

NBER WORKING PAPER SERIES

LESSONS FROM THE ASIAN CRISIS

Frederic S. Mishkin

Working Paper 7102

<http://www.nber.org/papers/w7102>

NATIONAL BUREAU OF ECONOMIC RESEARCH

1050 Massachusetts Avenue

Cambridge, MA 02138

April 1999

I thank Hali Edison for her helpful comments. The views expressed herein are those of the authors and do not necessarily reflect the views of the National Bureau of Economic Research or Columbia University.

© 1999 by Frederic S. Mishkin. All rights reserved. Short sections of text, not to exceed two paragraphs, may be quoted without explicit permission provided that full credit, including © notice, is given to the source.

Lessons from the Asian Crisis  
Frederic S. Mishkin  
NBER Working Paper No. 7102  
April 1999  
JEL No. F3, E5, G2

**ABSTRACT**

This paper provides an asymmetric information analysis of the recent East Asian crisis. It then outlines several lessons from this crisis. First, there is a strong rationale for an international lender of last resort. Second, without appropriate conditionality for this lending, the moral hazard created by operation of an international lender of last resort can promote financial instability. Third, although capital flows did contribute to the crisis, they are a symptom rather than an underlying cause of the crisis, suggesting exchange controls are unlikely to be a useful strategy to avoid future crises. Fourth, pegged exchange-rate regimes are a dangerous strategy for emerging market countries and make financial crises more likely.

Frederic S. Mishkin  
Graduate School of Business  
Uris Hall 619  
Columbia University  
New York, NY 10027  
and NBER  
fsm3@columbia.edu

The financial crisis which began in July 1997 in the East Asian countries, Thailand, Indonesia, Malaysia and Korea, has had devastating effects on their economies. Growth rates in these countries which were in excess of five percent before 1997, turned sharply negative in 1998 and, at the time of this writing it is not yet clear when these economies will turn the corner and resume positive rates of growth. This paper examines why these countries, which were part of what has been termed "the Asian miracle" and were able to eradicate so much poverty, are now undergoing severe economic contractions, with such harmful effects on their populations. A breakdown of information in financial markets is the key factor that has driven this crisis. After laying out an asymmetric information view of the Asian financial crisis, this paper goes on to use this framework to explore lessons from this crisis.

## **1. An Asymmetric Information View of the Asian Crisis**

The financial system plays a critical role in the economy because, when it operates properly, it channels funds from those who have saved surplus funds to those who need these funds to engage in productive investment opportunities. The major barrier to the financial system performing this job properly is asymmetric information, the fact that one party to a financial contract does not have the same information as the other party, which results in moral hazard and adverse selection problems. An asymmetric information view of financial crises, which I have described in more detail elsewhere in Mishkin (1996a, 1997), defines a financial crisis to be a nonlinear disruption to financial markets

in which the asymmetric information problems of adverse selection and moral hazard become much worse, so that financial markets are no longer able to efficiently channel funds to those who have the most productive investment opportunities.

Here asymmetric information analysis is used to explain the East Asian financial crisis. This analysis emphasizes that the crisis was caused by fundamentals, particularly problems in the financial sector, and is thus consistent with recent work by Corsetti, Pesenti and Roubini (1998), Goldstein (1998) and Krugman (1998). However, it does not rule out that illiquidity and multiple equilibria stories of the type outlined by Radelet and Sachs (1998) played some role as well. The analysis here, however, goes beyond these other papers by focusing on the mechanisms through which the financial crisis in East Asia caused sharp contractions in economic activity.

In most financial crises, and particularly in the East Asian crises, the key factor that causes asymmetric information problems to worsen and launch a financial crisis is a deterioration in balance sheets, particularly those in the financial sector. As in earlier financial crises, such as in Chile in 1982 or Mexico in 1994-95 where a similar analysis applies,<sup>1</sup> the story starts with financial liberalization that resulted in the lending boom which was fed by capital inflows. Once restrictions were lifted on both interest-rate ceilings and the type of lending allowed, lending increased dramatically. As documented in Corsetti, Pesenti and Roubini (1998), Goldstein (1998), World Bank (1998) and Kamin (1999), credit extensions in the Asian crisis countries grew at far higher rates than GDP. The problem with the resulting lending boom was not that lending expanded, but that it expanded so rapidly that excessive risk-taking was the result, with large losses on loans in the future.

There are two reasons why excessive risk-taking occurred after the financial liberalization in East Asia. The first is that managers of banking institutions often lacked the expertise to manage risk

---

<sup>1</sup>Indeed, the analysis here explains why as pointed out in Kamin (1999), the crises in Chile in 1982, Mexico in 1994-95 and East Asia in 1997-98 bear so much similarity to each other, in contrast to the debt crisis in Mexico and other Latin American countries in the 1980s. For a discussion of the Chilean crisis, see Diaz-Alejandro (1985) and for the Mexican crisis, see Mishkin (1996).

appropriately when new lending opportunities opened up after financial liberalization. In addition, with rapid growth of lending, banking institutions could not add the necessary managerial capital (well-trained loan officers, risk-assessment systems, etc.) fast enough to enable these institutions to screen and monitor these new loans appropriately.

The second reason why excessive risk-taking occurred was the inadequacy of the regulatory/supervisory system. Even if there was no explicit government safety net for the banking system, there clearly was an implicit safety net that created a moral hazard problem. Depositors and foreign lenders to the banks in East Asia, knew that there were likely to be government bailouts to protect them, thus providing them with little incentive to monitor banks, with the result that these institutions had an incentive to take on excessive risk by aggressively seeking out new loan business.

Emerging market countries, and particularly those in East Asia, are notorious for weak financial regulation and 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 the result. This problem was made even more severe by the rapid credit growth in a lending boom which stretched the resources of the bank supervisors. Bank supervisory agencies were also unable to add to their supervisory capital (well-trained examiners and information systems) fast enough to enable them to keep up with their increased responsibilities both because they had to monitor new activities of the banks, but also because these activities were expanding at a rapid pace.

Capital inflows make this problem even worse. Once financial liberalization is adopted, foreign capital flows into banks in emerging market countries because it earns high yields but is likely to be protected by the government safety net, whether it is provided by the government of the emerging market country or by international agencies such as the IMF. The result is that capital inflows can fuel a lending boom which leads to excessive risk-taking on the part of banks, and this

is exactly what happened in East Asia where capital inflows amounted to between fifty to one-hundred billion dollars annually from 1993 to 1996. Folkerts-Landau, et. al (1995), for example, found that emerging market countries in the Asian-Pacific region with large net private capital inflows also experienced large increases in their banking sectors.

The outcome of the lending boom arising after financial liberalization was huge loan losses and a subsequent deterioration of banks' balance sheets. In the case of the East-Asian crisis countries, the share of nonperforming loans to total loans rose to between 15 and 35 percent.<sup>2</sup> The deterioration in bank balance sheets was the key fundamental that drove these countries into their financial crises.

There are two ways in which problems in the banking sector can lead to a financial crisis in emerging market countries like those in East Asia. First, the deterioration in the balance sheets of banking firms can lead them to restrict their lending in order to improve their capital ratios or can even lead to a full-scale banking crisis which forces many banks into insolvency, thereby directly removing the ability of the banking sector to make loans.

Second, the deterioration in bank balance sheets can promote a currency crisis because it becomes very difficult for the central bank to defend its currency against a speculative attack. Any rise in interest rates to keep the domestic currency from depreciating has the additional effect of weakening the banking system further because the rise in interest rates hurts banks' balance sheets. This negative effect of a rise in interest rates on banks' balance sheets occurs because of their maturity mismatch and their exposure to increased credit risk when the economy deteriorates. Thus, when a speculative attack on the currency occurs in an emerging market country, if the central bank raises interest rates sufficiently to defend the currency, the banking system may collapse. Once investors recognize that a country's weak banking system makes it less likely that the central bank will take the steps to successfully defend the domestic currency, they have even greater incentives to attack the currency because expected profits from selling the currency have now risen. Thus, with a weakened

---

<sup>2</sup>See Goldstein (1998).

banking sector, a successful speculative attack is likely to materialize and can be triggered by any of many factors, a large current account deficit being just one of them. In this view, the deterioration in the banking sector is the key fundamental that causes the currency crisis to occur.

A currency crisis and the subsequent devaluation then helps trigger a full-fledged financial crisis in emerging market countries because of two key features of debt contracts. In emerging market countries, debt contracts both have very short duration and are often denominated in foreign currencies.<sup>3</sup> These features of debt contracts generate three mechanisms through which a currency crisis in an emerging market country increases 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. With debt contracts denominated in foreign currency, when there is a devaluation of the domestic currency, the debt burden of domestic firms increases. On the other hand, since assets are typically denominated in domestic currency, there is no simultaneous increase in the value of firms' assets. The result is that a devaluation leads to a substantial deterioration in firms' balance sheets and a decline in net worth, which, in turn, worsens the adverse selection problem because effective collateral has shrunk, thereby providing less protection to lenders. Furthermore, the decline in net worth increases moral hazard incentives for firms to take on greater risk because they have less to lose if the loans go sour. Because lenders are now subject to much higher risks of losses, there is now a decline in lending and hence a decline in investment and economic activity.

The damage to balance sheets from devaluation in the aftermath of the foreign exchange crisis has been a major source of the contraction of the economies in East Asia, as it was in Mexico in 1995. This mechanism was particularly strong in Indonesia which saw the value of its currency

---

<sup>3</sup>This structure of debt contracts is very different from that in most industrialized countries, which have almost all of their debt denominated in domestic currency, with much of it long-term. This different debt structure explains why there is such a different response to a devaluation in emerging market countries than there is in industrialized countries.

decline by over seventy-five percent, thus increasing the rupiah value of foreign-denominated debts by a factor of four. Even a healthy firm initially with a strong balance sheet is likely to be driven into insolvency by such a shock if it has a significant amount of foreign-denominated debt.

A second mechanism linking currency crises with financial crises in emerging market countries can occur cause the devaluation might lead to higher inflation. Because many emerging market countries have previously experienced both high and variable inflation, their central banks are unlikely to have deep-rooted credibility as inflation fighters. Thus, a sharp depreciation of the currency after a speculative attack that leads to immediate upward pressure on prices can lead to a dramatic rise in both actual and expected inflation. Indeed Mexican inflation surged to 50% in 1995 after the foreign exchange crisis in 1994 and we have seen a similar phenomenon in Indonesia, the worst hit of the East Asian countries. A rise in expected inflation after the currency crisis exacerbates the financial crisis because it leads to a sharp rise in interest rates. The interaction of the short duration of debt contracts and the interest rate rise leads to huge increases in interest payments by firms, thereby weakening firms' cash flow position and further weakening their balance sheets. Then, as we have seen, asymmetric information problems increase and both lending and economic activity are likely to undergo a sharp decline.

A third mechanism linking the financial crisis and the currency crisis arises because the devaluation of the domestic currency can lead to further deterioration in the balance sheets of the banking sector, provoking a large-scale banking crisis. In emerging market countries, banks have 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 mean that they are unable to pay off their debts, also resulting in loan losses on the assets side of the banks' balance sheets. The result is that banks' balance sheets are squeezed from both the assets and liabilities side and the net worth of banks therefore declines. An additional problem for the banks is that many of their foreign-currency denominated debt is very short-term, so that the sharp increase in the value of this debt leads

to liquidity problems for the banks because this debt needs to be paid back quickly. The result of the further deterioration in bank balance sheets and their weakened capital base is that they cut back lending. In the extreme case in which the deterioration of bank balance sheets leads to a banking crisis that forces many banks to close their doors, thereby directly limiting the ability of the banking sector to make loans. Since banks are special in the sense that they play an important role in overcoming adverse selection and moral hazard problems in the credit markets and so are the only source of lending for many businesses, when bank lending collapses, the economy does as well.

The bottom line from this asymmetric information analysis is that the East Asian financial crisis was the result of a systemic collapse in both financial and non-financial firm balance sheets that made asymmetric information problems worse. The result was that financial markets were no longer able to channel funds to those with productive investment opportunities which then led to devastating effects on the economies of these countries.

## **2. Lessons**

The asymmetric information analysis above of what caused the financial crisis and economic contractions in East Asia can be used to derive several lessons on how future crises like this can be avoided and what to do if such crises occur. The first lesson from the crisis is that there is a strong rationale for government intervention to get the financial system back on its feet: for emerging market countries this requires an international lender of last resort. The second lesson is that an international lender of last resort has to impose appropriate conditionality on its lending in order if it wants to avoid creating excessive moral hazard which encourages financial instability. The third lesson is that although capital flows did contribute to the crisis, they are a symptom rather than an underlying cause of the crisis: thus exchange controls are unlikely to be a useful strategy to avoid future crises. The

fourth lesson is that pegged exchange-rate regimes are a very dangerous strategy for emerging market countries and can make financial crises more likely. We look at each of these lessons in turn.

## **2.1 The Rationale for an International Lender of Last Resort**

We have seen that a seizing up of information in the financial system when a financial crisis occurs leads to disastrous consequences for the economy. To recover, the financial system needs to be restarted so that it can resume its job of channeling funds to those with productive investment opportunities. In industrialized countries, domestic central banks have the ability to do this both with expansionary monetary policy and with a lender of last resort operation.<sup>4</sup> The asymmetric information view argues however, that central banks in emerging market countries are much less likely to have this capability. Thus there is a strong argument that an international lender of last resort may be needed to cope with financial crises in these countries. However, even if there is a need for an international lender of last resort, engaging in lender of last resort activities does create a serious moral hazard problem that can make financial crises more likely. An international lender of last resort which does not sufficiently limit these moral hazard problems can actually make the situation worse, a subject that is discussed in the subsection following this one.

Institutional features of the financial systems in emerging markets countries imply that it may be far more difficult for the central bank to promote recovery from a financial crisis. As mentioned before, many emerging markets countries have much of their debt denominated in foreign currency. Furthermore, their past record of high and variable inflation has resulted in debt contracts of very short duration and expansionary monetary is likely to cause expected inflation to rise dramatically.

---

<sup>4</sup>See Mishkin (1991, 1997) for a discussion of how expansionary monetary policy and a lender of last resort operation in industrialized countries can work to keep asymmetric information problems from getting out of control, thereby promoting economic recovery.

As a result of these institutional features, a central bank in an emerging markets country can not use expansionary monetary policy to promote recovery from a financial crisis. Suppose that the policy prescription of pursuing expansionary monetary policy were followed in a emerging markets country with the above institutional structure. In this case the expansionary monetary policy is likely to cause expected inflation to rise dramatically and 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. In addition, the upward jump on expected inflation is likely to cause interest rates to rise because lenders need to be protected from the loss of purchasing power when they lend. As we have also seen, the resulting rise in interest rates causes interest payments to soar and the cash flow of households and firms to decline. Again the result is a deterioration in households' and firms' balance sheets, and potentially greater loan losses to banking institutions.

The net result of an expansionary monetary policy in the emerging markets country with the above institutional structure is that it hurts the balance sheets of households, firms, and banks. Thus, expansionary monetary policy causes a deterioration in balance sheets and therefore amplifies adverse selection and moral hazard problems in financial markets caused by a financial crisis.

For similar reasons, lender-of-last-resort activities by a central bank in a emerging markets country, may not be as successful as in a industrialized country. When the Federal Reserve has engaged in a lender-of-last-resort operation, as it did during the 1987 stock market crash, there was almost no sentiment in the markets that this would lead to substantially higher inflation. However, this is much less likely to be the case for a emerging markets country. Given the past record on inflation, central bank lending to the financial system in the wake of a financial crisis which expands domestic credit might arouse fears of inflation spiraling out of control. We have already seen that if inflation expectations rise, leading to higher interest rates and exchange rate depreciation, cash flow

and 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 much trickier in a emerging markets country with the institutional structure outlined here because central bank lending is now a two-edged sword.

The above arguments suggest that central banks in emerging market countries have only a very limited ability to extricate their countries from a financial crisis. Indeed, a speedy recovery from a financial crisis in a emerging markets country is likely to require foreign assistance because liquidity provided from foreign sources does not lead to any of the undesirable consequences that result from the provision of liquidity by domestic authorities. Foreign assistance does not lead to increased inflation, which through the cash-flow mechanism would hurt domestic balance sheets, and it helps to stabilize the value of the domestic currency which strengthens domestic balance sheets.

Thus since a lender of last resort for emerging market countries is needed at times and it cannot be provided domestically but must be provided by foreigners, there is a strong rationale for having an international lender of last resort. A further rationale for an international lender of last resort exists if there is contagion from one emerging market country to another during a financial crisis. Although, the jury is not out on this one, it does appear that a successful speculative attack on one emerging market country does lead to speculative attacks on other emerging market countries, which can lead to collapses of additional currencies. Thus currency crises do have the potential to snowball, and because these currency crises lead to full-fledged financial crises in emerging market countries, the risk of contagion is indeed a serious one. An international lender of last resort has the ability to stop contagion by providing international reserves to emerging market countries threatened by speculative attacks so that they can keep their currencies from plummeting. This assistance can thus keep currency and therefore financial crises from spreading.

## **2.2 Operation of an International Lender of Last Resort**

The asymmetric information view of the Asian crisis suggests several guiding principles for resolution of these crises: 1) the financial system needs to be restarted so that it can resume its job of channeling funds to those with productive investment opportunities; 2) the faster liquidity is provided to do this the better, 3) balance sheets of financial and non-financial firms need to be restored so that asymmetric information problems lessen; and 4) steps need to be taken in order to limit the moral hazard created by intervention to resolve crises.

These principles are useful in thinking about how an international lender of last resort can conduct its operations to successfully resolve crises like the ones we have experienced recently in East Asia. If the lender of last resort is to restart the financial system, it must supply the financial system with sufficient liquidity so it can start lending again. However, another important element to restart the financial system is that confidence in it be restored. Not only is the liquidity supplied by the lender of last resort necessary for this goal, but confidence that financial institutions will not continue taking excessive risk is also essential. This implies that insistence by the international lender of last resort on steps to beef up the regulatory and supervisory systems in the crisis countries as a condition for its lending can play a useful role in restoring confidence and resolving the crisis.

If the central bank wants to reduce risk taking, it is also critical to close down insolvent financial institutions, because if they are left in operation with so little to lose if additional loans go sour, they have tremendous incentives to take on huge risks. On the other hand, restoring confidence in the financial system means that when banks are closed down, a comprehensive plan to convince depositors that their funds will not be at risk in institutions that remain open is needed in order to avoid further runs on these institutions. This maxim does not seem to have been followed when sixteen banks were closed during the early stages of the Indonesian crisis and has led to severe criticism of the IMF.<sup>5</sup>

An important historical feature of successful lender of last resort operations, is that the faster

---

<sup>5</sup>See Radelet and Sachs (1998).

the lending is done, the lower is the amount that actually has to be lent. This fact provides support for the second principle that the faster liquidity is provided in an international lender of last resort operation, the better. An excellent example occurred in the aftermath of the stock market crash on October 19, 1987. At the end of that day, in order to service their customers accounts, securities firms needed to borrow several billion dollars to maintain orderly trading. However, given the unprecedented developments, banks were very nervous about extending further loans to these firms. Upon learning this, the Federal Reserve engaged in an immediate lender of last resort operation, with Chairman Greenspan making an announcement before the market opened on October 20 of the Federal Reserve's "readiness to serve as a source of liquidity to support the economic and financial system." In addition to this announcement, the Fed made it clear that it would provide liquidity to banks making loans to the securities industry. Indeed, what is striking about this episode is that the extremely quick intervention of the Fed resulted not only in a negligible impact on the economy of the stock market crash, but also meant that the amount of liquidity that the Fed needed to supply to the economy was not very large (see Mishkin (1991)).

The ability of the Fed to engage in a lender of last resort operation within a day of a substantial shock to the financial system is in sharp contrast to the amount of time it has taken the IMF to supply liquidity during the recent crises in Asian countries. Because IMF lending facilities have been designed to provide funds after a country is experiencing a balance of payments crisis and because the conditions for the loan have to be negotiated, it can take several months before the IMF makes funds available. By this time, the crisis has often gotten much worse with the result that much larger sums of funds are needed to cope with the crisis, often stretching the resources of the IMF. One reason that central banks can lend so much more quickly than the IMF is that they have set up procedures in advance to provide loans, with the terms and conditions for this lending agreed upon beforehand. The need for quick provision of liquidity to keep manageable the amount of funds lent argues for credit facilities at the international lender of last resort to be set up so that funds can be

provided quickly as long as the borrower meets the prior conditions. Indeed, proposals to change the way the IMF provides emergency loans so it can provide liquidity faster are currently coming to the fore.

The third principle indicates that resolution of a financial crisis requires a restoration of the balance sheets of both financial and non-financial firms. Restoration of balance sheets of non-financial firms requires a well-functioning bankruptcy law that enables the balance sheets of these firms to be cleaned up so they can regain access to the credit markets. Restoration of balance sheets of financial firms may require the injection of public funds so that healthy institutions can buy up the assets of insolvent institutions, but also requires the creation of entities like the Resolution Trust Corporation in the United States, which can sell off assets of failed institutions and get them off the books of the banking sector. The international lender of last resort and potentially other international organizations can help this process by sharing their expertise and by encouraging the governments in crisis countries to take the steps to create a better legal structure and better resolution process for failed financial institutions.

The fourth principle indicates that it is necessary to limit the moral hazard created by the presence of an international lender of last resort. An international lender of last resort creates a serious moral hazard problem because depositors and other creditors of banking institutions expect that they will be protected if a crisis occurs. In the recent Asian episode, governments in the crisis countries have used IMF support to protect depositors and other creditors of banking institutions from losses. This safety net creates a well-known moral hazard problem because the depositors and other creditors have less incentive to monitor these banking institutions and withdraw their deposits if the institutions are taking on too much risk. The result is that these institutions are encouraged to take on excessive risks.

Because there is a tradeoff between the benefits of a lender-of-last-resort role in preventing financial crises and the moral hazard that it creates, a lender-of-last-resort role is best implemented

only if it is absolutely necessary. An international lender of last resort thus has strong reasons to resist calls on it to provide funds under normal conditions. In other words, the lender-of-last-resort role will be more successful in promoting financial stability if it is implemented only very infrequently.

The moral hazard problem can also be limited by the usual elements of a well-functioning regulatory/supervisory system: punishment for the managers and stockholders of insolvent financial institutions, adequate accounting and disclosure requirements, adequate capital standards, prompt corrective action, careful monitoring of risk the institution's risk management procedures and monitoring of financial institutions to enforce compliance with the regulations.<sup>6</sup>

However, there are often strong political forces in emerging market countries which resist putting these kinds of measures into place. This has also been a problem in industrialized countries -- for example, an important factor in the U.S. savings and loan debacle was political pressure to weaken regulation and supervision (e.g. see Kane (1989) -- but the problem is far worse in many emerging market countries. What we have seen in the Asian crisis countries is that the political will to adequately regulate and supervise financial institutions has been especially weak because politicians and their family members are often the actual owners of financial institutions. An international lender of last resort is particularly well suited to encourage adoption of the above measures to limit moral hazard because it has so much leverage over the emerging market countries to whom it lends or who might want to borrow from it in the future.

There are two reasons why an international lender of last resort will produce better outcomes if it actively encourages adoption of the above regulatory/supervisory measures. First is that its lender-of-last-resort actions provide governments with the resources to bail out their financial sectors. Thus an international lender of last resort strengthens the safety net which increases the moral hazard incentives for financial institutions in emerging market countries to take on excessive risk. It can counter these incentives by strengthening the regulatory/supervisory apparatus in these countries to

---

<sup>6</sup>See Mishkin (1998b).

counter this problem. Second is that the presence of an international lender of last resort may create a moral hazard problem for governments in emerging market countries who, because they know that their financial sectors are likely to be bailed out, have less incentive to take the steps to prevent domestic financial institutions from taking on excessive risk. The international lender of last resort can improve incentives to reduce excessive risk taking by making it clear that it will only extend liquidity to governments that put the proper measures in place to prevent excessive risk taking. In addition, it can reduce the incentives for risk taking by restricting the ability of governments to bailout stockholders and large uninsured creditors of domestic financial institutions.<sup>7</sup> Only with this kind of pressure can the moral hazard problem arising from lender-of-last-resort operations be contained.

One problem that arises for international organizations or foreign countries engaged in lender-of-last-resort operations is that they know that if they don't come to the rescue, the emerging market country will suffer extreme hardship and possible political instability. Politicians in the crisis country may exploit these concerns and engage in a game of chicken with the international lender of last resort: they resist necessary reforms, hoping that the international lender of last resort will cave in. Elements of this game were present in the Mexico crisis of 1995 and this has also been a particularly important feature of the negotiations between the IMF and Indonesia during the Asian crisis.

An international lender of last resort will produce better outcomes if it makes it clear that it will not play this game. Just as giving in to your children may be the easy way out in the short run, but leads to children who are poorly brought up in the long run, so the international lender of last resort will promote better policies by not giving in to short-run humanitarian concerns and let emerging market countries escape from necessary reforms. If the international lender of last resort caves in to one country during a financial crisis, politicians in other countries will see that they can get away with not implementing the needed reforms, making it even harder for the international lender of last resort to limit moral hazard.

---

<sup>7</sup>See Goldstein (1998).

The asymmetric information analysis of the Asian crisis also suggests that macroeconomic and microeconomic policies unrelated to the financial sector deserve less emphasis in the conditionality for the lender-of-last-resort operation. The IMF has been criticized for imposing so-called austerity programs on the East Asian countries. When a currency and financial crisis develops, what the right set of macroeconomic and nonfinancial microeconomic policies to pursue is not absolutely clear and this is currently a hot topic of debate. Regardless of what the right policies are, there are two reasons why an international lender will be more successful in promoting financial stability by deemphasizing them.

First is that the fundamental driving the crises has been microeconomic problems in the financial sector. Thus macroeconomic policies or micro policies unrelated to the financial sector are unlikely to help resolve the crises. Second is that a focus on austerity programs or these other microeconomic problems is likely to be a political disaster. Politicians are prone to avoid dealing with the hard issues of appropriate reform of their financial systems, and this is particularly true in East Asia where many of politicians' close friends, and even family, have much to lose if the financial system is reformed properly. Austerity programs allow these politicians to label the international lender of last resort, the IMF in the East Asian case, as being anti-growth and even anti-Asian. This can help the politicians to mobilize the public against the international lender of last resort and avoid doing what they really need to do to reform the financial system in their country. With conditionality focused on microeconomic policies related to the financial sector, there is a greater likelihood that the international lender of last resort will be seen as a helping hand which aids the emerging market country by assisting it in creating a more efficient financial system.

## **2.3 Capital Flows and Capital Controls**

In the aftermath of the Asian crisis, 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.<sup>8</sup> Consistent with this view, Gavin and Hausman (1996) and Kaminsky and Reinhart (1996) 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 which causes a deterioration in bank balance sheets. Indeed, Kaminsky and Reinhart (1996) find that financial liberalization, rather than balance of payments developments inflows, appears to be a more 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 in earlier, a key factor leading to the foreign exchange crises in Asia were the problems in the financial sector which led to the speculative attack and capital outflows. With this view, the capital outflow which is 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 forecasting foreign exchange crises, while 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

---

<sup>8</sup>See Calvo, Leiderman and Reinhart (1994) for a model of this process.

baby with the bath water. Capital controls have the undesirable feature that they may block funds from entering a country which 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 where 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 than 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.

## **2.4 The Dangers of Pegging Exchange Rates**

One commonly used method to achieve price stability is to peg the value of its currency to that of a large, low-inflation country. In some cases, this strategy involves pegging 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 asymmetric information view of the Asian crisis 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, in the recent Asian crisis, the worst-hit country Indonesia saw its currency decline to less than one-quarter of its pre-crisis value, in a very short period of time. The damage to balance sheets after these devaluations has thus been extremely severe. In Indonesia the over four-fold 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 led to a deterioration in bank balance sheets because borrowers from the banks were now less likely to be able to pay off their loans. The result of this collapse in balance sheets were thus sharp economic contractions as we have seen.

Another potential danger from an exchange-rate peg is that by providing a more stable value of the currency, it might give foreign investors a sense of lower risk and thus encourage capital inflows. Although these capital inflows might be channeled into productive investments and thus stimulate growth, we have seen that they have promoted excessive lending, manifested by a lending boom, because domestic financial intermediaries such as banks played a key role in intermediating these capital inflows. Furthermore, if the bank supervisory process is weak, as it often is in emerging market, 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 and a deterioration of bank balance sheets and a possible financial crisis.

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 and transition countries. However, this conclusion does not rule out that in some situations fixing or pegging an exchange rate might be a useful way to control inflation. 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) can inflation be controlled.<sup>9</sup> However, the analysis does suggest that, for this strategy to be successful in controlling inflation, policies to promote a healthy banking system are essential. 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 to control inflation can be a very dangerous strategy indeed.<sup>10</sup>

### **3. Conclusions**

The financial crisis in East Asia has not only been disastrous for the economies of countries in this region, but it has also put the global financial system under tremendous stress. The asymmetric information analysis of this crisis presented here provides several important lessons. First, there is

---

<sup>9</sup>See Mishkin (1998a).

<sup>10</sup>See Obstfeld and Rogoff (1995) for additional arguments as to why pegged exchange rate regimes may be undesirable.

a strong rationale for an international lender of last resort. Second, without appropriate conditionality for this lending, the moral hazard created by operation of an international lender of last resort can promote financial instability. Third, although capital flows did contribute to the crisis, they are a symptom rather than an underlying cause of the crisis, suggesting exchange controls are unlikely to be a useful strategy to avoid future crises. Fourth, pegged exchange-rate regimes are a very dangerous strategy for emerging market countries and make financial crises more likely. Hopefully, what we have learned from this crisis will help us avoid repeating the mistakes which have been so costly in this recent episode.

### **Acknowledgements**

I thank Hali Edison for her helpful comments. Any views expressed in this paper are those of the author only and not those of Columbia University or the National Bureau of Economic Research.

## References

- Calvo, G.A., Leiderman, L. and Reinhart, C.M., 1994. The Capital Inflows Problem: Concepts and Issues. *Contemporary Economic Policy* 12. 54-66.
- Corsetti, G., Pesenti, P and Roubini, R. 1998. What Caused the Asian Currency and Financial Crisis? Part I and II. NBER Working Papers, No. 6833 and 6844.
- Diaz-Alejandro, C. 1985. Good-Bye Financial Repression, Hello Financial Crash. *Journal of Development Economics* 19. 1-24.
- Folkerts-Landau, D., Schinasi, G.J., Cassard, M., Ng, V.K., Reinhart, C.M., and Spencer, M.G., 1995. Effect of Capital Flows on the Domestic Financial Sectors in APEC Developing Countries. In: Khan, M.S. and Reinhart, C.M. (Eds.), *Capital Flows in the APEC Region*. International Monetary Fund. Wash. D.C. pp. 31-57.
- Gavin, M. and R. Hausman, 1996. The Roots of Banking Crises: the Macroeconomic Context. In: Hausman R. and Rojas-Suarez, L. (Eds.), *Banking Crises in Latin America*. Interamerican Development Bank and Johns Hopkins University Press. Baltimore. pp. 27-63.
- Goldstein, M., 1998. *The Asian Financial Crisis*. Institute for International Economics. Wash. D.C.
- Kamin, S.B. 1999. The Current International Financial Crisis: How Much is New? *Journal of International Money and Finance*, this issue.
- Kaminsky, G.L. and Reinhart, C.M. 1996. The Twin Crises: The Causes of Banking and Balance-of-Payments Problems. Board of Governors of the Federal Reserve System. International Finance Discussion Papers No. 544.
- Kaminsky, G.L., Lizondo, S. and Reinhart C.M., 1997. Leading Indicators of Currency Crises. International Monetary Fund Working Paper WP/97/79.

- Kane, E.J., 1989. *The S&L Insurance Mess: How Did It Happen?* Urban Institute Press. Washington, D.C.
- Krugman, P. 1998. What Happened to Asia? M.I.T. mimeo.
- Mishkin, F.S., 1991. Asymmetric Information and Financial Crises: A Historical Perspective. In: Hubbard, R.G. (Ed.) *Financial Markets and Financial Crises*. University of Chicago Press. Chicago. pp. 69-108.
- Mishkin, F.S., 1996a. Understanding Financial Crises: A Developing Country Perspective. In: Bruno M. and Pleskovic, B. (Eds.), *Annual World Bank Conference on Development Economics 1996*. World Bank. Washington D.C. 1996. pp. 29-62.
- Mishkin, F.S., 1996b. The Channels of Monetary Transmission: Lessons for Monetary Policy," *Banque De France Bulletin Digest* No. 27. pp. 33-44.
- Mishkin, F.S., 1997. The Causes and Propagation of Financial Instability: Lessons for Policymakers. In: Hakkio, C. (Ed.), *Maintaining Financial Stability in a Global Economy*. Federal Reserve Bank of Kansas City. Kansas City. pp. 55-96.
- Mishkin, F.S., 1998a. The Dangers of Exchange-Rate Pegging in Emerging Market Countries. *International Finance*. 1 (1). 81-102.
- Mishkin, F.S., 1998b. Financial Market Reform. Prepared for the conference, Economic Policy Reform: What We Know and What We Need to Know, at the Center for Research on Economic Development and Policy Reform, Stanford University, September 17-19.
- Obstfeld, M. and Rogoff K., 1995. The Mirage of Fixed Exchange Rates. *Journal of Economic Perspectives* 9 (4). 73-96.
- Radelet, S. and J. Sachs, 1998. The Onset of the East Asian Crisis. Paper presented at the National Bureau of Economic Research's Conference on Currency Crises, February 6-7.
- World Bank, 1998. *Global Economic Prospects, 1998*. Washington, D.C.