broken, the balance sheet consequences can severely impair financial intermediation. I conclude, therefore, that exchange rate flexibility (not necessarily free floating) is for most countries a part of the sustainable macroeconomic environment. This *does not* mean that countries should not hold views about their exchange rates and even direct some policies toward stabilizing it. It *does* mean that they should avoid declaring a rate and using intervention to defend it.

Competition and Market Discipline

Competition and market discipline are important mechanisms for improving the efficiency of financial systems. Mishkin makes a number of sensible suggestions that are not less important for being fairly familiar. They include encouraging the entry of foreign-owned financial institutions; privatization and the withdrawal of state intervention in the financial system; eschewal of "too-big-to-fail" policies, in both the financial and the corporate sector; and greater use of the issue of subordinated debt.

Still, a cautionary note is needed. Although these measures are useful, their introduction in emerging markets is not straightforward. Opening financial sectors to foreign participation is politically sensitive in a number of countries, sometimes for deep-seated historical and psychological reasons. The withdrawal of the state cannot be unconditional, unless the spontaneous emergence of private-sector substitutes for certain activities can be ensured; the abandonment of too-big-to-fail policies requires an assurance that alternative mechanisms for the orderly resolution of distress are available and that the means to protect depositors exist. And subordinated debt may be less effective as a mechanism in countries where banks are small and debt markets underdeveloped.

The Financial Infrastructure

Mishkin draws attention to the importance of sound accounting standards, robust legal systems, and impartial law enforcement. To this one

could add a number of other features, such as effective corporate governance and strong payments and settlement systems.

The fact is that financial activity takes place within a broad context that we, in advanced industrial countries, have come to take for granted. The absence of a stable infrastructure for financial transactions has consequences that can be seen, in their most extreme form, in Russia. However, they were also an important contributory cause to the problems of Asian economies, and in Mexico before that.

Accounting is of course a key element. Accounting lapses are the basis of forbearance. To put it bluntly, they allow bad loans to be classified as good right up to the point of failure. The need is for accounting standards that allow changes in real economic value to be properly reflected in management accounts and in published income and balance sheet statements. I have no dispute with Mishkin's view on this, but it will not be easy to put this simple-sounding prescription into effect.

Much accounting in banking is done on the basis of historical or book costs, and for some quite good reasons. It is hard, and judgmental, to assess a "market" value for a non-marketable asset. Moreover, that value will change through time (up and down) as the borrowers' prospects change. Trying to track the varying value of loan portfolios will introduce greater volatility into the profitability, and the balance sheets, of banks. To dramatize this point, recall that the major U.S. banks would mostly have been insolvent on a mark-to-market basis in 1982. The same could probably have been said about most Japanese banks and insurance companies at various times in the 1990s. Would their prompt liquidation have added to the stability of the system?

Still, I am persuaded that a greater focus on market value accounting is appropriate and probably inevitable. For banks, this would involve provisioning against loans that have not yet become nonperforming. The task will be to persuade other relevant parties, including the accounting profession, tax authorities, and securities regulators, all of whom have varying degrees of principled reservation about the proposal. Beyond that, we will also need to deal with the issues created by greater recorded volatility in banks' balance sheets.

Prudential Supervision

Although I am mentioning this only fourth, improved prudential supervision comes first in Mishkin's list, and for understandable reasons. There can be little dispute about much of what he has to say concerning the need to ensure the independence and accountability of regulators, to provide adequate resources for supervision, to encourage forward-looking risk management, and to close troubled institutions. I will not comment further on these points here.

Rather, I want to make an observation on "prompt corrective action"

and then to reflect more generally on the relationship between the *microprudential* and *macroprudential* tasks of supervision.

Prompt corrective action is clearly appropriate when a single institution gets into difficulties as a result of misjudgment and poor risk management. The knowledge that such action will be applied acts as a spur to prudent behavior and avoids the compounding of mistakes. But what about a situation when all institutions get into trouble more or less simultaneously, as a result of a shared problem? Closing down all institutions may not be an attractive option, and neither is imposing generalized restraints on incremental lending.

This problem is one manifestation of the difficulty of reconciling the micro and macro aspects of prudential supervision. The quintessential microprudential dictum is that "the financial system is sound when each of its constituent institutions is sound." At one level, this statement is a truism. But at another level, it is both too broad and too narrow: too broad because it is not the failure of individual institutions that is the problem, and too narrow because it does not recognize adequately endogeneities within the financial system.

The fact is that the problems we are most concerned with are not the result of idiosyncratic mistakes. More usually, a systemic crisis occurs because of common exposures to cyclically induced problems. Banks and their supervisors are reasonably good at assessing *relative* risks in portfolios. They are less good at capturing undiversifiable risks associated with the economic cycle. So we fall back on risk management paradigms that tell us, in effect, that risk falls during booms and rises in recessions. Yet we all know that the worst loans are made in the best times. A more accurate assessment of underlying risk would be to say that it *rises* during upswings and *materializes* during recessions.

I draw three conclusions from this. First, it is naïve to think that introducing "best practice" risk assessment will by itself deal with the fundamental causes of systemic crisis. Second, although "forbearance" is generally a mistake, the problem it is designed to solve is real. The real objective should be to create a situation in which the system is strong enough that forbearance is not necessary. Third, we need to think of supervisory instruments that better address the buildup of systemic risk. Possible approaches include preprovisioning, cyclically adjusted capital requirements, and special capital requirements for systemically significant institutions. More generally, a system with multiple channels of financial intermediation (especially, effective capital markets) is more easily able to countenance the prompt closure of troubled institutions.

Moreover, the actions of individual institutions feed back onto the condition of others. If a large bank fails, its counterparties may be weakened as a result. In addition, an apparently prudential retrenchment of lending, if generalized, may indirectly damage the quality of existing credits. In other words, *individually* rational behavior can be collectively destabilizing.

Restrictions and Controls

The issue of whether capital controls or other restrictions can play a role in crisis avoidance has made a comeback in recent years. Part of the reason has been the effects of capital flow volatility in generating recent crises. The experiences of Malaysia and Chile have also played a role.

My reading of the evidence suggests there is broad consensus that capital controls are *not* a desirable long-term feature of the landscape. First, they limit a country's access to international capital markets. Second, it is difficult to distinguish beneficial flows from volatile ones. Third, financial markets generally find ways to get around controls. Fourth, controls frequently breed corruption. For all these reasons, the removal of capital account controls seems to be still a legitimate long-term aspiration.

Yet a number of qualifications need to be made. First, sequencing is important. There is now general recognition that to remove controls before the domestic supervisory structure for the financial system is in place is asking for trouble. Second, measures that serve a genuine prudential purpose have a legitimate function. Regulatory restraints on mismatching of currency and maturity fall into this category. Third, measures that restrain inflows are more effective and desirable than those that restrain outflows. The experience of Chile, while not clear-cut, shows that effective inflow controls can be designed. Fourth, and last, "market-friendly" controls do less damage than administrative restrictions. Once again, the Chilean regime can be cited. It acts as a sliding scale tax on inflows, with the highest effective tax being levied on the shortest-term inflows.

Codes and Standards

In discussing these various aspects of the financial system that are important in helping avoid crises, I have so far said nothing about *how* the suggested improvements are to be brought about. It is worth noting, however, that the international community now has a strategy for achieving this. It revolves around the articulation and implementation of codes and standards of best practice in the financial area.

It is easy to poke fun at the fact that there are now sixty-six standards on the website of the Financial Stability Forum. But, sarcasm aside, this is simply a reflection of the complexity of a well-functioning financial system. It needs not just sound management of the variety of different intermediaries in the system, but effective transparency, corporate governance, payment and settlement systems, accounting practices, and so on. Certainly, the sixty-six standards call for prioritization and sequencing, and countries committed to introducing them will need help. But those that criticize the sheer number of standards would be more convincing if they showed more evidence they were aware of their content.

How are standards to be drawn up and implemented? The strategy calls

for appropriate standards to be developed by committees of national experts (the Basel Committee is the best example), then for implementation to be encouraged through official assessment and market forces.

So far, the strategy is not much more than that—a strategy. Filling in the details will be laborious and time-consuming. However, I believe it presents the best hope of the goal that this conference is designed to promote: helping reduce the incidence and severity of future financial crises.

3. Michael P. Dooley

When Martin Feldstein asked me to participate in this session, he asked that I draw on my experience at the International Monetary Fund (IMF) and the Federal Reserve. I've been an academic for nine years now but will try to lean more on experience than theory in commenting on the issues raised in this morning's discussion and in Frederic S. Mishkin's excellent paper.

I believe that a quite new and important element has influenced recent discussions of exchange rate regimes for emerging markets. What I would call the political economy approach is based on the idea that exchange rate regimes create incentives both for the private sector and for the central bank. This approach is very hostile to the "middle" because managed regimes become adjustable pegs and, in practice, have created very bad incentives for central bankers and private investors in emerging markets. All three central bankers emphasized this point this morning, and I think we need to consider this point of view very carefully.

I will focus on one incentive problem, namely, the association between banking crises and exchange rate regimes. In particular, I think we need to ask why repressed financial systems in emerging markets that were so stable for so long, suddenly become a source of vulnerability for currencies.

The historical evidence suggests that repressed banking systems have been stable as long as they remained repressed. Before liberalization, residents of emerging markets had no choice but to keep their money at home, and repressed banking systems "worked" from a macroeconomic point of view. From a micro point of view, however, they were terribly inefficient. Repressed banking systems are characterized by assets that have little or no market value. This is no secret. Every IMF report on such countries had a standard paragraph warning that losses in the domestic banking system were a threat to the solvency of the banks and the government. Yet the predicted run on the banks never materialized, and governments became less and less likely to pay attention to such warnings.

The key to this puzzle is, I think, that repressed banking systems are similar to pay-as-you-go pension schemes. As long as each generation expects

to "tax" the next generation by selling them deposits, the value of banks' assets is not crucial for the value of banks' liabilities. Liberalization of the financial system allows the next generation to buy alternative foreign or domestic assets, breaking this chain. As soon as liberalization becomes a sure thing, the repressed banking system is doomed.

But it does not go quietly. As Mishkin explains in his paper, banks that have lost their franchise value reach for risk. Liberalization also provides a much larger international market for banks' liabilities, and this makes an all-or-nothing play profitable. Finally, the regulatory structure needed to blunt these incentives is not likely to develop overnight.

Why do nonresidents lend? My guess is that the exchange rate regime has contributed to the expectation that their investments in these exploding banking systems are insured by governments. Prior to liberalization, particularly in Asia but also in other emerging markets, governments accumulated reserves in order to stabilize nominal exchange rates. This search for security has had the unintended effect of creating of a very well funded lender of last resort that does not know how to regulate a banking system in an open economy. The result in my view is a capital inflow that is unrelated to the quality of the investments in the emerging market. The capital inflow is related to bank's incentives to reach for risk and nonresident investors' incentives to take advantage of a substantial insurance fund. A financial or exchange market crisis is the natural result of these incentives.

This story is quite simple and should leave its tracks in the data. Inseok Shin and I have taken a careful look at the events leading up to the recent crisis in Korea (Dooley and Shin 2000). We document a clear deterioration in the equity value of Korean banks after 1991, following liberalization. In spite of this, foreign deposits grew rapidly and, in fact, grew more rapidly in individual banks that were known to have the weakest balance sheets. There was also an obvious deterioration in the quality of banks' assets during this rapid growth. We conclude that foreign investors must have been comforted by the expectation that the Korean government would use its reserves and lines of credit to bail them out; and our reading of events following the crisis is that those expectations were largely justified. The Bank of Korea deposited $20 billion in offshore branches of Korean banks and $10 billion in domestic branches. To be sure, not all foreign investors in Korea were bailed out, but that is not important for our story. Those who took uninsured risks received very high rates of return before the crisis.

What can we conclude about the political economy of exchange rate regimes? I think Arminio Fraga hit the nail right on the head this morning when he argued that the traditional arguments about fixed versus floating may someday be relevant for emerging markets but are not crucial now. In virtually every case, emerging markets drag behind a banking system with such a large hole in the balance sheet that it is politically difficult for the government to clean it up by recognizing and the socializing the loss. This gen-

erates serious incentive problems both for the private sector, which will view a fixed exchange rate and reserves as a guarantee for its balance sheets, and for the government, which will be tempted to accumulate reserves and grow out of debt with an undervalued exchange rate. Greater exchange rate flexibility will not cure the problem in the banking system, but it will eliminate the most obvious way for the private sector to make matters worse.

Reference

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4. Montek S. Ahluwalia

I would like to join the other panelists in complimenting Frederic Mishkin on an excellent paper. The twelve areas of financial policy he has identified reflect the current international consensus on how to avoid financial crises, and most developing countries are moving broadly in the directions indicated. Martin Feldstein has asked me to comment on the paper from the Indian perspective, so I will focus on how India's financial policies measure up against the template provided in the Mishkin paper.

A few words on recent economic developments in India may be useful by way of background information. India experienced a severe foreign exchange crisis in 1991, which led to the adoption of a program of economic stabilization and structural reforms. The reforms were similar to those attempted by several other countries and involved a basic reorientation of economic policy toward economic liberalization and greater integration with the global economy. They were broad based, in the sense of covering several areas such as industrial policy, trade policy, price decontrol, foreign investment policy, and financial liberalization. However, the pace of reforms in India was much more gradualist than in most other countries, reflecting the difficulty in generating a political consensus in a large and highly pluralist democracy. The slow pace has taxed the patience of many otherwise sympathetic observers, but it is important to note that the reforms have yielded positive results. The economy stabilized very quickly after the crisis of 1991, and the average growth in the postreforms period 1992–2000 was about 6.5 percent, making India one of the five or six fastest-growing countries in this period.

An interesting feature of India's experience is the change from its fragile position in 1991, when it was overcome by a crisis, to the much stronger position in 1997 and 1998 when it was able to escape the East Asian contagion. It is relevant to ask how far this was due to India's policies having been brought in line with the prescriptions of the Mishkin paper, and I hope I can throw some light on this question.

Prudential Norms and Supervision

Reforms in the banking sector were an integral part of India's reform program, and some steps were taken even before the East Asian crisis to improve prudential norms and to strengthen supervision. The process acquired a new urgency after East Asia, when financial-sector weaknesses came to be seen as one of the principal causes of crises in emerging markets and there was a growing consensus that prudential norms and supervision standards should be raised to internationally accepted levels.

There has been a significant improvement in capital adequacy requirements and prudential norms in recent years. Banks are currently expected to maintain a minimum ratio of capital to risk assets of 9 percent, and this is expected to be increased to 10 percent in the near future. The norms for income recognition, classification of nonperforming assets, and provisioning have also been tightened. However, since international norms are being implemented in a phased manner, Indian norms remain below the Basel Committee's minimum standards in some important respects. Loans are classified as substandard only when debt service payments become overdue for 180 days, whereas the international norm is 90 days. The extent of provisioning for different categories of assets is also below the international level. The ultimate objective is to align the norms with international levels, but a firm deadline has not been specified.

A number of steps have also been taken to improve accounting standards and disclosure by the banks and to strengthen supervision. Traditional onsite supervision is being supplemented by a system of offsite supervision based on a regular flow of information from the banks and this is expected to allow closer and more continuous monitoring of asset quality, capital adequacy, large exposures, connected lending, and so on.

The need to strengthen regulation by establishing a system for prompt corrective action, which is specifically mentioned in the Mishkin paper, has been recognized. The Reserve Bank of India (RBI) has circulated a discussion paper on this subject, proposing a system that establishes objective trigger points in three different dimensions of bank performance—capital adequacy, percentage of nonperforming assets, and return on assets. If a bank's performance in any dimension deteriorates to a defined trigger point, it will automatically invite a set of mandatory actions by RBI. In addition, there are certain types of discretionary action that may be taken to improve performance. Implementation of this system will definitely improve the quality of supervision.

It is relatively easy to prescribe new norms and even to introduce new supervisory systems, but this does not automatically ensure an improvement in the functioning of banks. That requires institutional changes in the internal functioning of banks, including especially improvements in the systems of credit evaluation and risk assessment, the quality of human resources, and the quality of internal controls and governance. These changes can only be achieved over a period of time. I fully agree with the speaker who said that even after we decide to go down this route, it may take ten years to get there! This is especially so when reforms are being introduced in a noncrisis environment, where the need for change may not be evident to all concerned.[1]

This is well illustrated by the position regarding capital adequacy in the Indian banking system. At present, 97 out of the 101 banks operating in India are above the 9 percent minimum level of capital to risk-weighted assets. However, an independent credit rating agency has pointed out that the position would look much less comfortable if the norms for classifying loans as substandard were immediately set at international levels and provisions had to be made accordingly. The problem would be further aggravated if the banks followed international practice in making provisions wherever loans are expected to deteriorate based on recent trends. The study found that most banks might fall below the 9 percent minimum.

The dilemma facing the regulatory authority is evident. A faster transition to international norms would have pushed many more banks below the accepted capital adequacy level, effectively restricting their ability to expand credit and possibly having a contractionary impact on economic activity. However, it would have strengthened the banking system faster. All banks would have been under greater pressure to improve performance, and the better capitalized and more efficient banks would have gained market share relative to the weaker banks.

A peculiar feature of the Indian experience is that the benefits expected from better norms in terms of improved lending quality may be greatly reduced because the macroeconomic environment is characterized by a high fiscal deficit.[2] The high deficit has produced high interest rates and has had the expected adverse selection consequence of discouraging high-quality low-risk borrowers. The crowding-out on the side of demand for credit is reinforced on the supply side by the fact that banks have to meet high capital adequacy requirements for commercial assets whereas government securities are treated as zero risk assets, which creates a strong regulatory incen-

1. A financial crisis, with a visible collapse of some financial institutions, creates a sense of urgency about the need for restructuring, and the process is facilitated if failed institutions are taken over by foreign banks with large-scale replacement of management systems and changes of senior personnel.

2. The need to reduce the fiscal deficit was recognized as a priority objective from the very beginning of the reforms, but progress in this area has been disappointing, and the consolidated deficit of the central and state governments is almost 10 percent of gross domestic product—about the same as just before the 1991 crisis.

tive for investing in government securities. The net result is that banks are encouraged to invest in government securities, effectively crowding out bank credit to the private sector. The fact that Indian banks hold substantial volumes of government securities contributes to the financial stability of the system, but only at the cost of crowding out credit to the private sector, with a resulting loss in efficiency.

Reducing Government Ownership of Banks

The area in which India's financial policies differ most distinctly from the international consensus relates to the role of public ownership of the banking system. The mainstream view, reflected in the Mishkin paper, is that government ownership of financial institutions is fundamentally inconsistent with sound banking and the role of government should therefore be drastically reduced, if not completely eliminated. However, public-sector banks account for 82 percent of the total assets of the banking system in India, and privatization is not on the agenda.

Government policy toward public ownership is being modified to allow public-sector banks to raise equity capital from the market, but this dilution is being driven not by the desire to reduce the government's role in management but by the desire to meet capital adequacy requirements without having to provide capital from the budget. Initially, the reforms permitted dilution provided government equity remained at least 51 percent. More recently, the government has announced its intention to reduce its shareholding to a minority position (33 percent) in order to meet the additional capital needs of the banks, but it has also stated that although the government's shareholding will be reduced to a minority position, the "public-sector character" of the banking system will be maintained. The exact meaning of this phrase has not been clarified, but it clearly implies that government will remain significantly involved in management.

Skeptics doubt whether any significant improvement can be achieved as long as the government remains the largest single (albeit minority) owner, with the rest of the equity dispersed over a large number of shareholders. There are also doubts about whether sufficient private equity could be attracted to recapitalize the banks on these terms, because the shares issued by the public-sector banks in the first stage of equity dilution are currently trading at a substantial discount on the issue price. However, the political resistance to privatization of the banking system is very strong.[3] In this situation, the best that can be expected is that reducing government equity to a minority position would enable the government to give bank manage-

3. Part of the problem is rooted in historical experience with private-sector banking, before the nationalization of the major banks in 1969. The banks were seen as captive banks of industrial houses with a great deal of connected lending. Lending to agriculture and small enterprises was minimal. The experience of privatization of the banks in many developing countries in the past twenty years is also not particularly encouraging.

ments a degree of flexibility and autonomy that would substantially improve their functioning.

It is difficult to judge how much autonomy is really possible. Reducing government equity to a minority will certainly enable the government to free the banks from many of the cumbersome rules and procedures that are otherwise automatically applied to any institution in which the government has more than 50 percent equity. They could be given much greater flexibility in hiring and promotion, and their salary structure could be delinked from the salary structure of the government and the rest of the public sector. In principle, the public-sector banks could be allowed to function as board-managed institutions, in which the board would include some government representatives but would also include independent, professionally competent persons to represent private shareholders. It has been argued that if the top management team in such banks is appointed by the board, and not by the government as at present, the banks could achieve a significantly higher degree of management autonomy, and therefore of efficiency, even if it is less than is possible in a fully private-sector bank.

Whatever happens to the public-sector banks, India's financial reforms will definitely reduce the dominance of the banking sector by the public-sector banks because the private-sector segment (consisting of Indian private-sector banks and foreign banks) is likely to expand very rapidly. An essential part of banking reforms was the grant of banking licenses to new Indian private-sector banks and a more liberal policy for expansion of branches of foreign banks. As a result, the share of the private-sector segment in total assets of the banking system, which was only 8 percent in 1990–91, increased to 18 percent in 1999–2000. The new private-sector banks and the foreign banks do not have as large a branch network as the public-sector banks, but they have other competitive advantages: they are less burdened with excess staff, have a high degree of managerial and operational flexibility, and are adopting information technology much more rapidly, enabling them to offer better services and also a wider range of products. Besides, the advantages of a very large network of brick and mortar branches are likely to diminish over time as information technology makes it possible to access quality clients without a larger number of branches. With continued financial liberalization, the share of the private-sector segment could easily expand to 30 percent over the next five years.

Competition from efficient private-sector banks and foreign banks will put pressure on the public-sector banks to improve their performance, and the stronger public-sector banks can achieve much higher levels of efficiency if given operational flexibility. There is some evidence that they are making an effort. Several banks have attempted to reduce excess staff by offering generous voluntary retirement packages. Although strongly opposed by the unions, this initiative has received a very positive response,

with more than 10 percent of the employees opting for retirement. Further cost saving could be achieved by closing down loss-making branches, which have tended to proliferate. Reduction in government equity to a minority position will make it easier for the government to allow bank managements to explore these options without having the issues politicized.

The real challenge will be how to deal with the weak public-sector banks, which will be squeezed between the private-sector banks, which are expanding market share, and the stronger public-sector banks, which will fight to maintain their share. Several public-sector banks have been identified as being weak on the basis of capital adequacy and various efficiency-related criteria. Of these, three were identified as the weakest, calling for one of three options: (a) closure or merger with another public-sector bank, (b) change of ownership (i.e., privatization), or (c) comprehensive restructuring with a one-time cleanup of the balance sheet and continued operation as a public-sector bank. The government has ruled out the first two options and indicated that it will recapitalize these banks, provided a restructuring plan is drawn up by the banks' managements that is acceptable to the government and the RBI.

The credibility of this approach depends upon the extent of restructuring and cost reduction that can be brought about. There will have to be a substantial reduction in staff, possible acceptance of a freeze on wages, and also closure of a sufficient number of loss-making branches to create a smaller, leaner bank, which could become profitable. Without radical restructuring it will be difficult for these banks to survive in the more competitive environment they are likely to face in future.

The worst outcome for the future of public-sector banks would be one in which regulatory forbearance—always a danger when there are public-sector banks—allows these banks to continue to operate despite inadequate capital and without any significant restructuring. If closure or restructuring and privatization is not found to be politically acceptable, the regulatory system should at least insist on compliance with capital adequacy norms so that banks that fail to perform become "narrow banks," functioning as deposit-taking institutions investing mainly in government securities, which does not require a strong capital base and does not pose any threat to financial stability. This would at least allow more efficient banks (both public-sector and private-sector banks) to expand and fill the space vacated by the weak banks, sending the right signal to other banks for the future.

The Indian banking system is also burdened with another feature that is not in line with mainstream views on good banking, although it exists in other countries also in one form or another. This is the practice of directed credit. All Indian banks are required to ensure that 40 percent of their loans and advances portfolio is directed towards what is called the "priority sec-

tor": agriculture, small-scale industry, small transport operators, and the like. Banks are not directed to lend to specific borrowers, but only to ensure sufficient allocation of funds to broadly defined sectors, and the banks are expected to use normal credit assessment criteria to identify creditworthy borrowers within these sectors. However, this is clearly a quasifiscal activity. A large portion of priority-sector lending is to small farmers and microenterprises, and the interest rate for these loans is capped at the prime lending rate, which implies a significant subsidy, given the high administrative costs and higher default risk of such loans. Strict adherence to sound banking principles calls for a removal of quasifiscal burdens. If subsidies have to be given, they should be given explicitly through the budget, a process that would automatically be subject to demands for scrutiny, transparency, and, most of all, effectiveness.

Legal and Judicial Issues

The legal and judicial system, which is listed as one of the twelve critical areas, is indeed a major problem area for banks in India, as in many emerging market countries. Indian banks are greatly hampered by legal procedures that make it difficult to attach collateral (especially real estate) and realize its sale value. The procedures regarding bankruptcy are also extremely cumbersome, and liquidation of insolvent companies can take several years. This is undoubtedly one of the principal reasons for the relatively high level of nonperforming assets in the banking system.

The government initially sought to deal with the problem by establishing specialized Debt Recovery Tribunals designed to enable banks to take action for debt recovery within the existing laws through specialized courts empowered to use simpler procedures. This has helped to some extent, but the real lacuna is the lack of a modern bankruptcy law that would represent an appropriate balance between the rights of debtors and creditors and would allow creditors to force liquidation in the event of default after giving debtors a reasonable time to find a mutually acceptable solution. The government has announced its intention to amend the existing legislation along these lines, and this would represent a major improvement in the situation.

Capital Controls

India's policy toward capital controls differs from the view advocated in the paper that controls on capital movement are not only inefficient but also infeasible in the longer run because of leakages and therefore should be avoided. This was also the view advocated by the IMF before the East Asian crisis, but its approach has become more nuanced since then. Free mobility of capital is still regarded as a first best policy, but the IMF now recognizes that it may be risky to move to full capital mobility until the financial sec-

tor has been sufficiently strengthened.[4] An alternative view, articulated by Jagdish Bhagwati (1998) and John Williamson (1992), holds that although there may be efficiency gains from liberalizing capital movements, the benefits are small and also uncertain. Bhagwati has argued that whereas there is a very strong empirical basis for asserting significant benefits from liberalization of trade and foreign direct investment (FDI), there is much less evidence of similar benefits from liberalization of capital movements generally. On this view, emerging market countries should liberalize inflows of FDI, but they should continue to be cautious in liberalizing other capital flows. It is sometimes argued that full capital mobility is necessary to enable countries to attract much-needed FDI. This argument is not particularly convincing because China does not allow full capital mobility and yet is clearly the most successful country in attracting FDI. Foreign investors clearly need the assurance of being able to repatriate their capital at will, but full capital mobility may not be necessary.

India's policies are in line with the Bhagwati-Williamson prescriptions. Both FDI and portfolio investment in Indian stock markets have been greatly liberalized, and these investors are also allowed to liquidate their investments and exit at will. Debt flows, on the other hand, are strictly controlled. Borrowing abroad requires government permission, and the system is managed to ensure that total foreign borrowing in any year stays within some predetermined "prudent" level. Furthermore, there are minimum maturity requirements that rule out short-term borrowing, except for normal trade credit.

This policy paid dividends at the time of the East Asian crisis because India's external debt indicators had improved considerably compared to the situation in 1991, and this was surely one factor explaining why India did not suffer from contagion. Most important, India's short-term foreign debt was only 25 percent of total foreign exchange reserves, compared with well over 100 percent for some of the crisis-hit countries. This made India much less vulnerable to a cessation of commercial bank lending, which was the principal cause of the massive reversal of capital flows in East Asia.

India's capital control regime not only restricts short-term capital inflows but also controls capital outflows by Indian residents. Although residents can obtain foreign exchange to make payments abroad for all current transactions, they are not allowed to transfer funds abroad for capital transactions other than for repayment of external debt. In recent years, the system

4. It is interesting to note that the IMF position is somewhat asymmetric, because countries that have liberalized the capital account but do not have strong financial systems are not being advised to reimpose controls. This would be understandable if financial systems could be strengthened very quickly, but as we have seen this is not a practical possibility. If strengthening the financial systems is indeed a process that could take ten years, then there is a case for considering whether countries that have liberalized capital controls prematurely should not reimpose some form of control. However, there are no takers for this point of view in the fund.

has operated more liberally to allow Indian firms to create or acquire production or marketing capacity abroad as part of the firm's global expansion plans or in support of an export drive. However, the transfer of funds from India to hold financial assets abroad as an act of portfolio diversification is not allowed.

The original rationale for controlling capital outflows was that it will increase the resources available for investment domestically, and this was perhaps justifiable at a time when foreign investment was not welcome and capital controls were seen as a way to maximize the availability of resources for domestic investment. With foreign investment now welcome, this argument is no longer applicable, since any capital outflow for investment abroad only vacates investment space at home, which in principle could be filled by foreign investment provided productive investment opportunities exist. In other words, the liberalizing of capital controls need not reduce the total level of investment but may only alter its composition, with foreign investors acquiring domestic assets while domestic residents diversify their portfolio by investing abroad.

Indian policymakers are also keen to retain controls on capital outflows for another reason. In the absence of capital controls it is feared that a speculative attack on the currency could create expectations of devaluation that might trigger capital flight, which would prove self-fulfilling. It is of course recognized that controls are porous and significant leakages take place over time, but it is felt that controls can be effective in preventing sudden outflows in a crisis situation. This is not to say that capital outflows should not be allowed under any circumstances. On the contrary, it is argued that the existing system can be operated to achieve whatever level of capital outflow is felt to be manageable in normal times, but the system of controls should be retained so that a sudden outflow can be prevented.

India is likely to continue with its present cautious policy on capital controls, and a measure of caution in this area is perhaps justified on sequencing grounds. It would be better to get the fiscal deficit under control and have more progress on financial reforms before liberalizing the capital account. However, there can be little doubt that the compulsions of globalization will inevitably push India toward allowing greater flexibility. Indian firms will certainly need much greater freedom to invest abroad. Foreign investors locating production facilities in India will also demand greater freedom. At present, they have full freedom to take out their investment and exit at will, but they are subject to the same restrictions in their day-to-day operations that apply to other Indian companies (e.g., they cannot borrow abroad without permission, and such borrowings must conform to minimum maturity requirements even if they are from the parent company to its subsidiary in India). They are likely to demand flexibility for capital transactions comparable to that available in other countries. As the financial sector deepens, there will also be demands from institutions such as mutual

funds and insurance companies to diversify their investments by holding some foreign assets.

India is likely to respond to these pressures by loosening existing restrictions in steps as it gains confidence in how to handle macroeconomic shocks in an open economy. However, as capital flows are liberalized, India's vulnerability on this account will also increase, and with it the compulsion to bring other financial policies in line with the requirements of crisis prevention.

Exchange Rate Policies

On exchange rate policies, India's practice compares well with the flexible exchange rate approach recommended in the Mishkin paper. The RBI has stated on many occasions that the exchange rate will be determined by market fundamentals (which it has been careful not to define), and there is certainly no commitment to maintaining a particular exchange rate. Past experience shows that the rupee has depreciated steadily against the U.S. dollar (around 5 percent per year for the period 1996–2000), and no reasonable investor would have any grounds for believing that there is any kind of implicit exchange guarantee.

The exchange rate regime is not a completely free float in which the authorities abstain from any intervention, nor can this be expected, given the thinness of the foreign exchange market. The Reserve Bank intervenes (either through direct intervention in foreign exchange markets or through interest rate interventions) whenever it feels that the movement of the rupee is being driven by "temporary imbalances of demand and supply" or by "speculative pressure." It is of course difficult to tell whether a movement at any particular time reflects these factors or a change in fundamentals, and this judgment necessarily must be left to the RBI. However, it is clear that the RBI's interventions are in the nature of "leaning against the wind" to calm markets, rather than fighting against all odds to maintain a particular rate.

The RBI has been criticized for asymmetric behavior because it is seen to fight much harder to prevent a nominal appreciation of the rupee than a depreciation. This happened during the period 1994 to 1996, when there were substantial inflows of portfolio capital. The rupee would have appreciated vis-à-vis the dollar if left to market forces, but this was effectively prevented by the RBI's active intervention, which led to a substantial buildup of foreign exchange reserves. In retrospect, the RBI's action seems entirely justified. The buildup of reserves cannot be said to have been excessive, especially in the light of the East Asian crisis and the increased importance now accorded to maintaining high levels of reserves. Besides, the resistance to an appreciation in the nominal rate in that period also seems justified since the real effective exchange rate (REER) had already appreciated because the rupee was stable against the dollar, which had appreciated against other

currencies in this period. Further appreciation against the dollar would only have worsened the situation. Because the inflation rate in India exceeded the inflation rate in its major trading partners by 3 to 4 percent per year in this period, maintenance of the REER required a nominal depreciation, not appreciation.

The relevance of the REER as a guide for exchange rate policy in India has varied. In certain periods, especially 1994–96, the objective of stabilizing the REER was officially stated on several occasions but the RBI never officially adopted an announced REER target. More recently, the RBI has described the REER as only one of the many factors that are relevant in determining what the exchange rate should be. This "constructive ambiguity" is perhaps unavoidable when operating a managed floating exchange rate regime.

India's exchange rate policies certainly helped to avoid problems that affected many other countries at the time of the East Asian crisis. The rupee came under pressure on several occasions in 1998, but the absence of a rigid exchange rate target meant that it was able to adjust in a series of small steps without attracting much criticism from foreign investors, including portfolio investors. Between June 1997 and October 2000 the rupee depreciated against the dollar by around 23 percent, which was about half of the depreciation in Thailand and Malaysia and only a little lower than Korea (which rebounded strongly in 2000). At no stage, however, did India look as if it was facing a currency crisis.

The logical development of exchange rate policy in future would be to learn to allow greater exchange rate flexibility with less frequent intervention by the RBI. The need for such flexibility will undoubtedly increase as capital controls are progressively liberalized, increasing the possible pressure in foreign exchange markets from this source. The fact that import tariffs are still high, and the government has indicated that they will be lowered to East Asian levels in the medium term, suggests that there must be room for compensating depreciation to accompany tariff reductions. This adjustment would be much easier to achieve in a flexible exchange rate regime.

One consequence of allowing greater flexibility in the exchange rate is that the need for hedging instruments will expand. This in turn will put pressure on the system to liberalize capital transactions, because it is not possible to develop an efficient market for hedging foreign exchange risk with the restrictive capital controls. Banks in particular will have to be given more flexibility to take positions in forward markets subject to reasonable risk limitations.

To summarize, India's financial policies are moving in the direction indicated in the Mishkin paper in many respects, but important gaps remain in some areas. Some of these gaps, especially those relating to prudential norms, will be closed in a phased manner. There are important differences

in certain areas, such as, for example, the role of government ownership in the financial system and the policy toward capital controls. Some of these differences (e.g., on capital controls) can be justified on sequencing grounds. On the whole, policies are converging toward those that are currently seen to be necessary to avoid financial crises.

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Discussion Summary

Sebastian Edwards stressed the importance of distinguishing between controls on capital inflows and controls on capital outflows. The Chilean experience with its controls, which are market-based and designed to deter short-run inflows, has been largely positive. He said that the controls operated like a tax—which was as high as 600 basis points for short-term flows—and thus shifted the composition of flows toward the longer end. Edwards went on, however, to say that the success of the Chilean flows had been oversold. Chile was significantly affected by the Asian and Russian crises. Thus, he said, certain things needed to be kept in mind when judging the effectiveness of Chilean-type controls. First, they are a temporary solution and must be abandoned at some point. Chile has already abandoned its controls. Second, they can lead to complacency. Edwards gave the example of Korea in 1997, where the existence of controls led international investors to downplay the poor shape of the banking system.

On the relative merits of inflow and outflow controls, *Jacob Frenkel* thinks there is nothing to debate. There is a consensus, he said, that if you control outflows, inflows will not come. He agreed with Edwards that the Chilean success with inflow controls is oversold, remarking that the Chileans did not abandon their controls because they worked so well. He also agreed with Michael P. Dooley that problems are not exposed until you are part of the "stormy ocean" of global capital markets. But this does not mean that robustness is enhanced if you are sheltered by controls. Rather, it means that the distortions are there, and when corrections take place they do so "in a very noisy way." Turning to an example of how the business sec-

tor will self-insure in more turbulent markets, he pointed out that, prior to the removal of foreign exchange controls in Israel, there were practically no transactions in the nonspot foreign exchange market. Within a short period after the removal of controls, 40 percent of transactions were in the nonspot market, as the businesses began hedging against exchange rate risk.

Montek S. Ahluwalia agreed with Frenkel's point that you can't have controls on outflows unless you are willing to give up any hope of inflows. In India's case, inflows are welcomed and repatriation is allowed. The preoccupation in India is with controlling outflows by domestic residents. The authorities know that steady leakage will occur as people try to avoid excessive regulation. But a regime that controls outflows by domestic residents prevents sudden flights, so that it is not possible for several billion dollars to leave in one week. He said that this belief holds them back in liberalizing outflows. Another problem with the differential treatment of domestic and foreign investors is that the ease of exit of the latter creates more volatility for the former. But domestic investors don't have the instruments to hedge against this volatility, because the hedging markets do not exist and will only exist when the capital market is opened up. One solution would be Chilean-style controls applying to outflows. This could be done symmetrically—everybody is entitled to exit, but based on unremunerated deposits for one year. This might be politically feasible because domestic regulatory authorities are mostly afraid of short-term outflows.

Stanley Fischer said the International Monetary Fund has not supported the removal of controls until there are signs of financial strengthening. On reimposing controls when the system is weak, he agreed that is difficult short of a major crisis. On inflow controls, he said Chile is not the only country to have used them. They have been used in other countries—for example, Brazil and Columbia—and the empirical results have been more encouraging than the critics have allowed. These results show that the presence of controls does not affect the overall level of inflows, but they alter their composition, moving them to the long end. Turning to measures to strengthen the financial system, he said he agrees with most of what Andrew Crockett said, but he doesn't agree that it takes ten years and thus controls have to be in place for ten years. He said that the incentive effects might be such that you will fix the system less rapidly if controls are in, but that still does not mean that you need ten years to do it.

John Crow said that, like Mexico, Canada adopted a floating rate because of the infeasibility of controls given its proximity to the United States. He also agreed with the concern that controls would turn into an excuse for delaying financial-sector reform.

Karen Johnson expressed concern about the way risk management is addressed. Too much focus is placed on the liability side to the neglect of the asset side. We should really talk about "portfolio management" rather than "liability management," recognizing that every country has assets as well as

liabilities and covariances between them. She also complained about how issues are compartmentalized: banking regulations, fiscal policy norms, monetary policy norms, and so on. The relevant issues are allocated to different parts of the public or private sectors to take care of, again ignoring important covariances. She added that what she is advocating is a monumental task—"we don't have a government bureau of risk management," she said—but some progress needs to be made in getting away from thinking of the various elements as separable issues.

Mervyn King drew an analogy between the discussion of "corner solutions" for exchange rate regimes and such solutions for capital controls. Capital controls might provide temptations to follow suboptimal policies, he said, but added: "if you leap naked into this world of free capital movements, you may need superoptimal policies to avoid the sorts of crises that have hit countries." The "middle ground" puts enormous pressure on the quality of policy making, he said, adding that it is not a trivial task to strengthen financial systems and implement better banking supervision. As evidence, he pointed to the experience of banking crises in the industrialized countries over the last 200 to 300 years. He said that the industrial countries still did not deal with these crises very well. The Group of Ten (G10) has collectively spent vast sums of money bailing out their own financial systems, and he added that if he were in Ahluwalia's position, he would be cautious about the speed at which to proceed in this area.

Staying with problems in the G10, King pointed out that creditors are also subject to moral hazard created by the G10 governments themselves. Those who finance the banking flows into emerging markets are often totally unaware of the risks being taken. The reason they can ignore the risks is that industrial country governments underwrite them. He agrees with Fischer that this does not mean that you can easily reimpose capital controls, but it does suggest some natural caution in removing controls when the costs of getting it wrong are expensive crises.

Anne O. Krueger advised Ahluwalia to push for financial strengthening, and if opening up the capital market forces this, she would "push it even harder." Drawing on the Korean experience, she stressed that the argument for financial strengthening is primarily a growth argument. Although Korea had a very high return on capital in the 1960s (a real rate of return of 37 percent per year), in later years the financial system severely misallocated capital through such mechanisms as the evergreening of accounts. Given the importance of the banking system in countries that haven't developed other financial markets, it is crucial that banks move capital to where it has a high rate of return, and this requires banking-sector reform. In India fiscal deficits also draw crucial funds away from real investment. Krueger concluded by reiterating that financial strengthening and fiscal control are long-run growth issues as well as crisis prevention issues.

Peter Garber addressed a trade-off inherent in mark-to-market accounting practices. Previously banks didn't mark to market so as not to impose severe liquidity problems on borrowers. But the practice of carrying borrowers for a long time led to enormous problems when the system eventually broke down. Although the new trend toward marking to market might prevent major solvency problems, it makes liquidity problems much more frequent. This can be good to the extent it heads off insolvencies, but some hold the view that liquidity problems cause insolvencies by creating "multiple equilibria," and so it might not be desirable to "impose these liquidity-hungry methodologies on emerging market countries." Regarding the issue of subordinated debt, Garber believes that such requirements are highly manipulable. Banks can enter the market in undetected ways, effectively buying up their own debt.

Roberto Mendoza continued on the issue of mark-to-market accounting. While recognizing that banks are nowhere near as important to the financial system as they used to be, he notes that their application of historical cost accounting creates enormous distortions from the first day the assets are booked. Banks routinely book assets at cost even when they are worth significantly less than that on the first day. Moreover, derivative markets would allow for quite accurate pricing (individually or in aggregate) of bank assets. One implication of such cost-based accounting is that banks lend at too low a rate—as they did in Thailand—and with cheap funding the recipient engages in overly risky behavior. Since the consequences of such loans will eventually become clear, the single best preventative mechanism would be to force banks to have fair market value accounting immediately.

Domingo F. Cavallo emphasized the link between capital controls and capital account inconvertibility. Local financial institutions cannot directly intermediate using foreign exchange when people do not have the right to convert their money into foreign currencies. This leads to the phenomenon of capital flight as savers insist on being protected by holding foreign currency assets. At the same time there is lending from abroad in foreign currencies. These funds are intermediated through local institutions, with the lending taking place in domestic currency. This leads to fragile balance sheets. There would be better quality intermediation if the banks could take deposits and lend in domestic and foreign currencies.

Larry Summers said that the presence of foreign financial institutions in emerging markets is good on grounds of "diversification, risk sharing, and deep pockets." One aspect of capital controls that must be considered is the adverse impact they have on the presence of foreign institutions. Regarding the distinction between what he called the "macroeconomic-cheat-the-traditional-trade-off" and the "prudential" rationales for capital controls, he said the latter was more compelling. He asked: "If you limit short-term foreign currency–denominated assets in your banking system, is that a cap-

ital control or is it a prudential control?" His answer is that a great deal of what is defensible is defensible as prudential policy, without making reference to the notion of capital controls, per se.

Next, drawing an analogy with the policy wisdom that you should eliminate all the energy subsidies before you start putting on energy taxes, Summers said that inappropriate subsidies and incentives to short-term capital are an enormous problem. Most of the countries that got overwhelmed turned out to be those that did a lot of things to keep those flows coming. Finally, he said that a country's receptivity to short-term capital is not something in which those outside the country have a compelling interest. Thus, it would be a mistake for the international community to seek to try to impose views like the ones he has just expressed through either trade policy or the IMF as a broad systematic matter. One substantial exception to this stance, however, is that it is reasonable to ask countries receiving official-sector money to think about removing their barriers to private-sector money.

Yung Chul Park raised the issue of what exactly is meant by a foreign bank. He reported that in Korea foreigners own more than 35 percent of the major commercial banks, but they are all "financial investors, not interested in controlling management." Foreigners own 70 percent of one bank, but still are not interested in controlling management. "Is this bank foreign or is it domestic?" he asked. He noted that the foreign owners are not interested in sharing their risk management techniques with Koreans, but that he does not find this surprising given that they are competing with domestic banks. On credit risk management, he said that the domestic banks actually have an advantage given the importance of local knowledge.

Finally, Park pointed out that when financial problems developed in Korea, the foreign banks left even before the investors in Korea. Yet, he said, we are being constantly reminded that foreigners own practically the entire banking system in Mexico, and it is still doing well. *Martin Feldstein* noted that the issue of the role of foreign ownership is central to the discussion, and asked Cavallo about the experience of other countries with foreign banks. *Cavallo* said that the entry of foreign banks did give more stability to the Argentine financial system.

Nouriel Roubini expressed five concerns about foreign banks. First, these banks might "cherry pick" the best credits, leaving the worst for domestic institutions. Second, there is evidence that foreign banks are more inclined to lending in good times but not in bad times than are domestic banks. Third, although an advantage of foreign banks is supposed to be that they can rely on their headquarters for support in a crisis, we do not see evidence of this. Fourth, it may be that home country regulations force the banks operating abroad to retrench more than is desirable. Finally, although it can be argued that these banks should rely on the home country for any

bailouts, the reality is that there is political pressure for the local authority to provide the bailout.

Martin Wolf summed up what he had heard in the session as: "postliberalization crises are virtually inevitable, even desirable." Huge changes are being demanded of developing countries, changes that we know from experience are typically made because of a crisis. The list of past financial crises in the industrial countries is a long one. Wolf said that what we seem to be saying to the developing countries is: "We think you ought to reform and become more like us, and incidentally, along the way, you're going to have a few absolutely staggering crises, and the result is that you will have a better financial system and this is good for you."

Frederic S. Mishkin sought to make the political economy issues that Michael Dooley saw as implicit in his paper more explicit. Taking an example from Korea, he recalled political pressures to introduce legislation to allow the conversion of finance companies into essentially unregulated merchant banking corporations that were owned by the *chaebol.* These pressures came from the need by *chaebol* for foreign funds to keep growth out of their problems (despite a 30 percent national saving rate). The merchant banks were allowed to borrow short-term. This, he said, is an example of exactly what Summers had talked about—there was encouragement of short-term foreign borrowing.

Continuing on the political economy theme, Mishkin noted that, from his conversations with Korean officials, it is clear they know exactly what needs to be done. When he asks, "what should you do?" they list exactly the kinds of things he wrote in his paper. Why doesn't it happen? Mishkin stressed that we need to think about the political incentives needed to bring about these changes. Finally, he returned to the discussion of exchange rate and monetary regimes from the first session, saying that there was no such thing as a free float in a small open economy. If you are going to respond to the exchange rate, however, he said you are better off doing it through a more transparent monetary regime such as inflation targeting. Again, this conclusion is driven by political economy considerations. Good policies and institutions are "not going to come out of thin air," he concluded, so political economy is "implicitly . . . behind a lot of things I talk about in the paper."