

Reforming the International Financial Architecture: Limiting Moral Hazard and Containing Real Hazard

Michael Mussa*

1. Introduction

During the past two years, financial and economic crises have engulfed most of the world's emerging market economies, and have inflicted severe damage on many of the most successful of these economies. Unlike previous crises that have deeply affected a wide range of developing countries, such as the debt crisis of the 1980s or the global Depression of the 1930s, the recent crises have not been associated with major difficulties in most of the industrial countries. While domestic macroeconomic policy imbalances were a key factor in some of the crisis countries, this was not so in others. Serious structural weaknesses, especially in financial sectors, were a common factor that heightened vulnerability to, and magnified damage from, the crises in the most affected countries. However, both in the build-up of conditions that preceded the crises and in their subsequent spread across many emerging market economies, there were clear signs of difficulties that transcended the bounds of any individual economy. That such deep crises would simultaneously afflict such a wide array of generally successful economies suggests that something is seriously wrong with the functioning of the international financial system.

This perception has led to a global effort to reform the architecture of the financial system.¹ This complex, multifaceted effort, involving actions and proposals in many areas, is usefully summarised in *A Guide to Progress in Strengthening the Architecture of the International Financial System* which is available on the IMF web site (www.imf.org). If this effort is substantially successful – let me emphasise the *if* – then it should go a considerable distance in helping to avoid or ameliorate crises of the type that have recently afflicted many emerging market economies. However, there is one central issue in the international financial architecture where the debate has not effectively been joined – or rather where one side has had it pretty much its own way in support of a conclusion that is fundamentally in error. This issue is the appropriate magnitude of, and conditionality associated with, international financial support to countries experiencing, or threatened by, massive capital outflows.

On this issue, there has been a great deal of criticism of the large international financial support packages – the preferred term is ‘bailouts’ – that have been provided to some emerging market countries, beginning with Mexico in 1995, and

* The opinions expressed in this paper are those of the author and do not necessarily reflect the views of the International Monetary Fund. A pressing alternative engagement prevented Michael Mussa from attending the conference. He nevertheless contributed this paper.

1. For a useful and balanced discussion of many of the reform proposals, see Eichengreen (1999).

continuing with Thailand, Indonesia, Korea, Russia and Brazil in the past two years. The main complaint is that such large financial support packages generate substantial ‘moral hazard’ which encourages both emerging market countries and their creditors to undertake imprudent risks that ultimately materialise in damaging financial crises. Thus, the argument goes, the international support that is intended to ameliorate the effects of crises is actually the fundamental reason – or at least a key reason – why we have crises in the first place. The solution is to eliminate large international financial support packages, or at least to limit them to those few countries that meet exceptionally high standards for prudent policies.²

In this paper, I will argue that, correctly understood, the problem of *moral hazard arising from international financial support* has been greatly exaggerated. Financial crises, such as those that have recently afflicted many emerging market economies, do not occur primarily because of imprudent risk-taking induced by expectations of international financial support. Rather, there is a good deal of *real hazard*, resulting both from the internal problems and deficiencies of many emerging market economies and from the functioning of the international financial system, that manifests itself in severe financial crises that tend to spread contagiously across these economies. International financial support, which is conditioned on the adoption of appropriate remedial policies and which sometimes may be needed on a large scale, provides an important public good for the global economy in helping to contain these real hazards. The problems of moral hazard that are inevitably associated with such efforts are modest in comparison with the real hazards that such efforts seek to ameliorate.

2. Real Hazard and the Proper Role of International Support

Before taking up the concept of moral hazard and assessing its relevance for international financial support operations, it is important to examine the real hazards to which emerging market economies are exposed in their interactions with the modern global economic and financial system. In this connection, it is also important to discuss the desirable role of international financial support in dealing with real hazard.

The experiences of emerging market economies during the crises of the past two years leave no room for doubt or dispute that they are subject to very large risks arising from their interactions with the global economy. In particular, the estimates for growth for Indonesia, Korea, Malaysia, and Thailand in the latest *World Economic Outlook* provide a basis for gauging cumulative output losses for these

2. The IMF’s new Contingent Credit Line (CCL) facility follows the logic of pre-qualifying countries with exceptionally prudent policies for substantial support in the event that they are victims of contagion from crises originating elsewhere. This new facility may well prove to be a very valuable innovation. However, it is doubtful that it can become a full substitute for the IMF’s traditional financing facilities which provide support, under appropriate conditionality, to countries whose initial policies often have significant deficiencies. Insurance only for those who are entirely innocent of any involvement in their own problems is too restrictive.

countries, relative to potential, covering the four years after the start of the crises. Assuming very conservatively that the potential growth rate is only 4 per cent, the cumulative output losses amount to 24 per cent of annual GDP for Korea, 26 per cent of annual GDP for Malaysia, 54 per cent of annual GDP for Thailand, and 83 per cent of annual GDP for Indonesia. Losses for other Asian emerging market economies are also estimated to be quite large, and substantial losses are also estimated for many emerging market countries beyond Asia.

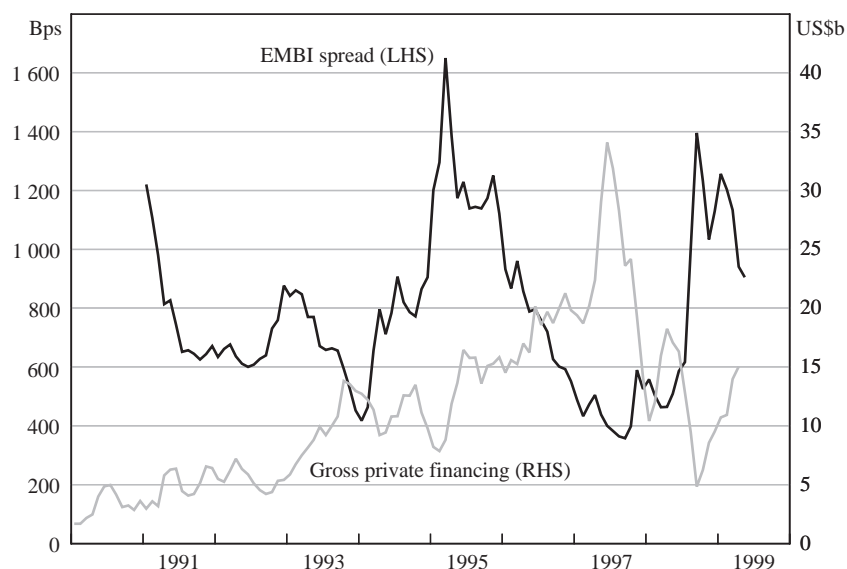
Granted that not all of these economic losses are related to interactions of emerging market economies with the global economic system. Certainly purely domestic difficulties played important roles in many cases, and the pernicious interplay between international difficulties and domestic weakness, particularly in financial sectors, seriously deepened the crisis in many countries. Nevertheless, as emphasised by Eisuke Sakakibara in his paper for this volume and by others elsewhere, the boom in global capital flows to emerging market economies up to the summer of 1997, followed by the sudden global collapse in such flows through the autumn of 1998, were major disturbances – connected with the operation of the global financial system – that contributed very importantly to the depth of recent crises.³

The data in Figure 1 provide some insight into this important problem. Gross private capital flows (which exclude foreign direct investment and non-syndicated interbank lending) rise to an exceptionally sharp peak in the summer of 1997, reaching an annualised rate of US\$400 billion per year. At the time of this peak, interest rate spreads for emerging market borrowers fell to an exceptionally low level. Global capital markets were exuberantly throwing huge amounts of new money at emerging markets. Then came a series of crashes as crises sequentially hit many emerging market countries. In the aftermath of the Russian and LTCM crises in the autumn of 1998, private gross capital flows to emerging markets were down to US\$60 billion at an annual rate. Interest rate spreads for emerging market borrowers went through the roof, and most countries were effectively frozen out of the market until year-end.

Data on net capital flows to emerging market economies, which are discussed by Sakakibara and are illustrated in Figure 2, show a pattern that is broadly similar to that in Figure 1. Conceptually, data on net flows are superior because they are more comprehensive and relate directly to flows of resources available to finance current account imbalances. Annual data on net flows, however, have the disadvantage of concealing something important about the magnitude of the shock, measured from peak to trough, between the summer of 1997 before the crisis really started and the autumn of 1998 when it reached its nadir. A shift of over US\$300 billion in the annualised gross flow of private capital to emerging markets during a period of 15 months reveals a really big shock, and a shock that intimately involves the interactions between emerging market economies and the global financial system.

3. From its first discussion of the Asian crisis in the Interim *World Economic Outlook* released in December 1997, the IMF staff has consistently emphasised that the crisis has both important domestic and important external causes and that these causes have tended to reinforce each other.

Figure 1: EMBI Spread and Gross Private Capital Flows

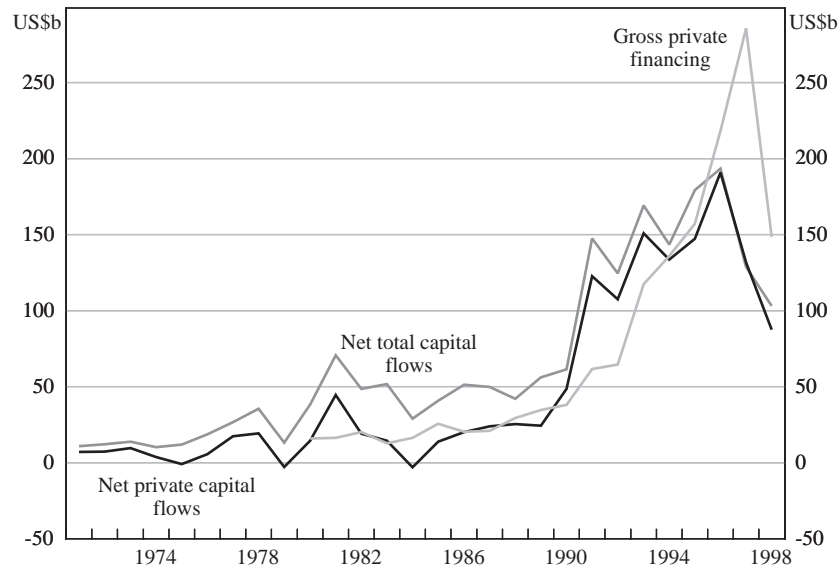


Note: The Emerging Market Bond Index (EMBI) is a series of returns on debt instruments in emerging markets and is constructed by J.P. Morgan. See www.jpmmorgan.com for further details.

One of the fundamental purposes of the International Monetary Fund is to assist members in dealing with balance of payments difficulties. Despite many changes in the international monetary system since the Bretton Woods Conference in 1944, the controlling language on the IMF's role in this regard remains unchanged as Article I(v): 'To give confidence to members by making the general resources of the Fund temporarily available to them under adequate safeguards, thus providing them with opportunity to correct maladjustments in their balance of payments without resorting to measures destructive of national or international prosperity'. The present day significance of this language was well summarised in a recent speech by the IMF's Managing Director, Michel Camdessus.

The objective of 'giving confidence to members' applies not only to times of difficulty. More generally, because open policies toward international trade bring public goods benefits to the global economy, it is desirable to persuade members to adopt such policy by offering some assurance of assistance in the event that they encounter external payments difficulties. I would assert that this argument applies as well to open and prudent policies toward international capital movements, and that it is high time for the Fund's Articles to be amended to reflect this.

The constraint that use of the Fund's general resources should be 'temporary', subject to 'adequate safeguards', and used to 'correct maladjustments' without resorting to 'destructive measures' reflects the policy of the international community to be prepared to provide interest-bearing loans, but not grants, to assist countries that are themselves acting constructively, from an international as well as a domestic

Figure 2: Developing Countries: Total and Private Capital Flows

perspective, to address their own problems. Thus, promotion of the global public good, not merely the correction of disequilibrium in the assisted country, is the clear purpose of the Fund's financial assistance.

I should add that these constraints on how and when the Fund provides assistance to its members show the prescient concern of the framers of the Articles for what is now referred to as the problem of 'moral hazard' potentially arising from international financial support. Because the Fund provides loans with firm expectations of repayment, it is not absorbing losses that should be borne by members of their creditors and is thus not contributing directly to problems of moral hazard. Furthermore, through the safeguards built into the Fund's conditionality, members receiving Fund assistance are pressed to reform their policies not only to correct current problems, but also to reduce the risk of future payments difficulties. Such reforms, including particularly the financial sector reforms that have been central to many recent Fund programs, work to correct problems of moral hazard that tend to be generated by national economic policies. With these reforms, and the continuing efforts to improve the architecture of the international monetary system and involve constructively the private sector in both lessening the risks and ameliorating the effects of financial crises, I am convinced that the problem of moral hazard can be adequately contained, though of course it cannot be completely eliminated.

Interestingly, the Articles of Agreement originally drafted in 1944 specified, and still specify today, that 'A member may not use the Fund's general resources to meet a large or sustained capital outflow...' Rather, members were expected to rely on capital controls to deal with disturbances to their capital accounts. The idea apparently was that through the use of capital controls (which were comprehensively

deployed by most countries before, during, and after World War II) it would be possible to suppress disturbances to the capital account and effectively isolate them from having any significant effect on the current account and on the real economy. Whatever the relevance of this conception a half century ago, it is – as recent crises so clearly demonstrate – nonsense today for those countries that have important connections to modern global financial markets.

In view of the IMF's mandate for the provision of financial assistance to members, and notwithstanding the difficulty about financing large or sustained capital outflows, it is not surprising that the IMF led the large-scale efforts to provide official financing for a number of emerging market economies in the recent crises. In view of the massive collapse of private capital flows and of the current account and other real economic adjustments implied by such a collapse, there was a clear need and rationale for official financing at least to cushion the blow. How much of a cushion was provided?

Figures on the gross amounts of international financing packages tend to be somewhat misleading. Most of the money is not available immediately. Some of the money in 'second lines of defence' may never be effectively available. It is better therefore to focus on funds actually disbursed, which are reported along with other relevant data in Table 1. According to the latest estimates from the *World Economic Outlook*, for the five Asian crisis economies (Indonesia, Korea, Malaysia, the Philippines and Thailand), net official flows to these countries in 1997 and 1998 amounted to US\$51 billion – a very sizeable sum, amounting to almost 5 per cent of combined pre-crisis GDP. For comparison, in 1997, the five Asian crisis countries drew down their own reserves of US\$30 billion, and then rebuilt their official reserves by US\$52 billion in 1998.

Net private capital flows to the five Asian crisis countries are estimated to have dropped by US\$91 billion between 1996 and 1997. This was effectively absorbed by US\$30 billion of reserve use, by US\$30 billion of official financing and by a US\$29 billion reduction in the current account deficit. In 1998, the current account adjusted massively (under the influence of highly depreciated exchange rates and collapsing domestic demand) to record a surplus of US\$69 billion – an adjustment

Table 1: Asian Crisis Countries^(a)
Selected data on financial flows, US\$ billion

	1996	1997	1998
Net private capital flows	63	-22	-33
Net official flows	-5	30	21
Change in reserves ^(b)	-5	30	-52
Current account balance	-53	-24	69

(a) Indonesia, Korea, Malaysia, the Philippines and Thailand

(b) A minus sign indicates an increase.

Source: *World Economic Outlook* database

of US\$83 billion from the preceding year and an adjustment of US\$122 billion from 1996. The two-year adjustment in the current account amounts to about 11 per cent of combined pre-crisis GDP and a substantially larger fraction of combined 1998 GDP converted at market exchange rates.

From these figures, it does not appear that official support for the five Asian crisis countries – large as it was – was anywhere near the size that would have been needed to reduce substantially the very large and economically painful adjustments of these countries' current accounts. Early in the crises, official support did help to cushion the blow (and avoid wider financial disruption), thereby allowing more time for exchange rate adjustments and other forces to bring current accounts in line with available net private financing. By the end of 1998, however, official financing amounted almost exactly to the recovery in official reserves. The overwhelming burden of responding to the external financing shock fell on adjustment of the current accounts and was not borne by official financing. Domestic and international prosperity suffered significant, although perhaps unavoidable, damage.

The point, of course, is not to belittle the impressive efforts to provide official financial support for the Asian crisis countries, or for other emerging market economies caught in recent crises. There are important constraints on the magnitude of official financing that can be made available, and official support cannot responsibly be disbursed except in support of a credible adjustment program. However, to those who complain that official support packages have been far too large, the question comes – by what standard? Surely not by the standard of what may reasonably be needed to respond appropriately to the real hazards that are sometimes faced by emerging market economies in their interactions with the modern global economic and financial system.

3. The Concept of Moral Hazard

Moral hazard is a pervasive phenomenon that infects virtually all human endeavours. Parents seek to protect their children from harm and privation. In protecting against some of the adverse consequences of their children's own behaviour, parents generate some moral hazard. Expecting parental protection, children are less prudent than they would be without such expectations – and parents know it. Nevertheless, no sane parent would not seek to rescue his child from drowning on the grounds that drowning would teach the kid a valuable lesson.

More narrowly in the area of economics, economists have identified dozens, if not hundreds of examples of the phenomenon of 'moral hazard' (see Kotowitz 1989). One classic example is the principal/agent problem where the risk neutral principal has to rely on the unobservable efforts of the risk averse agent to generate an output that depends on these efforts, from which the agent derives increasing disutility, and on other (unobservable) random factors. The ideal, but unachievable, solution would be for the principal to compensate the agent with a certain payment depending on his level of effort – up to the *economically appropriate* point where the expected value of the marginal product of effort is equal to the marginal payment which is equal to the marginal disutility of effort. Payment based on output, rather than unobservable

effort, provides a partial solution – it provides some incentive for the agent to supply effort which is linked probabilistically to output. But a distortion remains that leaves the agent supplying less than the economically appropriate level of (unobservable) effort. This distortion is the consequence of moral hazard. This distortion is also essentially the same as would result if effort were observable but a tax was imposed on the effort of the agent (or on the payment of the principal). This analogy between the distortions created by moral hazard with the distortions created by taxes and subsidies is quite general and will be exploited later in this discussion.

Another example of moral hazard that is instructive for the present discussion concerns insurance. The insuree wants to guard against a real hazard – the possibility of a large loss such as someone’s home burning down. The insuree, because he is risk averse, is willing to pay a premium for insurance that significantly exceeds the expected value of his possible loss. The insurer, who is able to diversify risks, is willing to sell insurance for a premium that is somewhat above the expected loss. Two cases should now be distinguished.

First, assume that there is nothing that the insuree can do that affects the size or probability of loss that is not known to the insurer. For example, the insuree could own a more valuable home with correspondingly higher expected loss in the event of fire, but a fire insurance policy with a premium depending on the value of the home would solve this problem. In this case of perfectly priced insurance, there is no moral hazard. Note, however, that the existence of insurance encourages (or enables) the insuree to undertake risks, or undertake greater risks, that he might not choose to undertake if insurance were not available. And this is a good thing. It is the purpose of insurance not only to provide compensation for losses (to those who have paid appropriate premia), but also the purpose to allow risk averse agents to undertake (socially diversifiable) risks that they would not otherwise choose to undertake – up to the economically appropriate level of such risk-taking.

Second, assume that actions of the insuree that are not observable by the insurer can affect the size or probability of loss. In this situation, if the insuree has an incentive to take actions which may increase expected losses or not take actions that would decrease them, then there is a problem of moral hazard. In effect, the insurance policy acts like a subsidy to actions by the insuree that may tend to increase risk of loss. The insurer knows this and necessarily charges a premium that takes account of how the insuree may be expected to behave under the incentives created by the fact that he is insured.

If the moral hazard problem is sufficiently severe, no insurance may be available. For example, life insurance policies generally preclude benefits for suicides in some initial period after the policy is written. However, while some degree of moral hazard affects virtually all insurance, the insurance industry does a thriving business. When real hazards are an important concern, and moral hazard can be reasonably contained, insurance is privately and socially beneficial. Again, the effect of insurance is

generally to increase the level of risk-taking toward the economically appropriate level.⁴

In insurance (and in many other examples of moral hazard), there is an incentive for both parties to find ways to diminish the moral hazard problem *ex ante*. Co-insurance is one such mechanism. So long as the insuree must absorb some significant part of a loss, the insurer knows that incentives for the insuree lie in the direction of keeping risks down, and premia for insurance reflect this. Also, the insuree may agree to undertake certain actions that can be monitored by the insurer which tend to reduce risks of loss, as is a common practice for casualty insurance and workmen's compensation insurance for businesses in the United States. In the context of the present discussion, such practices may be thought of as a form of conditionality.

4. Moral Hazard Arising from Public Support

The moral hazard issue of immediate interest is the moral hazard that may be associated with international financial support packages. To lay the groundwork for addressing this specific issue, it is useful to consider the more general problem of moral hazard potentially arising from public support.

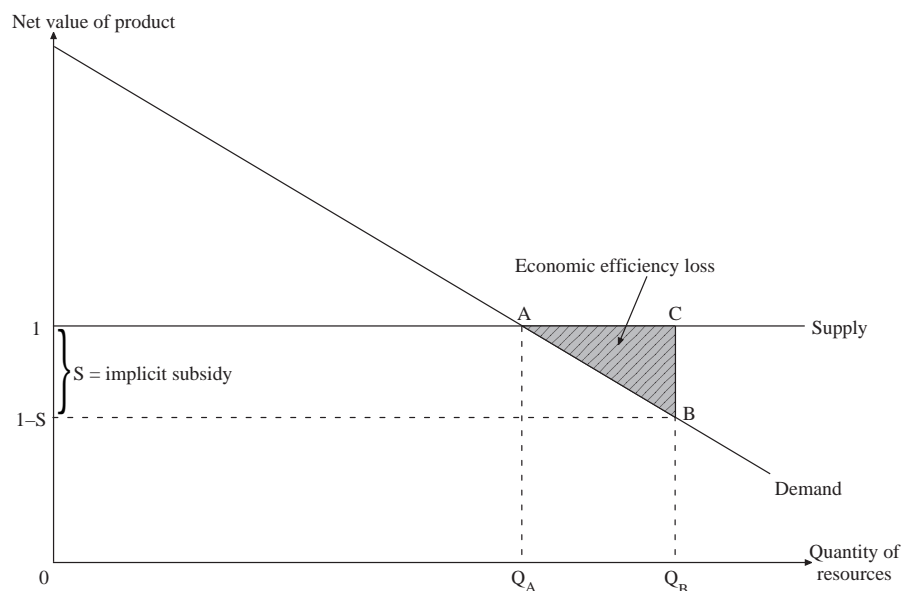
If a government regularly provides relief or compensation to those who suffer physical or economic difficulties or disasters, there is the concern that the *expectation* of such relief or compensation will encourage behaviour that tends to increase the likelihood of losses from such difficulties or disasters. Is this a problem of moral hazard; and, if so, how serious is it? The answer is – it depends on how public support is provided. An example that is somewhat removed from current controversies serves best to illustrate the key analytical points.

Take the case where the government regularly provides disaster relief to flood victims in the form of grants to compensate them for losses. Here there clearly is a direct problem of moral hazard. Farmers are unduly encouraged to cultivate the flood plain (which is usually very fertile) because they know that when floods occur their losses will be absorbed by the taxpayer. Others are also unduly encouraged to live or do business in ways that expose them to greater risk of loss from floods than they would undertake if grants of disaster relief were not expected to be available.

How large are the economic losses associated with moral hazard in this example? The diagram shown in Figure 3 is useful. The horizontal axis shows the quantity of resources invested in areas subject to risk of loss from flood. The supply curve for these resources is assumed to be flat, at unit height, to indicate that one unit of these resources has many alternative uses and the total supply of resources is very large.

4. Reflecting the moral hazard problem, the insuree is likely to undertake some economically inappropriate risks. If the insurance policy is actually written, the presumption is that the benefits of raising overall risk toward the economically appropriate level outweigh the distortionary consequences of the insuree taking on inappropriate risks.

Figure 3



The demand curve, D , is downward sloping to reflect the wide variation in the value of activities (net of expected losses from floods, and organised in descending sequence of value per unit of resources) that may be undertaken subject to some risk of loss due to floods. At the undistorted equilibrium point A , where the demand curve intersects the unit level supply curve, resources are used up to the economically appropriate level Q_A where activities undertaken are those whose value (net of expected flood losses) exceeds their resource cost.

The distortion introduced by the government's flood damage compensation grants may be thought of as a subsidy, in the amount s per unit of invested resources, where s is the probability of sustaining a (total) loss in the event of a flood. With this subsidy, resources invested subject to flood risks rise above the optimal level to the level Q_B associated with the point B on the demand curve where the sum of the marginal value of the expected net product from the last unit of resources, plus the amount of the subsidy, equals the unit cost of the resources.

What is the loss from the moral hazard distortion? Economists know that the right measure of loss is measured by the modest triangle formed by the points A , B and C . For the additional resources that are artificially encouraged to go into these risky activities, the loss is the excess of the alternative opportunity cost of these resources over the value (net of flood damage) of what they produce when deployed to the activities subject to flood risks. Almost everyone other than economists (and the beneficiaries of disaster relief) tends to think of the cost as the budgetary cost of the implicit subsidy, which is measured by the substantial rectangle bounded by vertical axis and Q_B and by the horizontal lines at unity and at $1-s$. As I believe that budgetary costs are important, even if they mainly constitute transfers rather than real resource

costs, I do not wholly reject this common sense view. However, I would emphasise that the budgetary cost should generally be regarded as a generous overestimate of the distortionary costs associated with moral hazard problems of this kind.

Next, suppose that the government does not provide grants of disaster relief, but instead supplies flood insurance at a fair premium to those who choose to buy it. (The government might need to be in this business because concerns about ‘catastrophic losses’ keep private insurers out of this market.) In this case, there is no moral hazard problem, even though the government ends up paying substantial amounts of compensation for flood damage (which are paid for on average by premia collected for such insurance). The fact that an appropriate premium is charged for those who want flood insurance leaves incentives for risking resources to flood damage appropriately undistorted. Indeed, if such insurance were not available without government intervention, economic efficiency would be improved by government provision (at a fair price) as this would enable risk-adverse operators to undertake an economically appropriate amount of flood risks.

What if, rather than grants or insurance, the government provides loans (for rebuilding) to those who have suffered damage from floods? (The government might make such credits available because private institutions are, for a variety of reasons, unreasonably reluctant to lend to flood victims.) If interest charged on such loans is without subsidy, then there should be no moral hazard distortion, as in the case of fairly priced government-supplied flood insurance. Unlike insurance, however, loans for flood victims do not get around the problem that exposure to flood risk is below the economically appropriate level because of risk aversion. A modest subsidy on disaster relief loans, it might be argued, is a way to compensate (imperfectly) for this deficiency. More generally, however, loans with a significant interest subsidy element are likely to generate some moral hazard.

To analyse the cost of this moral hazard, we can again use Figure 3, assuming for simplicity that the amount of the flood relief loans corresponds to the full amount of losses sustained in floods. Now, however, the amount of the subsidy is not equal to the probability of losses from floods – as it was in the case of full compensation grants. Rather, the subsidy distortion is only equal to that fraction of the initial loan value that is represented by the present value of the interest subsidy. By the same principle as before, the budgetary cost of the interest subsidy (in present value terms) is a generous overestimate of the economic efficiency loss generated by the moral hazard distortion.

5. Moral Hazard from International Financial Support

The commonsense view of the ‘moral hazard’ problem held by many of the less careful and sophisticated critics of international support packages is simplistic and fundamentally wrong. This view derives from the mistaken impression that billions of dollars of taxpayers’ money supplied by industrial country governments are being *given away* to bailout the imprudent creditors of emerging market economies. The fact is that international support packages are loans and not grants, and they come at very little, if any, cost to taxpayers in the industrial countries. Some creditors,

notably creditors of sovereigns and interbank creditors, have been helped by international support packages, relative to what probably would have happened if such support were not available. But avoiding the likely adverse consequences of defaults to these creditors for the debtor countries was also of great value to these countries – which is generally why their governments chose to avoid such defaults.

Moreover, most of those who supplied capital to the emerging market countries prior to crises have sustained substantial losses (although many who have stayed invested have now recovered). And, it should be emphasised, the conditionality associated with international support packages has generally sought to narrow, rather than expand, the extent to which national governments in crisis economies assume responsibility for private foreign credits at the expense of domestic taxpayers, especially for credits beyond those to the core of the financial system.

While they usually do not try very hard to dispel popular misconceptions that support their policy agenda, the more careful critics who are concerned about moral hazard recognise the key facts about international financial support packages. They also understand that the problem of moral hazard does not arise because someone *ex post* escapes losses; it arises because someone *ex ante* undertakes economically inappropriate risks in the expectation that if the outcome is adverse he will somehow be shielded, as a consequence of international financial support, from some of the losses he would otherwise have taken. What can be made of this more sophisticated view of moral hazard, beyond the observation that virtually everything in economic life involves at least some marginal element of moral hazard?

From an analytical perspective, there are good reasons to believe that international financial support operations, as they are now practised, do not usually generate substantial moral hazard problems. In the above analysis of moral hazard arising from government disaster relief programs, the point was made that a system of grants where taxpayers' money is used to absorb losses can generate significant moral hazard. In contrast, fairly priced government insurance or fairly priced relief loans do not generate significant moral hazard, and may, in some circumstances, move risk-taking to a more optimal level. From this analysis, it follows that international financial support that is in the form of loans with reasonable interest rates and high prospects of timely repayment should be expected to generate relatively little moral hazard. Those who want to argue otherwise have an intellectual responsibility to lay out a clear analysis of how support that ultimately does not absorb somebody else's losses nevertheless induces somebody else to take inappropriate risks. (More on this later.)

Another analytical point concerns the link between moral hazard and the effect of international support on expectations and on risk-taking. For there to be a moral hazard effect from international support, it is necessary that expectations of such support affect decisions about risk-taking. That there is such an effect, however, absolutely does not prove that moral hazard is being generated. It is also essential to show that risk-taking is being induced to go beyond the level that is economically appropriate. As discussed above, fairly priced insurance for an insuree whose (unmonitorable) behaviour cannot affect risks does normally encourage and enable

greater risks to be taken. This is economically appropriate. Indeed, in most practical insurance situations, where there is some unavoidable element of moral hazard, the effect of insurance is to encourage or enable greater risk-taking. This too is economically appropriate, provided that the damage from the moral hazard does not outweigh the benefits of dealing more efficiently with real hazard.⁵

How can one judge whether international financial support is being provided beyond the economically appropriate level? One key test is whether such support can generally be repaid in a timely manner with reasonable interest. This goes back to the issue of the subsidy (or lack thereof) associated with international financial support. If the recipient of support did not repay in full, there would be a subsidy to the extent of the deficiency. If the interest charge is too low, there is another element of subsidy. Subsidies, as previously argued, generate moral hazard. Conversely, little or no subsidy implies little or no moral hazard.⁶ Here it might also be noted that for the countries that receive international support, there is a large element of co-insurance. Clearly, these countries are not protected against all losses.

Recipients of large-scale international support packages are typically in, or on the verge of, financial crises and face very high interest rates in private capital markets, if they can borrow at all. As the interest charge for official financial support is usually well below these distress market levels; doesn't this imply a substantial subsidy? Not really. The providers of official financial support to the government of a country in distress are in a fundamentally different position than private creditors. Official support comes with conditionality, and a key purpose of this conditionality (and its primary legal justification) is to provide reasonable assurance of timely repayment by the recipient of official assistance. Private creditors have no comparable means of enforcing such conditionality. Moreover, as a condition for official support, its providers may sometimes insist that already existing private credits be 'voluntarily' rolled over or restructured as a condition for the provision of official assistance – as happened in the debt crisis. Thus, the providers of official support effectively have better security/collateral for their loans than other creditors, and the interest they charge should appropriately reflect this situation.

Turning from these general analytical points to specific cases, it should first be recognised that in one important case, Russia, moral hazard arising from expectations of economically inappropriate official financial support probably played a meaningful role in stimulating private capital inflows before the recent crisis. Many thought that Russia was too important – too nuclear – to be allowed to fail. The perception was that well beyond the economically appropriate level of official support consistent with Russia's capacity to meet its official credit obligations and comply with the

5. In the private insurance business, when moral hazard problems are great, the market tends not to exist. For official interventions that have the character of insurance, it is important to verify that they are not going beyond the point where potential moral hazard problems are too great to leave a reasonable expectation of overall benefit. The appropriate level of moral hazard, however, is generally not zero.

6. The economist's measure of the economic efficiency loss from a subsidy distortion generally rises with the *square* of the subsidy, not linearly. For small subsidies, the efficiency loss is *second order of smalls*.

normal conditionality associated with international support, the international community would provide support, virtually without limit and without meaningful conditionality, to avoid a Russian sovereign default. As the spreads on Russian GKO's (and less so on Eurobonds) rose to considerable heights before mid-August 1998, it is clear that not everyone was absolutely firm in this expectation. But among the most fervent believers were probably those who invested heavily in Russian credits, who also turned out to be those most surprised when the IMF enforced for Russia the same rules that apply to all other members.⁷

Beyond Russia, for the other recipients of large-scale official support packages, it is much more difficult to see a strong case that expectations of economically inappropriate international support played a substantial role in motivating private capital flows before the recent crises. For Mexico in 1995, the massive financial support packages from both the IMF and the US Government were literally unprecedented. Nothing on nearly that scale had ever been arranged for any country. For Mexico itself in the debt crisis of the 1980s, the approach had been quite different. Official financial support was modest, and banks that held most of the credits were co-ordinated to roll over, and ultimately scale back, their credits. Thus, there seems little rational basis for creditors to have formed expectations about what ultimately transpired for Mexico in 1995.

Moreover, while it is wrong to assert that (*ex ante*) moral hazard was present for Mexico on the basis of the financial support that actually was provided (*ex post*), the *ex post* results are relevant to the critical issue of whether the support provided was economically appropriate. In fact, the Mexican stabilisation program succeeded in its main objectives. Mexico has already repaid all of its borrowings from the US Government and a significant fraction of its credits from the IMF. The judgment has been effectively confirmed that the Mexican Government faced fundamentally a liquidity problem in 1995. An unnecessarily damaging potential sovereign default was avoided through a strong stabilisation effort and with the benefit of large-scale official assistance. The providers of that assistance incurred no significant risk or cost.

After Mexico, it can plausibly be argued that its example provided a reasonable basis for expectations that large international support packages might be used in similar future cases. But, if Mexico in 1995 was not an example of economically inappropriate international support, then it cannot be a reasonable basis for expectations for the scale and type of support that would generate moral hazard. Again, international financial support has many of the characteristics of insurance; and, as

7. Whether there will be *ex post* a significant subsidy in official support extended to Russia remains unclear. So far, Russia has remained current on its obligations to the IMF, paying all interest and paying down the principal by about US\$1 billion since last summer. If the new IMF program with Russia is fully disbursed, the principal will still fall by about another US\$1 billion by the end of next year. The Russian Government has also remained current on its other Russian-era debts. However, Russia's payments on its Soviet-era debts have been deferred and these debts are in the process of being restructured. Some Russian authorities have suggested that substantial write downs of Soviet-era debts will be needed. This is a channel through which an *ex post* subsidy could flow.

with insurance, some encouragement to risk-taking is desirable, is not necessarily a sign of moral hazard, and is surely not a sign that any moral hazard that may be generated outweighs the benefits of dealing better with real hazards. Going forward, this is really the vital issue. So long as international support packages, and their associated conditionality, are restricted to circumstances where they are economically appropriate, they should not be responsible for significant moral hazard.

Looking back more specifically to the Asian crisis, it is difficult to see that expectations of international support played a significant role in motivating private capital flows prior to the recent crises. Korea, Indonesia, and Thailand had not used international financial support in many years, and there was little expectation until just before the crises broke that they might need such support. The Asian crisis countries had long records of outstanding economic success: sustained high growth, relatively low inflation, well-disciplined government budgets, high domestic saving and investment, well-educated labour forces, generally stable governments, and wide participation in the fruits of economic progress. Without calling heavily on moral hazard from expectations of inappropriate international support, there are plenty of reasons why capital should have been flowing to these economies, especially in a period when growth was relatively sluggish in many industrial countries.

Also, capital flows to these countries, and more generally to emerging market economies, took many forms: direct investment generally had the largest share; portfolio equity flows were often quite important; credit flows went to many private borrowers; and interbank flows, while important in several cases, were not overall dominant. Of all of these types of flows, only interbank flows received substantial protection – from national governments and at the ultimate expense of their national taxpayers. Based on past experience, only for the interbank flows (and sovereign debts which were not a factor in Asia) could there be any reasonable basis for expectations of protection. The breadth of the capital flows across instruments and countries, and the attractiveness of their pricing for the receiving countries, suggest that something other than moral hazard (from expectations of inappropriate international support) was driving most of these flows.

Concerning the international interbank flows, there is clearly an issue of moral hazard. But this problem (which is discussed further below) reflected expectations concerning the policies and actions of national governments – that they would, as in the past, bailout virtually all of the creditors of domestic banks and other financial institutions that got into difficulty. International financial support (or expectations of such support) did not create these government policies or expectations concerning them. International financial support has not, and will not in the end, pay for the costs of these policies; they will be borne by national taxpayers. More generally, while there are important moral hazard problems arising from a wide variety of national policies where the taxpayer is called upon to absorb someone else's losses, such policies and their consequences are not fundamentally the responsibility of international financial support.

6. Indirect Moral Hazard

Even if international financial support is not fundamentally responsible for moral hazard arising from national policies and practices, in the financial sector and elsewhere, it might be argued that international support facilitates these policies and practices. Mussa *et al.* (1999) refer to this as the problem of 'indirect moral hazard'. Analytically, we know from the theory of the second best that policies that do not distort the markets in which they operate directly can nevertheless generate welfare gains and losses by indirectly affecting other markets where there are pre-existing distortions. This may be a relevant concern with international financial support, but it is one that needs to be treated with considerable care.

Countries in need of large-scale official assistance are typically in rather dire circumstances. The conditionality associated with official support might be used to leverage policy changes (or at least promises of policy changes) in many areas. If conditionality is not used effectively to promote what is seen (by someone) as desirable change in some particular area, it might be argued that the practices surrounding international support are responsible, in some important degree, for the remaining defects in national policies. Such an argument clearly goes too far. The police may be said to be responsible for crime if they directly commit crimes, or if they accept bribes and knowingly allow others to commit crimes, or if they are unreasonably lazy or incompetent. But, if crime persists, or even grows, despite the energetic best efforts of the police, they are not responsible – directly or indirectly. Similarly, if international financial support is to be held (partially) indirectly responsible for moral hazard problems generated by national economic policies, there needs to be some meaningful linkage between official international support and the national policies that are the fundamental source of the problem.

The linkage that is usually asserted runs through the supposed effect of expectations of international support on the behaviour of creditors. Because creditors expect that international financial support will enable them to be bailed out without significant loss, they lack appropriate incentives to be prudent in their lending. This, in turn, tends to make crises more likely and more difficult. As previously discussed, because international support comes as loans with reasonable interest rates and high repayment prospects, it is fallacious to argue that international financial support bails out any creditors. If this happens, it is at the expense of the borrowing country, as it should be. Also as previously discussed, among the many suppliers of capital to emerging markets, only two groups of creditors have any reasonable expectation of being bailed out by national governments: creditors of banks and other financial institutions, especially international interbank creditors; and creditors of the sovereign itself. The merits of whether and when international support should or should not facilitate a national government's policies to honour these two types of claims require separate consideration.

In virtually all countries, the national policies and practices provide very extensive support to the depositors and other creditors of domestic financial institutions whenever there are threats of systemic problems in the financial system, and often for creditors of particular institutions when they get into difficulty. The budgetary

losses associated with such policies and practices have been very large in many countries; and the moral hazard problems in this area are deeply implicated in many (if not all) of the recent, very costly financial crises. International financial support may be accused of being indirectly involved in these problems in a number of cases. If the support had not been available, national governments in some instances would not have had the foreign exchange resources to meet the claims of foreign creditors on domestic financial institutions. Defaults or restructurings of these foreign credits would have been forced in some instances, with larger losses to creditors. Presumably, foreign creditors, as well as domestic financial institutions, would have learned to be somewhat more cautious in their lending and borrowing practices. Moral hazard arising directly from national support policies and practices would have been somewhat reduced.

Granted that all of this is true, or at least not unreasonable, there is a powerful other side to the argument. Virtually all governments seek to protect their financial systems from systemic collapse if they are able to do so; and they are right to do so even if this inevitably generates some amount of moral hazard. In virtually all countries, however, the government's financial safety net is too broad and too undisciplined, generating unnecessary problems of moral hazard and often contributing to risks of financial crises. Reforms in this area should seek to narrow the safety net and make the owners and major creditors of individual financial institutions more responsible to absorb losses – while still guarding against systemic financial collapse. This would be worthwhile in virtually all countries. These things are true both for countries that might plausibly be candidates for international financial support and for countries where there is no such plausible expectation. Japan, for example, is currently experiencing grave problems in its financial system that are partly the consequence of a variety of policies tending to generate moral hazard; and there are many other examples among the industrial countries. For the emerging market countries that recently experienced crises related to deficiencies in their financial sectors, the problems with financial sector policies were of very long duration, extending back well before when there was an inkling of a thought of a possibility of large scale international support. Thus, there is no essential link between the deep problems with national support policies for the financial sector and official international support for countries experiencing balance of payments difficulties.

This conclusion does not imply that problems with financial sector policies that contribute to serious risks of crises should be ignored in considering international financial support. It is entirely appropriate that the conditionality associated with support packages should focus, as it has in many recent cases, on improving financial sector policies with an eye to reducing future problems of moral hazard (resulting from national policies) and reducing risks of future crises. It is also entirely appropriate that the IMF, as the international financial institution primarily responsible for assisting countries in dealing with financial crises, should play a leading role (through its surveillance and technical assistance activities) in the global effort to improve financial sector policies. Indeed, it would be derelict if it did otherwise. But, that is very far from saying that IMF policies are, in some meaningful sense,

indirectly responsible for the grave deficiencies of national policies toward the financial sector and for the substantial moral hazard they generate.

For sovereign credits, there is an even stronger case why the international community should seek to avoid defaults whenever that is reasonably feasible. Defaults by the sovereign are typically very damaging to the whole economy. Beyond a national government's sense of responsibility to meet its sovereign obligations, concern about the adverse consequences of sovereign default is a key reason why governments strive hard to avoid it (see Bulow and Rogoff 1989). If defaults were easy, the functioning of credit markets would be seriously impaired by their most serious moral hazard problem; namely, the obvious incentive for debtors to walk away from their debts if there is no effective means to compel them to repay.

The international community certainly should not foster this moral hazard problem on the part of its sovereign members. If a sovereign faces a liquidity problem in meeting its maturing obligations, especially its foreign currency obligations, it is not unreasonable to provide official international support, under appropriate conditionality. This was the case, for example, in Mexico in 1995. If the sovereign faces something more difficult than a liquidity problem, then the approach to international support should arguably be more cautious, which was the way the debt crisis of the 1980s was handled in many cases. When the sovereign appears incapable of taking the actions fundamentally required to establish fiscal responsibility, then sovereign default effectively becomes unavoidable, and the international community should stand back from providing large-scale assistance to delay default. This is what happened in Russia in August 1998.

That restructurings of sovereign credits and even sovereign defaults do occur from time to time, with adverse effects for creditors, helps to contain potential concerns about moral hazard arising from official support to sovereigns in distress. For the providers of such support, the critical issue is to make sure that the support and its associated conditionality are economically appropriate. If large-scale official support is provided to meet liquidity problems, and conditionality assures that underlying problems are forcefully addressed, then the effect of such support will mainly be to reduce or ameliorate real hazards and moral hazard concerns will be limited.

7. What to do to Improve the System?

I have already noted that there are a wide range of useful proposals to improve the architecture of the international financial system which, if implemented, could do much to improve the functioning of the system. I would also note that there is the important issue of the appropriate exchange rate regime for many emerging market countries – specifically whether the preservation or re-introduction of regimes that involve very tight exchange rate management or *de facto* exchange rate pegging are really a good idea for most of these countries. This is a principal subject of a paper for consideration of the IMF's Executive Board, the preparation of which has unfortunately precluded my personal participation in this conference. I will not comment on this important issue now.

Rather, in this conclusion, I return to the main theme of this paper – whether the scale of official financing prospectively available to emerging market economies facing external payments difficulties is too large or too small. Most of the argument on this issue suggests that official financing has become too large. Let me suggest four points on the opposing side – not in the expectation that the politics of the issue will endorse this answer, but in the view that the intellectual merits of the case do matter somewhat.

First, as emphasised above, there can be no reasonable doubt that real hazards faced by emerging market economies in their interactions with the global financial system, as illustrated in recent crises, are sometimes very large. The evidence is clear that these real hazards in recent crises have been much larger than could be effectively managed, without substantial damage to national and international prosperity, within the confines of the (otherwise seemingly generous) levels of available international support.

Second, the IMF is the international institution charged with the responsibility of providing support, under appropriate conditionality, to countries experiencing external financing difficulties. According to their charters, this is not a task for the World Bank or the regional development banks. Nevertheless, in efforts to provide official support to countries caught up in recent crises, the World Bank and the regional development banks have been called upon to supply additional financing beyond that available from the IMF. To some extent, this may reasonably be justified by the longer-term, structural content of many adjustment programs. But the excuse wears thin. And the fact that bilateral creditors have been called in to supplement resources available from the multilateral institutions reinforces this conclusion. When there is a real crisis, rather than merely talk about what to do in a possible future crisis, the revealed preference of the official community for larger official financing packages than the IMF can support on the basis of its own resources suggests that those resources are too limited to serve their officially designated and desired purposes.

Third, looking back to Bretton Woods, countries were, by modern standards, quite closed to international trade, and it was expected that they would actively use their widely deployed controls over capital flows to contain external payments pressures. Nevertheless, countries were thought to need IMF quotas amounting, on average, to something more than 2 per cent of national income. Using the same quota formulas developed at Bretton Woods, emerging market economies with their generally deep involvement in international trade would merit IMF quotas generally in the range of 4 per cent of GDP or higher. This compares with actual IMF quotas for many of these countries of well under 1 per cent of GDP. If IMF quotas were raised to the levels envisioned at Bretton Woods, and especially if further allowance were made for the fact that capital controls are no longer viewed as an effective or desirable means for dealing with external payments problems originating in the capital account, then the scale of recent official financing packages would not appear particularly large by the standards that were thought relevant years ago.

Finally, the main objection to large official financing packages, other than the practical problem of lack of political support in key creditor countries, is the concern that such packages tend to generate significant problems of moral hazard. When subjected to careful analysis, however, these concerns appear to have relatively little substance, especially in comparison with legitimate concerns about real hazards in functioning of the global financial system. Fears about problems that cannot be convincingly demonstrated should not be a barrier to responsible actions to ameliorate risks that are demonstrably apparent.

References

- Bulow, Jeremy and Kenneth Rogoff (1989), 'A Constant Recontracting Model of Sovereign Debt', *Journal of Political Economy*, 97(1), pp. 155–178.
- Eichengreen, Barry (1999), *Toward a New International Financial Architecture: A Practical Post-Asia Agenda*, Institute for International Economics, Washington, DC.
- Kotowitz, Y (1989), 'Moral Hazard', in John Eatwell, Murray Milgate and Peter Newman (eds), *Allocation, Information and Markets*, The New Palgrave, W.W. Norton, New York, pp. 207–213.
- Mussa, Michael, Alexander Swoboda, Jeromin Zettelmeyer and Olivier Jeanne (1999), 'Moderating Fluctuations in Capital Flows to Emerging Market Economies', in Peter Kenen *et al.* (eds), *Key Issues in Reform of the International Monetary and Financial System*, IMF, Washington, DC, forthcoming.