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**Report of the Working Group on
Capital Flows**

Meeting of the Financial Stability Forum

25-26 March 2000

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Preface

At its inaugural meeting on 14 April 1999, the Financial Stability Forum (FSF) established an ad hoc Working Group on Capital Flows. Mr. Mario Draghi, Director General, Ministry of the Treasury, Italy chaired the Group.

The Group's report was submitted to the Financial Stability Forum for discussion at its meeting in Singapore on 25-26 March 2000. The Financial Stability Forum welcomed the report and endorsed its recommendations.

As Chairman of the Forum, I have transmitted the report to the G-7 Ministers and Governors. I have also forwarded it to the G-20 Ministers and Governors, and to the heads of the IMF and the World Bank, with the request that the reports be forwarded through Executive Directors to Ministers and Governors in anticipation of the April meetings of the International Monetary and Financial Committee and the Development Committee.

The Forum urged national authorities, international financial institutions, and the international groupings and other agents referred to in this report to consider promptly the Group's recommendations and to take the necessary actions to implement them.

Andrew Crockett

Chairman

Report of the Working Group on Capital Flows

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I. Executive Summary

1. Industrial and emerging market economies alike share a common interest in building a strong and safe system for global flows of capital. To the extent that they take place in well-functioning, competitive markets and respond to proper price signals, capital flows contribute to an efficient, cross-country allocation of resources and risk. A healthy capacity to mobilise external capital is critical to financing a growing and successful world.
2. However, these benefits do not come without risks and potential costs, especially in the case of short-term flows. If the risk exposures associated with capital flows are not properly managed, the consequences for creditors and debtors and for global financial stability more generally can be severe. Realising the full benefits of capital flows will require adopting policies that control the risks associated with them.
3. In particular, abrupt portfolio adjustments can involve sudden cessation or reversals of flows and sharp changes in asset prices. Recent history provides ample evidence that countries with fixed exchange rates and large amounts of short-term debt are prone to disruptive volatility of this sort, which can have systemic consequences. Indeed, one of the central lessons of the crises in emerging market economies over the past few years is the importance of prudent management of liquidity and other risks.
4. In some instances, the risk of crisis seems to have been increased by factors that, intentionally or inadvertently, bias the pattern of capital flows toward concentrations of shorter-term maturities, which entail roll-over risk and thus can be more easily reversed. For example, regulations limiting long-term external borrowing by residents of emerging market economies or encouraging short-term lending by international banks can have this effect. Such potential biases should be identified, and prompt consideration should be given to their elimination in light of the added volatility they might cause.
5. However, efforts of this kind to reduce volatility -- while worthy and recommended -- need to be complemented by a prudential, risk management framework for the analysis of capital flows. Such a framework, based on stocks of assets and liabilities, should acknowledge the existence of risks and seek to find better ways to monitor and manage them. The present paper is based on such a framework.

A. Key recommendations

6. In this report, the Working Group on Capital Flows makes a number of recommendations to deal with issues related to capital flows and their associated risks. The Working Group is pleased to note that some of the Group's recommendations already are being acted upon.

- ***Risk monitoring at the national level***
 - The Working Group recommends that national authorities should have, as a clear goal, a risk management strategy that involves a system for monitoring and assessing the risks and liquidity of the economy as a whole, including at a sectoral level. Such an assessment is critical at times of crisis, but it is better to have the information needed to help avoid a crisis.
 - Risk monitoring at the national level could be assisted by compiling a balance sheet, for the economy as a whole and for key sectors, designed to identify significant exposures to liquidity, exchange rates, and other risks. The authorities should employ simple vulnerability indicators and more sophisticated stress tests and scenario analyses in assessing the potential impact on liquidity and balance sheet strength of different types of shocks to the real or financial economy.
 - National authorities, as well as international bodies, ought to assess the possible adverse consequences of their policies in terms of creating biases toward short-term capital flows or otherwise encouraging a build-up of unwarranted external exposures, and should take prompt corrective measures.
- ***Risk management by the public sector***
 - Recent experience has highlighted the need for governments to limit the build-up of liquidity exposures and other risks that make their economies especially vulnerable to external shocks. To this end, sound risk management by the public sector warrants high priority. It is a prerequisite for risk management by other sectors, because individual entities within the private sector typically are faced with enormous problems when inadequate sovereign risk management generates vulnerability to a liquidity crisis. To help national authorities understand and implement more systematic risk management procedures, the Working Group recommended that operational guidelines, or sound practices, should be formulated for liquidity management and asset/liability management more broadly. The Working Group set out a checklist of issues which, in the Group's view, such guidelines should cover.
 - At the initiative of the Working Group, the desirability of guidelines was discussed at a meeting of the Financial Stability Forum in Paris in September. Following that discussion, the IMF and World Bank were asked to lead an effort to develop guidelines for sound practice in sovereign debt and liquidity management drawing on national experts, including some members of the Working Group. Such an effort is under way, responding importantly to the request by the Forum but also to the expressed interest of others and the institutions' own work agenda. The effort involves three closely inter-related elements, which should provide considerable help to national authorities. Building on this effort, work should proceed to distil a set of debt management

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guidelines. The Working Group urges national authorities to take advantage of the insights gained from that effort to build their capacity for risk management and to implement sound risk management policies.

- In terms of policies for the management of official foreign currency reserves, the Group emphasised the following factors:
 - Other things being equal, more official reserves will be needed (a) when a country is operating a fixed exchange rate regime; (b) the lower its standing in and routine access to international capital markets; and (c) the shorter the maturity of the public sector's external or foreign currency liabilities.
 - While prudent liquidity management by banks themselves and effective regulatory oversight must be the primary defences against foreign currency liquidity problems in the banking sector, the public sector may need to take account of such risks in its own reserves policy since it might otherwise find itself unable to supply needed foreign currency liquidity to the banking sector to contain an incipient crisis.
 - Policy on official reserves and foreign currency liability management might also need to place some weight on the position of the non-bank private sector, but the primary mechanism for effective risk control in this area should be improved transparency.
- The Working Group emphasised also the need to develop domestic bond markets. The development of a domestic bond market can help a government to avoid concentrating its borrowing in short maturities or in foreign currencies, instead creating a diversified portfolio strategy with more dispersed maturities.
- The international institutions should help countries to identify elements of public sector risk management that deserve attention and to monitor and encourage progress in implementing those elements. Technical assistance should be provided, where warranted, by international institutions and national authorities.
- ***Risk management by the banking sector***
 - The Working Group distinguished between banks in countries receiving capital inflows – in particular, in the emerging market economies – and the international banks that extend cross-border credit. Both have a responsibility to avoid any build-up of exposures that generates systemic vulnerabilities.
 - The Group welcomed the recent publication of the Basel Committee's revised guidelines on managing liquidity risk and in particular the distinction made between domestic and foreign currencies; their application to emerging market economies should be given a high profile and made a high priority by national authorities. Further guidance from the Basel Committee on how to measure and manage foreign exchange exposures is desirable, as well. Until supervisory

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capacity is adequate, a set of more explicit regulations designed to limit liquidity and foreign exchange risks might be considered. The Group urges the Basel Committee's Core Principles Liaison Group and its Risk Management Group to address issues related to currency and maturity mismatches in emerging market economies.

- More work also could be done by the Basel Committee to address the linkages amongst liquidity risk, foreign exchange risk, and credit risk.
 - With respect to credit risk, not all countries have the supervisory capacity to implement in full or immediately the new capital adequacy framework being developed by the Basel Committee. Countries that do not should be encouraged to enhance their supervisory procedures and should be supported in their efforts. The Group urges that the Basel Committee's Core Principles Liaison Group set out recommendations as to how a new capital accord should apply to emerging market economies.
 - The Group welcomes likely changes by the Basel Committee in the system for determining risk weights for sovereign and private credits and in the risk weights that currently favour short-term interbank claims.
 - National authorities should aim at obtaining sufficient information not only to assess the risk exposures to foreign currency funding of individual banks, but also to monitor, through analysis of aggregated information, the overall exposure of the banking system to the risks of foreign currency funding.
- ***Risk management by non-bank financial institutions and non-financial institutions***
 - The Working Group urges IOSCO and IAIS to continue to promote prudent behaviour on the part of securities firms and insurance companies, respectively, especially insofar as the issues raised in this report with respect to banks apply also to securities firms and insurance companies.
 - National authorities should promote good corporate governance practices on the part of individual firms. Government agencies should avoid policies that distort corporate sector liability choices and, in particular, that bias corporations to engage in short-term borrowing.

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- ***Transparency***

- Good information is fundamental to risk management. Disclosure by participants in financial markets is, in turn, a key element in making good information available.
- National authorities should adopt a high level of transparency about their own risk and liquidity management strategies and operations, and about official, including regulatory, policies governing private sector risk and liquidity management.
- Agencies with a responsibility for financial stability should aim to publish an annual assessment of liquidity conditions in the economy as a whole, and in important sectors of the economy, in particular the banking sector and other parts of the financial sector. This should help market participants and credit-rating agencies to make more informed assessments about the liquidity of a country, as well as increase the incentives for prudent debt and liquidity management.
- National authorities should promote, if necessary via corporate law, the adoption and implementation of accounting standards that require companies to disclose, in their audited report and accounts, the composition of their liabilities and financial assets, including by maturity and currency.

- ***Data requirements***

- In addition to better disclosure of the financial positions and risk management policies of market participants, better data on aggregate external financial positions are needed if investors and borrowers are to understand more fully and take better account of the risks inherent in international capital flows.
- To provide impetus to the process of improving the availability and quality of data, the Group proposed a conference in which policy makers involved in financial issues, officials in the statistical reporting function, and representatives of the private sector could meet to clarify the importance of enhanced reporting of external flows and positions and to explore the priorities. The IMF, in co-operation with the Working Group, hosted such a conference on 23-24 February in Washington.
- Much progress has been made in recent years in upgrading the quality, coverage, and timeliness of data on external flows and positions. Nevertheless, many gaps in available data have not been filled. Moreover, new gaps arise as new financial instruments become available that escape the reporting net or transform the risks associated with existing instruments in ways that are not captured in the data.
- The Working Group pointed to some gaps that it deems to be especially important, offered encouragement to efforts already under way to fill some of them, and urged new efforts to help fill others. In particular, the Group identified the following gaps with respect to statistics on external debt: data by residual

maturity rather than original maturity; by face value as well as market value; with a distinction by currency as well as residency; information on embedded put options in bond contracts; and amortisation schedules (including interest payments). National authorities should give high priority to upgrading their external debt statistics.

- The Group also urges relevant bodies to consider gaps with respect to creditor side and market data: a cross-sectional breakdown in the Locational Banking Statistics that would enable a combined breakdown both by sector and maturity, rather than just one or the other; reporting by offshore centres; private placements of debt securities held by the non-bank sector; data that might be available from global custodians; and non-resident purchases of domestically issued bond and money market instruments.
- The Working Group also identified a number of areas where efforts are warranted in the national context to enhance the dissemination of data that are needed to assess the risks and liquidity of an economy.

B. Structure of report

7. The next chapter lays out the mandate of the Working Group and describes the approach adopted by the Group to fulfil that mandate. It discusses the nature of the problem associated with capital flows by drawing on the experience of the recent crises in emerging market economies. It highlights the existence of distortions that may arise from national policy measures or international regulations that have the effect of biasing capital flows towards forms that can generate greater volatility and risk.
8. Chapter III discusses the monitoring and managing of risk, beginning at the national level. It then focuses attention on the risk management problems of the public sector and of the banking sector. This is for two reasons. First, the principal concern of the Working Group—as well as for the Financial Stability Forum of which the Group is a part—is a systemic one, and those two sectors are important from a systemic point of view. Second, public policy has the clearest role in these sectors. The scope is more limited for public policies to manage risk exposures of nonbank financial institutions, many of which are not and probably should not be supervised or regulated, and especially of non-financial corporations and households. Nevertheless, in those sectors implementation of sound accounting standards, enhanced transparency, and actions to remove biases that induce individual firms to take on excessive risk, would be constructive and should be encouraged.
9. In the final section of Chapter III, the Working Group discusses controls on capital inflows. In certain circumstances, such controls could be considered if they have a prudential element and, therefore, fit into a risk management framework. The costs and benefits of such controls should be assessed relative to the costs and benefits of alternative means of achieving the same objectives. If controls on inflows are to be

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implemented for prudential reasons, they are likely to work best when they are temporary and apply broadly, and when they are implemented in an environment of sound macroeconomic policies and a strong external position. Controls on capital outflows are a topic that is better addressed in the context of crisis management, which is beyond the scope of this report.

10. Chapter IV discusses some of the institution-building that must take place if officials and private market participants, especially in developing countries, are to have the capacity for effective risk management. One obvious need is the development of markets for key financial instruments, such as domestic currency bonds, so that risk management strategies can, in fact, be implemented. Another need is the enhancement of transparency.
11. Improved monitoring and management of risks will depend on better information. Thus, Chapter V turns finally to a discussion of the data requirements for risk assessment and monitoring.

II. Introduction: The nature of the problem

A. The mandate of the working group

12. The Financial Stability Forum held its first meeting in April 1999 in Washington. At that meeting, it established three working groups to explore issues associated with highly leveraged institutions, offshore financial centres, and capital flows.
13. The Working Group on Capital Flows had the following terms of reference:
 - Evaluate prudential policies, regulations, and risk management (including debt management) practices in borrowing countries that may help reduce the risks to financial systems associated with the build-up of short-term external indebtedness (that is, indebtedness to non-residents).
 - Identify any regulatory or other factors that may have introduced an unwarranted bias in favour of short-term flows, and recommend actions to reduce such bias.
 - Review progress in improving the adequacy and timeliness of the data and reporting systems on which authorities and investors rely to monitor and assess risks associated with capital flows, and give impetus to improvements as needed.
 - Evaluate other potential measures in debtor and creditor countries to reduce the volatility of capital flows and its adverse consequences for financial system stability.
14. Many other issues that have an important bearing on capital flows were not part of the Working Group's mandate. For example, the macroeconomic policy framework and supply side policies of a country are, perhaps, the most important determinants of capital flows, but they are broad topics that are well beyond the scope of this effort. Similarly, corporate governance and the legal infrastructure of a country (for example, laws with respect to contracts and insolvency, and enforcement procedures) are crucial but also were not addressed.
15. The work of this Working Group is related in many respects to the work of the other groups. Highly leveraged institutions have been important participants in international markets, and their behaviour has implications for capital flows and the associated build-up of risk exposures. To the extent that flows are channelled through offshore financial centres, questions arise as to the extent to which institutions in those centres are supervised and information concerning their transactions is available.

B. Spectrum of country circumstances

16. Countries differ significantly in terms of the state of development of their domestic financial markets and the degree of integration with international financial markets. At one end of the spectrum, financial markets in many countries are not well developed;

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they often have highly concentrated banking systems (sometimes state-owned) and little in the way of capital markets. Financial institutions and corporations in such countries are not likely to have access to international markets; access by the government to private external credit is likely to be limited, as well.

17. At the other end of the spectrum are countries with fully developed financial systems, with a wide range of banking and other financial institutions and well-functioning capital markets. Financial markets in those countries are likely to be closely integrated with international markets, and residents engage actively in financial transactions with foreign debtors and creditors.
18. In terms of integration with international markets, an important difference amongst countries is the degree of capital account convertibility, that is, the extent to which residents and non-residents are allowed to engage in transactions with one another. If capital account transactions are completely free, so that domestic residents can engage in the full range of transactions with foreign residents, the distinction between foreign and domestic residents as potential sources of vulnerability may be less meaningful; residents as well as non-residents can take their capital out of the country, and can do so at short notice. On the other hand, if capital account regulations do not permit domestic residents to engage in transactions with foreign residents or in foreign currencies, and if such regulations are enforceable, then external pressures may derive only from foreign residents. Thus, the rules governing the capital account have a bearing on the appropriate structure of the statistical reporting system and on the analysis underlying policy.
19. Another important difference amongst countries is the nature of the exchange rate regime, although in practice the apparently sharp distinction between fixed and flexible regimes may become somewhat blurred. From the perspective of the monetary authorities, strong risk management is of crucial importance in a fixed exchange rate regime, since domestic currency claims can be converted into scarce foreign currency at the fixed rate. However, a floating exchange rate regime typically does not relieve authorities from similar concerns, to the extent that large swings in exchange rates can be disruptive to final objectives or the financial system. Moreover, from the perspective of the private sector, expectations about changes in exchange rates are clearly an element of risk management in both floating and fixed exchange rate regimes. In the latter case, expectations about future rates cannot properly be based on an assumption that the rate will never change; such an assumption caused severe problems in recent crises when it turned out to be wrong.
20. Within this spectrum, the major focus of the Working Group was on countries with relatively small but open financial markets. Experience has highlighted the vulnerabilities of those economies, especially ones that had received large capital inflows and had large outstanding external debts. However, because the behaviour of creditors in other countries has consequences for borrowing countries, that behaviour

must be considered; in this context, see also report of the Working Group on Highly Leverage Institutions.

C. Experience of recent crises

21. One proposition underlying the establishment of the Working Group is that short-term flows entail liquidity risk and, therefore, are of special concern from a financial stability perspective. There is a refinancing obligation, and corresponding roll-over risk, associated with short-term instruments that distinguishes them from debt with longer maturities and non-debt instruments.
22. Short-term debt increased markedly in Asia prior to the recent crises -- both relative to total debt, official foreign exchange reserves, or exports and relative to experience elsewhere.
 - Despite a declining share of bank lending in total private capital flows to developing countries, short-term claims on developing countries held by banks reporting to the BIS more than doubled from end-1990 to end-1996.¹
 - In East Asian and Pacific countries, short-term external debt to banks as a share of total external debt rose from 20 to over 30 percent from end-1990 to end-1996. As a share of gross international reserves, it rose from about 125 to over 150 percent; as a share of exports, it rose from about 25 to about 35 percent.
 - Short-term external debt of Latin American and Caribbean countries over that same period also rose relative to total debt and exports. But, in contrast to the Asian experience, short-term debt as a share of reserves fell from over 140 to about 85 percent, as an increase in debt was accompanied by an even larger increase in official reserves.
23. Problems in Asia over the past few years demonstrate that such a build-up of short-term debt can, indeed, increase a country's vulnerability to financial crisis. Various liquidity problems were encountered by the government, the financial sector, and non-financial corporations, with problems that began in one sector spreading to others and having wider macroeconomic consequences.
24. Given this, as well as prior experience, special attention to the build-up of short-term debt is warranted. However, liquidity strains associated with short-term debt are not the only problem a country can experience because of volatile capital flows. A sharp outflow of portfolio investment can bring about sudden declines in asset prices. In some circumstances, especially when a country has a fixed exchange rate, a cessation or especially a protracted reversal of portfolio and direct investment flows will affect its

¹ Short-term debt is defined here to be cross-border debt coming due within a year, that is, the BIS concept of remaining maturity.

ability to finance a current account deficit and force adjustments in domestic saving relative to investment. If those adjustments are large (as they were in East Asia in 1997-98), there can be important secondary effects on asset values and access to credit, in a potentially vicious spiral. A number of countries in Asia had low foreign debt exposure but significant non-debt related exposure, and the disruptive nature of portfolio flows or price falls was a concern for the monetary authorities.

25. Use of derivatives can be still another potential source of pressure. When shocks occur, adjustment of off-balance-sheet positions can have consequences in terms of flows and changes in asset prices that are as significant as those associated with balance sheet adjustments.
26. The distinctions made in some data between short-term and long-term flows do not always convey accurately the underlying exposures. On the one hand, flows involving instruments with short-term maturities do not necessarily give rise to corresponding short-term exposures, given opportunities to hedge positions and transform maturities. On the other hand, some flows classified as long-term, such as portfolio flows into equity markets, can be reversed quickly when circumstances change adversely. Put options can shorten the effective maturity of long-term debt, and even direct investment can give rise to accelerated outflows through movements in inter-company accounts.

D. Expository framework

27. As recent experience has reminded us, a certain amount of volatility is inherent in the global financial system (as, indeed, it is in national financial systems). Shocks of one kind or another inevitably occur. They may be country-specific (related, for example, to national policy actions) or they may affect all countries (related, for example, to changes in the supply of key commodities). Regardless of the source, shocks cause a re-evaluation by investors of both the expected returns and the risks associated with their portfolios, with consequent portfolio adjustments. In the best of circumstances, these adjustments are appropriate and occur smoothly. In other circumstances, they can be abrupt. Portfolio adjustments are less likely to be troublesome if financial markets are sound and well-functioning and -- perhaps most important -- if there is ample liquidity in the relevant markets.
28. While this report focuses most of its attention on how improved risk management practices by the various sectors of a country receiving capital flows can help those sectors to deal with problems of volatility, it is equally important to look at how supply side factors -- such as risk management practices by investors and lenders -- affect volatility. Certain commonly employed risk management techniques and certain features of the regulatory framework governing the behaviour of investors and lenders can have the effect of adding to the volatility of both prices and flows in the international capital market. For example, proxies are used to incur or reduce risk exposures when the scope for engaging in transactions in the underlying asset is limited

or where the costs of doing so are prohibitive. That is, investors acquire or dispose of claims whose risk characteristics and price history resemble those of the asset being proxied but where the market is deeper, more liquid, or subject to fewer restrictions and controls. Such behaviour was one of the factors behind the large fluctuations in capital flows to South Africa and several countries in eastern Europe around the time of the Asian crisis.

29. While a typical manifestation of an external crisis is a reversal of capital flows, the risks that give rise to the crisis often lie in the structure of the stocks of external or foreign currency assets and liabilities that have accumulated over time. Thus, the framework used by the Working Group for assessing external risks focuses on the risk exposures inherent in stocks of assets and liabilities. A stock-based framework helps to underline that a country can accumulate external risk exposures even when it does not need to finance a current account deficit, as gross inflows and outflows, even if equal in value, affect risk if, for example, they are not matched in terms of currency or maturity. By focusing on the risk exposures of various kinds of market participants, it highlights the risk management problems that need to be addressed if the potential benefits of capital flows are to be realised. Such a framework also helps to highlight the need for greater transparency and for certain kinds of data that will allow better risk assessment and management on the part of both creditors and debtors.

E. Distortions, as a potential source of problems

30. Capital flows respond to a wide range of factors. A concern highlighted in this report is that a range of policies might, intentionally or inadvertently, introduce an unwarranted bias in favour of short-term flows (or otherwise encourage unwarranted risk exposures, such as foreign exchange risk). For example, there may be an institutional bias that encourages bank-intermediated capital flows, which tend to be short-term. Financial regulatory measures may promote for short-term capital inflows. Implicit or explicit exchange rate guarantees provided by the authorities will tend to encourage excessive borrowing denominated in, or indexed to, foreign currencies; they may interact with institutional or regulatory biases to encourage especially the build-up of short-term liabilities.
31. The Working Group did not undertake a comprehensive review of such incentives or sources of bias, but some examples are described in Annex C.
32. Not all such measures are initiated at the national level. A frequently cited example is the relatively low risk weight on short-term claims on banks in the 1988 Basel Capital Accord. Especially in conjunction with factors that cause financial intermediation in borrowing countries to take place through banks (see, for example, the discussion of Korea in Annex C), that risk weight tends to encourage short-term flows. The Basel Committee is reconsidering the risk weight in the context of its Consultative Paper on a new Accord. It is likely that the impact of any distinction between short and long

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maturities in a new Accord will be significantly reduced, importantly because most significant lenders will be regulated under an approach based on internal ratings, in which maturity is taken into account only in an indirect, balanced, and gradual way.

33. *The Working Group believes that national authorities, as well as international bodies, ought to assess the consequences of their policies in terms of creating biases toward short-term capital flows or otherwise encouraging unwarranted concentrations in external exposures. The IMF, in its surveillance process, should bring to the attention of the national authorities those measures that it feels are not warranted by other considerations and should urge that those measures be altered appropriately. If certain measures are judged to be warranted, despite the fact that they introduce biases, the objectives of those measures should be made clear to the public.*

III. Monitoring and managing risk

34. The structure of a country's financial claims and obligations affects its vulnerability to liquidity crises and its ability to withstand economic shocks. A country's residents must make their own choices with respect to their claims and obligations, but the international community also has an interest. The crises of the past few years have demonstrated that problems in one country -- whether through direct spill-overs or contagion -- can impose high costs on neighbouring or even distant countries and also on the international community. There is, therefore, a general interest in countries having in place prudent policies for risk management.

A. Risk monitoring at the national level and the linkages amongst sectors

35. A country is not, of course, a single legal entity under one management, and it cannot control its balance sheet in the same way as a company. Transactions are undertaken by individual entities: government, other public sector agencies, firms, and households. The first line of defence against financial instability is provided by stability-oriented macroeconomic policies. A second line of defence involves effective risk and liquidity management at the level of individual banks, other firms, households, and government; this is discussed later in this chapter.

36. A third line of defence can be provided by national authorities monitoring and assessing risk and liquidity exposures in the economy as a whole. This would entail examining the nation's aggregate balance sheet, in particular its external position, the distribution of risks across the various sectors of the economy, and the linkages amongst sectors. As well as informing the formulation and implementation of macroeconomic policy and any regulatory interventions, such economy-wide risk monitoring might usefully be taken into account in the public sector's own balance sheet policies, in particular in the management of its foreign exchange reserves and liabilities.

37. *Measuring and analysing a country's risk exposures is challenging. Probably no country does this now in a comprehensive, systematic manner. Nevertheless, the Working Group recommends that national authorities should have, as a clear goal, a risk management strategy that involves a system for monitoring and assessing the risks and liquidity of the economy as a whole, including at a sectoral level. Such an assessment is critical at times of crisis, but it is better to have the information needed to help avoid a crisis. In principle, it requires timely data covering the country's total external position and the external financial positions of the various sectors, as well as data enabling assessment of the linkages amongst sectors. It also entails appropriate regulatory policies for the financial sector, and disclosure requirements and accounting standards for the corporate sector. The IMF and the World Bank have initiated the Financial Sector Assessment Program (FSAP) -- a pilot program that addresses many of these important issues for the financial sector. The Working Group supports this initiative. The Group urges the IMF and the World Bank to use*

the FSAP, and complementary efforts for the public sector and the non-financial private sector, to consider whether there is more a country should be doing in regard to the monitoring and assessment of its aggregate and key sectoral risk exposures. These assessments could usefully be brought together in the context of the IMF's surveillance process and in the World Bank's work on institution building.

38. A complete national balance sheet would cover not only financial claims and obligations but also non-financial ones (e.g., the net present value of commodity resources). While non-financial sources of risk are important to an overall assessment of an economy's risk exposures, the immediate focus in the context of a review of risks from capital flows has to be financial contracts with the external sector (and in foreign currencies). An economy's external financial balance sheet would therefore be of the same broad form as the IMF's International Investment Position (IIP) statements, although as discussed in Chapter V, below, the IIP approach would need to be developed in a number of material ways.
39. A number of factors can change a country's external financial balance sheet over time. The structure of the *stock* of a country's external financial claims and obligations results from the pattern of past capital *flows* (gross inflows and outflows) and the nature of any contingent contracts with the external sector. The national balance sheet is also affected by revaluations, arising, for example, from changes in exchange rates or in the value of cross-border asset holdings. In terms of its risk and liquidity exposures, relevant features of a country's external balance sheet (which should embody, in this context, what are typically thought to be off-balance sheet exposures) include, amongst other things, the maturity structure and currency composition of loans to and from the external sector, inward and outward equity investment, and the terms of any unexpired contingent contracts. Such an external balance sheet could show, for example, whether taken as a whole a country had a big foreign currency or external liquidity mismatch.²
40. The absence of significant external exposures in the nation's external financial balance sheet would not imply, however, that an economy is not exposed to risks from the structure of its finances. For example, a country might have a flat overall foreign currency position by virtue of the banking sector and the corporate sector having offsetting short and long net foreign exchange positions. If the relevant exchange rate changed, one sector could gain and the other lose, in an apparent zero-sum game. But the domestic banking sector might come under pressure if firms in the corporate sector found themselves unable to service short-term foreign currency loans raised in international markets to finance domestic projects that yield domestic currency income.

² "Liquidity risk" refers to liabilities being shorter maturity than assets, so that the borrower is subject to roll-over or refinancing risk. "Foreign currency risk" refers to liabilities and assets being denominated in different currencies, so that net worth is sensitive to changes in the relevant exchange rate.

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In those circumstances, corporations might turn to the domestic banking system for extra credit, or might default on obligations to domestic banks and other creditors.

41. Private sector problems might, furthermore, be transferred to the government when there is a risk of severe system-wide disruption. In crisis conditions, the liquidity of money and credit markets can deteriorate--sometimes suddenly. A bank that is long of domestic currency (or foreign currency) might not be prepared to lend or deal with firms that are short when there is a changed assessment of counterparty risk or a need to hold more liquidity. A run on parts of the banking system could put a government's finances under pressure if it were ill-equipped to meet commitments to underwrite depositors, particularly if the banking industry were facing a foreign currency liquidity shortfall. Therefore, monetary and financial authorities have a direct interest in monitoring any build-up of exposures in the private sector. The complex linkages in modern financial systems make the extent of financial sector maturity and foreign currency mismatches important to macroprudential assessments as well as to the regulation of individual firms.
42. More generally, the distribution of risk exposures across sectors is important. But if the authorities are to monitor and assess the risks and liquidity of the economy as a whole, including at a sectoral level, the data requirements are complex and difficult. Data would be needed at least for the public, financial, and corporate sectors, if not also for households. Data on the public sector should be directly available to the authorities, and data on the banking sector should be available via the regulation of individual banks. In most countries, risks in the non-financial private sector are probably less easy to identify. This does not warrant fundamentally new data collection mechanisms, however. Better use can be made of data that are being collected for different purposes, such as data disseminated to meet disclosure standards for firms whose assets are publicly traded. The use of these data could, in fact, entail a positive externality by promoting improvements in such standards, thus enhancing transparency more generally.
43. Taking snap-shots of the national and key sectoral financial balance sheets of an economy can potentially provide an important input to country risk assessments. But such balance sheets would not of themselves provide all the information needed to assess sensitivity to shocks. For that purpose, stress tests and scenario analysis would be needed. Such methodologies could provide insight on how a balance sheet would be affected by, for example, a shift in the yield curve or a change in exchange rates, which would depend on, amongst other things, the extent to which borrowing was in fixed or floating rates or in local or foreign currencies, or the extent to which exposures had been transformed by the use of derivatives contracts. The information needed for stress testing, including information on the use of derivatives, is not now available (although it should be available for the government's own balance sheet) and methodologies for stress testing would need to be further developed.

44. Finally, there are interactions between the composition of a borrowing country's financial balance sheet and the structure of its economy more generally, and in particular of the sources of income for servicing external debt. Thus, the net worth and credit standing of a country heavily dependent on (foreign currency) income from commodity exports might be materially affected by changes in commodity prices. That might in turn affect the exchange rate, and so have further effects on country net worth if the country as a whole has large uncovered foreign currency-denominated or foreign currency-indexed debts.
45. *In light of this general analysis, the Working Group identified a number of areas where efforts are warranted in the national context to monitor and assess the risks and liquidity of the economy as a whole:*
- *National authorities should collect and publish data with the aim of enabling assessment of the external liquidity position of the economy as a whole, as well as of key sectors of the economy.*
 - *It is particularly important for a country to have accurate and timely data on the liquidity and foreign exchange position of the public and banking sectors.*
 - *A government should collect up-to-date data on the composition of its own financial liabilities and assets, including any embedded options, and on any contingent liabilities or claims.*
 - *Public authorities should have up-to-date data on the currency composition and the maturity of their foreign exchange reserves, and should establish systems to comply with the SDDS template on international reserves and foreign exchange liquidity, which will provide a breakdown of short-term foreign currency liabilities.³*
 - *Central banks and/or regulatory agencies should collect data on the liquidity position in domestic and foreign currencies of all regulated financial institutions. This should include data on any maturity mismatches (taking account of contingent commitments and claims) and on high quality liquid asset holdings.*
 - *National authorities should promote the collection and publication of data on the corporate sector, especially pertaining to foreign currency liquidity, leverage, and the maturity structure of their debt financing. Where information is not collected directly by government statistical agencies, statistical agencies should explore whether aggregate data could be based on*

³ The SDDS template asks for a maturity breakdown of up to 1 month, more than 1 month and up to 3 months, and more than 3 months and up to a year.

information published in audited company accounts, including making use of commercial databases, which already contain some such information.

- *National authorities should aim to draw on a range of vulnerability indicators, some addressed to economy-wide liquidity, some to economy-wide risks to solvency, and others to sectoral liquidity and solvency risks. These indicators will typically be based on relatively simple ratios, and an active programme of research is needed to support their development.*
- *Research is warranted, as well, to develop the methodologies and information base needed for stress tests.*
- *There should be arrangements for free and full exchanges of relevant data and information amongst agencies with a responsibility for financial stability.*

46. While the desirability of risk assessment at the national level should be kept in mind, the following sections focus on risk monitoring and management in key sectors individually.

B. The public sector

47. The goal of public debt management too often has been viewed narrowly as how to borrow at the lowest interest rates. Recent crises have made clear that a government needs a more prudent, integrated debt and asset management strategy. The strategy should strike a balance between expected costs and risks, including liquidity risk. It should cover domestic and foreign currency assets and liabilities, and it should cover all parts of the public sector, even if only to make clear which parts of the public sector carry a guarantee from the central government. Although country circumstances vary, there are common issues that influence what might be both a prudent and practical course for a country. Amongst these key issues are the country's macroeconomic circumstances, its exchange rate objectives and regime, the degree of capital account convertibility, its standing in international markets, the robustness of its banking system, and the state of development of its domestic capital market. For example, the better a country's standing and credibility in international markets and the more developed its domestic credit and capital markets, the greater the likelihood of the government being able to borrow in the face of difficulties.

48. Management by the public sector of its external debt and foreign currency position is especially important for countries with a pegged exchange rate. Given that a country's monetary authorities cannot issue foreign currency, its ability to defend an exchange rate peg -- or more generally to inject foreign currency liquidity into the economy -- is limited by its available reserves, the realisable value of its other foreign currency assets,

and its capacity to borrow.⁴ Too many governments in countries with pegged exchange rates have resorted to short-term foreign currency debt to keep current interest costs low. This can increase the risk of financial crisis in the future, because of the need to roll over the foreign debt frequently, jeopardising the exchange rate policy that was the basis of the debt strategy choices. The problem is compounded by the moral hazard that is sometimes associated with fixed exchange rate regimes, including the incentive to domestic financial institutions to hold unhedged exchange rate positions on the basis that the government will cover any resulting losses.

49. *In terms of policies for the management of official foreign currency reserves, the Group emphasised the following factors:*

- *Other things being equal, more official reserves will be needed (a) when a country is operating a fixed exchange rate regime; (b) the lower its standing in and routine access to international capital markets; and (c) the shorter the maturity of the public sector's external or foreign currency liabilities.*
- *While prudent liquidity management by banks themselves and effective regulatory oversight must be the primary defences against foreign currency liquidity problems in the banking sector, the public sector may need to take account of such risks in its own reserves policy since it might otherwise find itself unable to supply needed foreign currency liquidity to the banking sector to contain an incipient crisis.*
- *Policy on official reserves and foreign currency liability management might also need to place some weight on the position of the non-bank private sector, but the primary mechanism for effective risk control in this area should be improved transparency.*

50. Prudent public sector risk and liquidity management should not be limited to foreign currencies or external debt. Domestic currency crises can occur, as well. For example, a government with a large amount of short-term domestic currency debt may find that it cannot refinance its obligations, or can do so only at levels of interest rates so high as to threaten the government's ability to repay its debt in the future. Even where the public sector's debt is not overly short-term, it might nevertheless be running a large exposure to changes in interest rates if, for example, its funding is concentrated in floating-rate debt.

51. A government should identify the main economic risks to which it is directly exposed and to which it is indirectly exposed via the economy as a whole, including through changes in the tax base, which is after all the government's chief source of income. This can be thought of as conducting a risk audit. A list of possible risks includes:

⁴ A country can also engage in transactions in the forward market, to the extent that counterparties are willing to do so.

- Global interest rate shocks;
- Global business cycle shocks;
- Country-specific shifts in market sentiment, which could affect the sovereign sector's cost of rolling over or refinancing debt or the possibility of any sovereign debt with embedded put options being called early;
- Shifts in market sentiment towards regions or particular groups of countries;
- Fluctuations in the prices of key goods and services (e.g., commodities) produced or consumed;
- Risks originating from any government guarantee/insurance arrangements for public sector companies and/or private sector financial institutions; or
- Risks arising out of any exchange-rate commitments.

A distinction should be made as to whether the shocks, if they were to occur, would give rise to a liquidity problem or to a solvency problem, or both. And the national authorities should employ indicators that help them to measure and analyse these different risks.

52. In the following pages, we discuss some components of a prudent public sector debt and liquidity management process, including how the management of the sovereign balance sheet can interact with assessments of economy-wide risks. Governments will adapt procedures to fit their own circumstances. Avoiding obvious policy mistakes is more important than implementing optimal policies. That is, governments should ensure that they avoid the build-up of external positions on their own balance sheets that clearly makes them especially vulnerable to shocks and to liquidity problems.

Assessing liquidity

53. Prudent liquidity management entails choices. Maintaining sufficient liquidity to be able to cope with any conceivable crisis will almost certainly entail substantial costs, by virtue of the borrower being more liquid than proves necessary in normal conditions. On the other hand, relying on an ability to roll over debt or otherwise to borrow on demand runs the risk of illiquidity in crisis conditions. Liquidity can therefore be thought of as a form of insurance, with a price attached.
54. It might be useful, as a starting point, for a government to ask some basic questions about its own liquidity and, separately, that of the economy as a whole. For example:
- What is the average maturity and the average duration of internal and external liabilities, and domestic currency and foreign currency liabilities?
 - Are debt maturities (in domestic currency and foreign currency) dispersed in a way that, combined with current refinancing and debt issuance policy, will cause

the average maturity/duration of the debt to shorten or concentrations of refinancing risk to occur in the future?

55. As for simple benchmarks or vulnerability indicators that may provide some guidance, one was suggested by Pablo Guidotti, then Deputy Finance Minister for Argentina, in remarks at the G-33 Seminar in Bonn in April 1999. He suggested that foreign exchange reserves should exceed scheduled amortisation of external debt during the next year. That is, countries should manage their foreign currency assets and liabilities in such a way that they are always able to live without new foreign borrowing for up to one year.⁵ To do so, national authorities would need an amortisation schedule for their debt. This would provide a liquidity schedule that extends into the future and so allow preparatory measures if there were a concentration of redemptions and debt-service obligations further out, even though near-term liquidity needs were modest.
56. This relates to another possible liquidity indicator: a minimum degree of dispersion across debt maturities.⁶ If the preponderance of the public sector's liabilities are short-term, the entire burden of a crisis would fall on the emerging market economy in the form of a run on reserves. But if a significant proportion of liabilities are long-term, as a satisfactory indicator of dispersion would imply, any liquidity crunch would to some degree be ameliorated, and the risk of a self-fulfilling run should be reduced.
57. Some governments in emerging market economies may judge that they cannot sell long-term maturity debt at "acceptable" prices. If that were indeed the case, their economies would probably be exposed to too high a risk generally. Often governments have managed their external liabilities so as to minimise their current borrowing costs. This approach ignores the insurance against runs that is embedded in longer-term debt, insurance that is often well worth the price.
58. Liquidity management guidelines of this broad kind are in principle simple and easy to communicate. However, in order to assess the particular risks faced by a government (and the economy more generally), it would be desirable to calculate what happens to various liquidity indicators under a range of possible outcomes for key financial variables (depending on the country, these might include exchange rates, commodity prices, credit spreads, roll-over rates, etc). This approach could in principle take account of a wide range of complex financial instruments, such as collateralised contingent credit lines and embedded options. In making such calculations, it would be important not simply to rely on historical volatilities and correlations. It would also be necessary to take account of any interdependence amongst risks, which can arise as a result of

⁵ Note that a country running a current account deficit will, necessarily, need to incur (net) foreign borrowing. Thus, Guidotti's suggestion should be interpreted, or modified, to refer to foreign borrowing in excess of that which corresponds to a current account deficit. Note also that this ratio does not capture the potential pressures that could arise, in a country with a fixed exchange rate and capital account convertibility, from residents converting local currency claims into foreign currency claims.

⁶ This is a variant of a suggestion made by Alan Greenspan, Chairman of the Federal Reserve.

financial market participants responding to each others' actual or expected behaviour; liquidity runs and "flight to quality" asset sales are examples of such strategic interactions. Scenario analysis and stress testing could help policymakers to make judgements about the degree of protection they needed against unlikely but potentially highly costly outcomes.

59. An analysis of indicators of external vulnerability is being undertaken by the IMF, in consultation with others, as part of a joint Fund/Bank effort on sovereign debt and risk management (see below).

Reducing or hedging risks

60. After assessing its domestic and foreign currency liquidity and identifying the important risk exposures that could affect its balance sheet solvency, a government could investigate how, and at what price, it -- or other parts of the economy -- could reduce or hedge against those risks through financial contracting. Examples of ways to do this might, depending on the circumstances, include:
- Holding a higher level of official foreign currency reserve assets or encouraging private firms to build up a liquidity buffer;
 - Switching borrowing from foreign currency to domestic currency;
 - Switching from short-term debt to longer-term debt;
 - Purchasing options or contingent credit lines that allow the country to borrow at a predetermined interest rate in times of crisis;
 - Encouraging corporations to rely more on equity financing and less on debt;
 - Reducing the price risk of an important commodity export by selling forward contracts and/or buying put options;
 - For commodity importers, buying forwards or buying call options; or
 - Issuing bonds whose cost of servicing and repayment is linked to export commodity prices.
61. Each of these measures can be thought of as purchasing insurance against adverse financial or real economy developments -- some addressed primarily to improving liquidity and some to reducing exposure to shocks which could jeopardise solvency. To shift risk to the global financial markets, a country will have to pay a price. The amount of risk reduction must be balanced against the cost.
62. Amongst the factors that will affect the price of risk-reducing financial contracts, two worth special mention are moral hazard and sovereign non-performance. Moral hazard refers, in this context, to the fact that the probability of certain risks depends on a country's policy choices, and entering into a financial contract that provides insurance may affect the country's subsequent policy choices. For example, a country that had

purchased an insurance contract paying out in the event of a depreciation of the country's currency might be less willing than otherwise to pursue costly policies to support its exchange rate, such as higher interest rates.

63. Sovereign non-performance refers to the fact that no court can compel a country to meet its obligations under a financial contract. Financial contracts bearing a greater risk of sovereign non-performance will carry a premium. That is, contracts that require a sovereign to pay out in states of the world when the incentives might argue otherwise would command a higher premium than contracts that do not require such a pay-out.⁷ Contracts that involve positive transfers to the sovereign borrower in unfavourable states of the world would be best, in this context.
64. Private financial institutions should in principle be eager to engage in risk-sharing with sovereign borrowers, since they are in the business of risk intermediation. They would have the opportunity to provide a service they are good at and be compensated for it.⁸ However, borrowing countries should be aware of the costs and benefits of employing complex financial instruments to manage risk, and the international community should not have unrealistic expectations concerning the rapid achievement of their potential benefits. First, markets for such instruments are relatively new, and providers and purchasers of such products will need time to learn of their true value and to learn how to price them appropriately. We do not know the extent to which they might dry up, especially at times they are needed most. Second, many such contracts involve counterparty risk, that is, the risk that the provider of the insurance will not meet its obligations. Third, a country might misunderstand the risks against which it is trying to hedge, or the properties of the "hedge" instrument. Governments and others should therefore consider obtaining expert advice from specialists, but they should do so with a capability of testing the advice received and should assess any incentives the advisors have for a particular transaction to go ahead. Authorities should note that some of the best ways to reduce risk are also the most simple.
65. The consequences for systemic conditions if countries are able to lay-off some of their risks should be assessed. To the extent that insurance is provided by other countries, firms, or households having equal and opposite exposures to hedge, the totality of risk should be reduced (with counterparty risk remaining). Even where there is not an exact

⁷ For example, selling a commodity forward (or writing a call option) involves a promise to sell even if the future spot price turns out to be well above the contracted forward price (or the option's strike price). On the other hand, a country buying an option makes no promises.

⁸ An example of this sort of risk sharing is the contingent repo facility between Argentina and a group of international financial institutions signed in December 1996. Argentina purchased a put option allowing it to borrow a total of \$6.1 billion (since raised to \$7.1 billion) with a maturity of 2-5 years (averaging 3 years) at a spread of LIBOR plus 205 basis points. The annual premium Argentina currently pays for the put option is 33 basis points. The contingent repo facility is designed to assure Argentina access to dollar financing at a predetermined spread in the event of a liquidity crisis. Access to dollar financing reduces the risk of a financial crisis, at the cost of 33 basis points per year in fees that must be charged against current budgetary spending. The international financial institutions that participate in the repo arrangement may hedge their risk (for example, by selling Argentine sovereign debt).

match, the overall risk in the system may be reduced if it is transferred to financial institutions that wish to take the risk and might be better equipped to bear the risk, by virtue of being better diversified or having the expertise to manage the risk. But financial regulatory agencies would need to be alert to any consequential concentrations of risk amongst financial institutions providing such insurance.

Sovereign risk management checklist

66. *As noted above, authorities should implement, over time, systematic asset and liability management procedures. The Working Group recognises that procedures will vary from country to country, depending on specific circumstances, and practical considerations are likely to make implementation of comprehensive procedures difficult. Nevertheless, the Group formulated a checklist of issues related to sovereign risk management that it believes national authorities should consider:*

- *A government should develop a strategy for public sector risk and liquidity management. It should cover all of the obligations and claims of the public sector, including contingent obligations and claims, in both domestic and foreign currencies.*
- *In setting its risk and liquidity management strategy, the government should consider issues of cost and risk, including exposure to refinancing risk as well as to uncertainty in the cost of finance. It should also take account of the general economic and institutional environment in which the strategy will be implemented, including, for example, the country's exchange rate regime and its access to international capital markets.*
- *The government should undertake a risk audit of the economic and financial shocks to which it and the country more generally are potentially exposed, including scenario analysis to enable it to judge the effects on the public sector balance sheet, and in particular on its liquidity, of those risks crystallising.*
- *The government's liquidity strategy should take into account the extent to which pressure could be placed on its liquidity -- in domestic and foreign currencies -- by interactions with other sectors of the economy, including amongst other things the withdrawal of resident or non-resident domestic or foreign currency deposits from the domestic banking system.*
- *The government should monitor and manage the contingent liabilities it incurs via explicit deposit protection schemes and via any other investor protection schemes, and should aim to avoid creating an expectation that it will guarantee the financial sector's obligations beyond any such explicit schemes.*

- *Where the public sector's overall balance sheet structure leaves it exposed to a material risk of liquidity crisis, the authorities should identify and implement measures to reduce those risks.*
- *Were the private sector to become unusually vulnerable to a liquidity crisis or to shocks which could jeopardise its solvency (e.g., via a large exchange rate exposure), the public authorities should consider measures both directly to reduce those risks and to avoid their being exacerbated by public sector liquidity management problems.*
- *If a government contemplates issuing or investing in complex financial instruments, it should obtain expert advice, taking care to understand the incentives of the advisers, in particular whether they will gain from a particular deal going ahead; ensure that it understands, and has obtained advice on, the sensitivity of the value of the liability or investment to different states of the world; assess the counterparty risk involved; and reflect other particular features of the liabilities or investments in its stress testing exercises.*
- *To support such a sovereign asset and liability management strategy, national authorities should have at their disposal an accounting of official assets and liabilities. This should include not only the items on their balance sheets, but contingent liabilities and other off-balance-sheet items, as well. It should include not only financial contracts but also the public sector's other sources of income and obligations. Moreover, the authorities should have a systematic picture of the maturity profile (or amortisation schedule) and other characteristics of the official sector's debt.*

Operational guidelines

67. *The Working Group believes that it is important to build on the checklist of high level issues set out above and on the analysis of macroprudential risk management in this report more generally, and to transform them into more operational guidelines on sound practice in prudent sovereign asset and liability management. The guidelines should cover analysis of the vulnerability of the sovereign and other key sectors individually, and in aggregate; the steps that governments could sensibly take to manage their own balance sheets (including, but not limited to, their external and foreign currency liquidity risk); policies that governments could adopt to promote and facilitate sound risk and liquidity management in the private sector; and issues related to the compilation and dissemination of data on the assets and liabilities of the public sector.*
68. *At the initiative of the Working Group, the desirability of guidelines was discussed at a meeting of the Financial Stability Forum in Paris in September. Following that*

discussion, the Forum asked the IMF and World Bank to lead an effort, involving national experts and experts from other international institutions as well, to produce such guidelines.

69. *The IMF and World Bank effort, which also reflects their own work agenda and an expressed interest on the part of other international bodies, is under way. The Working Group has provided impetus and has acted as a sounding board; some individual members of the Working Group have been and will remain more directly involved. The effort has three basic building blocks:*
- *First, an effort to help identify vulnerability indicators and benchmarks, as well as risk analysis tools, to supplement traditional measures of countries' debt and reserve situation.*
 - *Second, an effort to produce a manual of "sound practices" in the area of sovereign debt and risk management.*
 - *Third, an effort to produce a manual that will provide practitioners in the government and the private sector with guidance on the development of domestic debt markets, and that will support technical assistance initiatives.*

These three complementary elements should be brought together in an overview paper, and work should proceed promptly to distil a set of guidelines for sovereign debt management. The Working Group urges national authorities to take advantage of the insights gained from this joint effort to build the capacity for risk management and to implement sound risk management policies.

70. *There are a number of other things that the international community can do in this area of liquidity and debt management. The international institutions should help to identify elements of public sector risk management that deserve attention in individual countries. Technical assistance should be provided, where warranted, by the international institutions and national authorities. And the IMF should, through its Article IV reviews, promote the use of a range of simple indicators in the assessment of sovereign liquidity, foreign exchange, and other balance sheet risks.*
71. *Over a somewhat longer horizon, it would be desirable for emerging market economies to deploy a more sophisticated approach to their management of their financial risks. There is an opportunity for these economies to benefit from the advances in such applied risk management techniques as "value at risk" and stress tests. There is a connection between value-at-risk techniques used by large financial institutions to manage their exposure to risk and the approach to liquidity analysis suggested above. In a similar way, stress test techniques could be used by authorities in emerging market economies to assess the losses that would be incurred in possible, but improbable, future states of the world. Technical assistance, including from some national authorities and international financial institutions, may be required to develop these capabilities.*

72. *Promoting the right kind of risk-sharing amongst creditors and debtors through financial contracting also ought to be a medium-term policy goal.*

C. The banking sector

73. From the standpoint of financial vulnerabilities, the other key sector is the banking sector. We have seen in the Asian crises the range of problems that can arise in that sector, in no small measure because the magnitude of correlation amongst all the risks that banks faced has been underestimated. In particular, the relationship between credit risk, market risk (especially foreign currency risk), and liquidity risk proved to be insufficiently incorporated into the risk measurement and management processes of banks, particularly those in countries experiencing crises. Subsequent corrective actions often turned out to be excessive and detrimental to a smooth functioning of capital markets.
74. Even though more quantitative research is needed, it has now become obvious that these risks are so closely intertwined that the linkages need to be taken into account not only for risk management purposes, but also for capital adequacy purposes. Exposure to credit risk is increasingly driven by movements in market prices, which themselves depend on the liquidity of these markets. Market risk has long been acknowledged to entail two components: general market risk and specific market risk, the latter being very close to credit risk; but it increasingly includes a liquidity dimension as well, especially when tightened liquidity results in abnormal prices. Conversely, liquidity risk is linked to market risk and, in extreme cases, to credit risk alike. As the industry and regulators evaluate a bank's overall capacity to withstand shocks, each risk should be considered in the context of the bank's overall portfolio, no longer in isolation. This will be all the more necessary since the widespread use of collateral and margining and the advent and growth of new risk mitigation techniques (such as credit derivatives) increasingly tend to blur the distinctions amongst credit risk, market risk, and liquidity risk. The Basel Committee has drawn the attention of the industry to these linkages in its consultative paper for a new capital adequacy framework. The challenge, undoubtedly a demanding one, is crucial for the purpose of strengthening the capacity of banks to play their intermediation role.

Liquidity and foreign exchange risk

75. The international Working Group on Strengthening Financial Systems, in its October 1998 report, also noted the significant relationships amongst liquidity risk, foreign currency risk, and interest rate risk.⁹ That report included a discussion of each of those risks, stressing the need to develop and implement sound practices for managing them.

⁹ That working group was co-chaired by Mario Draghi and Pablo Guidotti.

It urged the Basel Committee to elaborate its guidance, especially with respect to liquidity risk.

76. In reviewing these issues, the Working Group on Capital Flows agreed that an emphasis on liquidity risk -- particularly, but not exclusively, the management of foreign currency liquidity -- is warranted in the context of the volatility of international capital flows. The Working Group welcomed the work that has been undertaken by the Basel Committee on managing liquidity risk. Guidelines in the area of bank liquidity were first issued by the Basel Committee in 1992, but they only provide a benchmark for sound practices, without any formal requirements for banks or supervisors. *Especially in light of the experience of the past few years, the Working Group welcomes the fact that the Basel Committee has recently published a revised set of guidelines for managing liquidity risk, with a new emphasis on foreign currency liquidity.¹⁰ That effort should be given a high profile, particularly in its application to countries whose access to international capital markets is not assured. Relevant sections of the Core Principles could be amplified.*
77. *In the area of liquidity stress testing, further quantitative research is still needed. No one bank is assured to be immune from major funding stresses. The strong relationship between liquidity risk and the other risks, including notably credit risk, foreign exchange risk, and market risks, has been highlighted by the recent crises. The Basel Committee might help delineate the various benchmarks of stress, ranging from bank-specific difficulties to market-wide disruptions*
78. *Banks should disclose their liquidity positions and policies in their annual reports, ideally separately for domestic and foreign currencies, with supervisors and auditors required to validate the behavioural assumptions used in implementing those policies.*
79. *The supervision of foreign exchange mismatches was addressed by the Basel Committee's Market Risk Amendment, adopted a few years ago. But that amendment may not be sufficient or appropriate for less developed countries. Instead, regulatory limits may be warranted for a time, as discussed below. Given the importance of foreign currency risks in emerging economies, the Working Group urges the Basel Committee's Core Principles Liaison Group and its Risk Management Group to address these issues.*
80. From the perspective of emerging market economies, the Working Group felt that two other issues, not so thoroughly addressed in the October 1998 report, also deserve attention: credit risk arising from capital flows, and the role of supervision and regulation.

¹⁰ "Sound Practices for Managing Liquidity in Banking Organisations," Basel Committee on Banking Supervision, February 2000.

Credit risk arising from capital flows

81. Where countries are actively engaged in international capital markets, the foreign currency borrowing and lending operations of their banks may also add to credit risk. Even when a bank's own foreign currency operations are well matched, its domestic borrowers may be unable to service or repay their foreign currency loans when exchange rates move suddenly. Accordingly, especially in emerging market economies, banks need to look carefully at the extent of foreign currency exposures built up by borrowers, at patterns across borrowers, and at the extent to which the borrowers have access to foreign currency earnings to service their loans.¹¹
82. *In reviewing the distribution and concentration of credit risks in particular industries and sectors, banks should pay close attention to the type, purpose, and repayment sources of foreign currency loans. Banks in emerging market economies (with respect to their domestic lending) and international banks (with respect to their cross-border lending) should take into account trends in obligors' capacity to tap foreign currency revenues to repay foreign currency loans. Banks should assess the extent to which movements in exchange rates against obligors would materially impair repayment capacity and should evaluate the extent of foreign exchange hedging needed to offset currency movement risks. They should evaluate whether the risks associated with foreign currency loans and an obligor's sources of repayment would be reduced if the credit were denominated in local currency or hedged to a greater extent. Banks should also take into account new credit risks that may arise through derivative contracts. The market value of these contracts may be particularly sensitive to exchange rate movements.*
83. Management of credit risk obviously depends upon good credit assessments. Fundamentally, it is the responsibility of each bank to have a process for making its own assessments of the creditworthiness of each of its counterparties. Especially for the relatively sophisticated banks, model-based assessments can complement but cannot replace other credit analyses. Supervisors must satisfy themselves that the banks for which they are responsible are, in fact, implementing sound credit assessment procedures.
84. Insofar as rating agencies have a comparative advantage in the processing of information and analysis of default probabilities, they may help investors differentiate risks and form a better and balanced view of the credit risks involved in investment and lending decisions. Better informed decisions and improved information flow can contribute to the stable flow of capital.

¹¹ Of course, borrowers can expose themselves to similar risks without involving their banking system by taking loans directly from foreign banks and other sources denominated in a currency different from the borrowers' sources of revenue.

85. On the other hand, if rating agencies base their judgements on outdated information, compromise independence in their analyses, or follow market sentiment rather than lead, they could reinforce changes in market sentiment, potentially exacerbating the volatility of market sentiment and capital flows. Moreover, regulations (or internal policies) that dictate that some institutions may hold only assets rated above a certain grade may introduce a discontinuity into portfolio decisions; in that case, changes in ratings could compound the volatility of capital flows.
86. There is a growing tendency on the part of financial regulators to incorporate external ratings in prudential regulation. Many regulations exist in industrialised countries that require securities to meet a given rating in order to be held or sold. Higher rated assets are generally given regulatory preference in capital requirements. For example, ratings are used in capital adequacy requirements of securities dealers in many countries. Permissible investments by money market funds are often determined on the basis of ratings.¹²
87. *The design of regulatory mechanisms should aim at encouraging investors themselves to differentiate credit risks. Therefore, the Working Group emphasised the importance of disclosure of information by borrowers. Improved disclosure of information by borrowers to the market in terms of both quality and timeliness would help create an environment in which investors can do better credit analysis. Improving disclosure standards not only reduces investors' dependence on rating agencies but also allows them to judge better whether rating agencies are making proper credit assessments.*
88. *Some members of the Working Group have reservations about the generalised regulatory use of assessments by credit rating agencies. If external credit assessments are to be used for regulatory purposes, some process should be established for assessing the reliability of the ratings and the ratings procedures. Disclosure by rating agencies themselves of the rating procedures, resources involved, methodology used, and ratings performance would also help investors make such judgements.*

Supervision and regulation

89. Effective supervision of individual banking firms can help mitigate risks, including those arising from foreign currency funding. *The Working Group acknowledges the important work done by the Basel Committee in formulating its Core Principles for Banking Supervision and urges their implementation. The joint World Bank/IMF FSAP has, as one of its standard elements, the assessment of the adequacy of bank supervision and regulation, including compliance with these Core Principles.*

¹² The APEC finance ministers have expressed interest in the role of the credit rating agencies in the context of developing capital markets in the region.

90. *The Basel Committee, in its consultative paper on “A New Capital Adequacy Framework” (June 1999), articulated three pillars for good supervision: minimum capital requirements, a supervisory review process, and effective use of market discipline.¹³ The Working Group strongly supports this view of supervision.*
91. *However, not all countries have the supervisory capacity to implement in full or immediately the proposed three-pillar framework in the banking sector. Countries should be encouraged to enhance their supervisory procedures and should be supported in their efforts. The Group acknowledges the valuable work done in this regard by the Basel Committee's Core Principles Liaison Group. The Group urges that the Basel Committee's Core Principles Liaison Group set out recommendations as to how a new capital accord should apply to emerging market economies.*
92. *A particular issue that could be addressed in that context is the appropriate minimum capital ratio for banks in emerging market economies, which face greater asset price volatility than may be the case elsewhere. National supervisory authorities have the responsibility to address this issue, but the Basel Committee may be helpful in this regard.*
93. *A closely related area that could usefully be addressed is provisioning practice. Banks typically increase their loan loss reserves at the time that a debtor goes into arrears. The Working Group pointed to the desirability of encouraging banks to increase their general provisions for expected losses, especially when their earnings are relatively favourable, as a means of reducing the cyclical effects associated with changes in the creditworthiness of their borrowers. It was noted that practices in this regard differ across countries, in part because of different tax treatments for general provisions.*
94. Both on-site examination and off-site monitoring can be used by examiners to assess whether banks are measuring, monitoring, and controlling such risks effectively. During on-site examinations, banking supervisors should review banks' risk management system, including procedures to measure, monitor, and control the particular risks associated with foreign currency funding. Off-site monitoring of individual banks requires adequate reporting by banks on a periodic basis. Supervisors should set the format and frequency of such reporting and verify the accuracy of individual reports through the on-site examination process. Bank supervisors should also encourage banks to disclose selected information to the public on a regular basis to increase transparency and promote market discipline.
95. Supervisors should use the outputs of aggregate macroprudential analysis (see below) to compare the risk profiles of individual banks with those of other banks, national averages, and other relevant supervisory thresholds.

¹³ See related papers on “The Principles for the Management of Credit Risk” and “The Best Practices for Credit Risk Disclosure,” both of which were issued for consultation by the Basel Committee in July 1999.

96. Supervisors must have sufficient legal authority and adequate resources to carry out their responsibilities effectively. In many emerging market countries that experienced crises, supervisors were unable to oversee properly the activities of banks, because they were not given such authority and resources. Similarly, it is important that the supervisory authority be able to conduct its activities without undue interference by government officials.
97. *Especially when the supervisory regime is not adequate, or supervisory resources are scarce, national authorities might consider a set of more explicit regulations dealing notably with liquidity and foreign exchange exposures. For example:*
- *Limits could be placed on open long or short positions in foreign currencies as a percentage of capital.*
 - *Minimum holdings of liquid assets, meeting a well-defined criterion, could be required in order to provide sufficiently for liquidity risk arising from foreign currency liabilities.*
 - *Requirements could be tiered so that lower reserve/liquidity ratios apply to long-term foreign currency borrowings.*
 - *Reserve requirements, with or without remuneration, could be imposed to discourage foreign currency funding.*
 - *Regulations could require banks to match fund maturities of foreign currency assets and liabilities. More stringent, minimum maturities could be imposed on foreign currency funding.*
 - *Regulations could require banks to hedge their foreign currency risk exposure in transactions and to ensure that their borrowers hedge their exposure as a condition for obtaining loans from banks.*
 - *To lower credit risk, foreign currency loans could be restricted to a fixed percentage of capital or banks could be required to hold more capital and/or loan-loss reserves against these loans.*
98. *However, such explicit regulations can be only a partial and transitory substitute for adequate banking supervision. Regulatory requirements generally are less effective when banks are utilising sophisticated risk management systems for foreign currency risk exposure, as may be the case particularly in countries applying risk-focused supervisory approaches. However, such measures may be effective when banks are using less sophisticated risk management systems. They have the advantage that they can be implemented quickly by bank supervisors with resource limitations.*

Macroprudential assessments of the banking sector

99. As part of its proposals for national balance sheet monitoring, the Working Group put particular stress on the need for national authorities to analyse the banking sector in aggregate (and, where relevant, key sub-sectors of the banking system). Against this background, the Working Group agreed on the following recommendations:

- *National authorities should aim at obtaining sufficient information not only to assess the risk exposure and concentrations to foreign currency funding of individual banks, but also to monitor, as part of macroprudential assessments, the overall exposure of the banking system to the risks of foreign currency funding through analysis of aggregated information. They should monitor and track this information over time to detect trends reflecting increasing risk exposure in the banking system.*
- *Where macroprudential techniques are not yet developed, central banks and supervisors should work together on them.*
- *The IMF and others should continue their efforts to develop indicators of aggregate banking system exposure to liquidity and foreign exchange risk in its work on macroprudential indicators of financial sector risk. As these are developed, they should be employed in FSAPs and, where relevant, Article IV reviews.*

D. The non-bank financial and corporate sectors

100. Non-bank financial institutions that conduct activities normally reserved for banks -- in particular, the taking of deposits -- often are permitted to function like banks, but without a banking license; some may be supervised, although often more loosely than is the case with banks; some may not be supervised at all. They are already important in many countries and are becoming more so. Moreover, as supervision of banks becomes tighter, incentives are created for financial activity to be transferred to non-bank institutions that provide similar services. We have seen that they can be major sources of vulnerability, as was the case with finance companies in Thailand or merchant banks in Korea.

101. *The Working Group drew attention to the problems that can arise with non-bank depository institutions, to the risk management problems they face, and to the need, to the extent that they are supervised, for supervision to keep pace with the scope and magnitude of their activities.*

102. *With respect to other financial institutions, the Working Group urges IOSCO and IAIS to continue to develop and promote high standards for regulation that lead to prudent behaviour on the part of securities firms and insurance companies, respectively. In particular, IOSCO and IAIS ought to consider the extent to which they should address the issues that are identified in this chapter for banks and bank*

regulators. This is important not only for the sake of the financial condition of securities firms and insurance companies themselves, but also because those institutions are important participants in some segments of the financial market and could become increasingly important if unintended channels for regulatory arbitrage are exploited.

103. The Group noted that the Working Group on Highly Leveraged Institutions is addressing some issues related to these or other financial institutions.
104. We have also seen in Asia that non-financial corporations can be a source of substantial disruption. Their financial condition, and their ability to service their debt, can be a major factor in the financial soundness of their creditors. Foreign investors increased their lending (especially short-term lending) to Asian corporations, given their history of strong growth and the perceived stability of exchange rates. Leverage ratios rose sharply for corporations in some countries. When the crises erupted, corporate bankruptcies were widespread and exacerbated the problems facing the banks.
- 105. Government agencies should avoid policies that distort corporate sector liability choices and, in particular, that bias corporations to engage in short-term external or foreign currency borrowing.*
- 106. It is important that national authorities promote good corporate governance practices on the part of individual firms; this may include company boards regularly assessing the financial risks being run by the company. National authorities should promote, if necessary via corporate law, the adoption and implementation of internationally-accepted accounting standards. Companies should disclose, in their audited report and accounts, the composition of their liabilities and financial assets, including by maturity and currency.*
- 107. National authorities should use the disclosures by individual firms to form an assessment of the financial position of the corporate sector in the aggregate. Authorities should be careful to make clear that, despite such a monitoring effort, the government does not intend to bail out private corporations.*
- 108. National authorities should consider the non-bank financial sector and non-financial corporate sector in their assessment of country balance sheet risks. However, the requisite information may not be available, and there are both conceptual and practical problems involved in compiling it.*
- 109. The IMF/World Bank's FSAP and IMF surveillance more generally should assess any material risks to economy-wide stability from exposures in these sectors.*

E. Capital controls as prudential measures

110. The Working Group's emphasis on risk management strategies and policies is based on its view that free movement of capital is important: it helps the efficient allocation of savings and investments amongst countries, and allows investors to diversify risks.

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Many developed and emerging countries have benefited from capital mobility. However, large-scale inflows may have adverse effects on an economy if, by putting unwelcome upward pressure on the exchange rate, they complicate the conduct of domestic monetary policy. Large scale inflows of short-term claims are also a source of potential vulnerability, as new inflows may cease or existing claims may not be rolled over.

111. Controls on capital inflows have been one potential response to concerns about such problems. If controls on inflows are an option under consideration, authorities should examine the objectives of such controls and assess their costs and benefits relative to alternative means of achieving the same objective.
112. There are widely believed to be a variety of costs associated with capital controls, including controls on inflows:
 - In general, they distort the efficient allocation of resources.
 - They may substitute for or at least delay the implementation of necessary policy adjustments.
 - Capital controls may provide greater opportunities for corruption.
113. These costs are, in general, difficult to quantify. Indeed, for that reason, policy makers should not derive much comfort from the absence of hard evidence demonstrating costs and should consider a full range of policy alternatives before deciding to introduce controls.
114. There may be circumstances in which controls on inflows can provide some benefits, which could be weighed against the costs. For example, the controls initiated in 1991 in Chile were market-based regulations aimed at giving additional room for manoeuvre for monetary policy by moderating the size and volatility of foreign capital inflows and modifying their composition in favour of more stable flows (see box).
115. The use of controls on capital inflows may be justified for a transitional period in the face of very strong inflows or as countries strengthen the institutional and regulatory environment in their domestic financial systems, especially if the process of liberalisation had not been carried out in a well-sequenced manner. In other words, some measures to discourage capital inflows may be used to reinforce or complement prudential requirements on financial institutions and other resident borrowers. But it is vital that controls should not be seen as providing a way of allowing countries to pursue unsound macroeconomic policies or to delay actions to strengthen the financial system.
116. More generally, if inflow controls are to be implemented, experience suggests that there are certain conditions for their use that can help to increase the likelihood of success:
 - Controls can only serve as support for a solid macroeconomic program committed to stability. The regulations cannot avoid the over-appreciation of the currency driven by excesses in spending, or in general keep the real exchange

rate permanently away from its equilibrium value. The country should have a strong external payments and reserve position.

- Controls with a prudential element are likely to work best when they are temporary and apply broadly, that is, when they do not try to make subtle distinctions amongst particular instruments. As time goes by, the effectiveness wears off as market participants, especially in more sophisticated markets, find ways to avoid the controls—in part by switching to instruments that not covered.
- Implementation requires an effective and enforceable system of foreign exchange regulations. Authorities should impose rules in a transparent and non-discriminatory way, without privileged sectors, groups or institutions. The monetary and foreign exchange authority should also be able to enforce these regulations effectively through examinations, and a transparent system of fines and sanctions.
- A fundamental requirement for capital controls to work is an adequate system of information on the universe of foreign exchange transactions, including both those subject to regulation and those that can be undertaken outside them. In this way, the Central Bank and supervisory agencies can exert an efficient monitoring of capital flows and other foreign exchange transactions, and inquire about possible loopholes.
- Capital controls require maintenance. For effective implementation their application needs to be monitored, and the authorities should be ready to act and adjust the rules and procedures to ensure the non-discriminatory compliance with the regulations. This may imply having to face strong pressure from interest groups.

117. The Working Group did not discuss controls on capital outflows in depth. Such controls should be thought of more as an element of crisis management and, as such, are beyond the scope of this paper. To be sure, the distinction between controls on inflows and controls on outflows is not always so clear. In some circumstances, controls on outflows (for example, on remittances), implemented in advance of actual outflows, can be intended as a means of deterring excessive inflows. Measures have been introduced in some countries to restrict lending to non-residents in domestic currency, so as not to fund speculative activity. Malaysia's imposition of controls on capital outflows at the height of the Asian crisis, and the subsequent experience, is likely to be much studied in the years ahead.

118. A key question is whether the potential benefits associated with capital controls exceed their costs and whether there are alternative policy tools available that can achieve the same objectives at lower cost. The Working Group felt that, in some circumstances, certain controls on inflows could serve prudential purposes and their use could, therefore, be considered. But it is important to recognise that controls become less effective over time and, in any case, cannot be a substitute for sound policies.

Capital controls in Chile

In 1990, the newly appointed independent Central Bank Board in Chile initiated an inflation reduction program and tightened monetary policy. The restrictive monetary policy contributed to net external capital inflows well in excess of the targeted current account deficit. The new external financial conditions allowed for the gradual lifting of existing exchange and capital controls but at the same time raised the question of how to allow for a better management of the large capital inflows.

In 1991, the strong capital inflows presented the Chilean authorities with a choice between lowering interest rates in the context of increasingly dynamic economic activity, or letting the Peso appreciate in real terms, endangering the competitiveness of key exports. The authorities instead opted to reduce the incentives for capital inflows through market-based regulations aimed at moderating the size and volatility of foreign capital inflows and giving additional room for manoeuvre to monetary policy.

- Measures were taken to raise the cost of short-term external financing, mainly by imposing an unremunerated reserve requirement (URR), which evolved over the years to a dollar denominated one-year mandatory deposit on nearly all foreign capital inflows associated with foreign debt or with foreign portfolio investment. The effectiveness of the measure was limited from the beginning since its coverage was not universal, leaving loopholes that were increasingly exploited over time by arbitrageurs. Ultimately, after macroeconomic conditions had changed and the strength of capital inflows had weakened in the wake of the Asian crisis, the URR rate was lowered to 0 percent in September 1998.
- A minimum holding period was introduced for direct and portfolio investment from abroad, aimed at limiting “in and out” financial operations carried out by large institutional investors.
- Conditions were defined for the issuance of Chilean securities in public offerings in international markets. The regulations have been made more flexible over time, and the conditions required have been gradually eased.
- Measures have been taken to eliminate restrictions on current foreign exchange transactions and capital outflows, lifting all limitations on the repatriation of profits from foreign investments, abolishing limits on the acquisition of foreign exchange by local residents and simplifying the procedures needed for residents to make investments abroad. The only remaining restrictions on institutional investors’ investment abroad are of a prudential nature, limiting pension fund and insurance company holdings of foreign assets, and limiting commercial bank net foreign currency positions.

IV. Building institutional capacity

119. If market participants are to evaluate and manage risks, the relevant markets must exist and there must be an infrastructure that can support financial activities. Such an infrastructure involves effective supervision and regulation as well as sound practices in regard to accounting, corporate governance, the legal and judicial systems, and the payments and settlement systems.

A. Developing domestic bond markets

120. The need for the development of domestic bond markets has been highlighted by recent financial crises. The risky debt structure of the sovereign and corporate sectors, characterised by heavy concentration in short-term and foreign currency debts as a result of the lack of developed domestic bond markets, has often been blamed as the cause of many crises. In the absence of developed domestic financial markets, even countries without a net external financing requirement can incur external or foreign currency mismatches. Residents may place savings in international markets, which are lent back into the economy to finance investment or other spending by firms or the government sector.

121. The government can, in normal times, benefit by having a full array of instruments that it can use for funding, so that it will not have to rely on money creation or foreign currency borrowing. Moreover, debt financing needs rise rapidly in the aftermath of financial crises, as corporate and bank restructuring entails huge costs. Therefore, from the perspectives of both preventing future financial crises and recovering from crisis, there is a strong need for domestic bond markets to finance and to manage the risk associated with the new borrowings.

122. In the case of corporations, equity markets have a great role to play as a provider of risk-absorbing long-term capital to finance the firm. Financing through equity issuance will in some cases allow for a better match between the assets and liabilities of the firm than the match available through bond market financing. Clearly, well functioning equity markets are important for the management of risks in the economy. In many cases equity markets provide an important exit opportunity for governments wanting to privatise industries.

123. Derivatives instruments can facilitate the development of capital markets and provide risk management vehicles that can moderate the impact of volatility, although only if the risks associated with derivatives are clearly understood and monitored. Forwards and futures (for both commodities and financial instruments) can provide tools to manage price risk, interest rate risk, and currency risk. Swap transactions can be used, subject to appropriate controls, to help adjust the currency and interest rate structure of liabilities and assets. As swaps are credit products, the swap market might not be easily accessible for countries with poor credit ratings. Furthermore, derivatives markets in small economies tends to be even more illiquid than bond markets. However, a country

does not have to develop its own domestic derivative markets, if the need for such transactions is infrequent and the volume is limited. Instead, the country can make use of existing international markets and investment banks to carry out necessary derivative transactions. In contrast, the importance of domestic bond markets cannot be substituted.

124. Long-term, local currency and fixed-rate domestic bond instruments do not come without a cost. The rates on such instruments are often higher than on short-term, floating rate, or foreign currency bonds (depending in part on the credibility of domestic monetary policy over the long term). But the cost should be viewed as an insurance premium—the country pays a relatively higher financing cost during calm times, but reaps the benefit during a crisis period. Such insurance can help establish the government’s credibility as an issuer. Experience also shows that once a government’s credibility is established, the insurance premium demanded by the market will also decrease. The development of a domestic bond market thus can help a government to avoid concentrating its borrowing in short maturities or in foreign currencies, instead creating a diversified portfolio strategy via more dispersed maturities.
125. The development of a mature bond market is not an easy task. In emerging markets, the government needs to play a significant role in the development process. As an issuer, the government can help to develop the yield curve, improve standardisation and secondary market liquidity, and assist in building the necessary market infrastructure (including public custody and settlement facilities) to support the market.
126. *Guidance to national authorities on the practical aspects of developing bond markets will be one valuable outcome of the joint World Bank/IMF referred to above.¹⁴ However, encouragement and technical assistance may well be needed if national authorities are to attach high priority to making progress in this area. The national and international bodies represented in the Financial Stability Forum (including the IFC) are especially well placed to support efforts by countries to strengthen their financial systems, in general, and their bond markets, in particular. The Working Group urges them to bring their expertise and resources to bear on these issues.*

B. Transparency

127. Good information is needed for effective risk management by individual market participants. It is needed as well if market discipline and official supervision are to help enforce effective risk management procedures. Statistical information relating to cross-border and foreign exchange exposures are particularly important in the context of this

¹⁴ See also "How should we design deep and liquid markets? The case of government securities," a report issued in October 1999 by the G-10 central bank Committee on the Global Financial System.

report; data requirements of this sort are discussed in the next chapter. In addition, information is needed on individual participants, both public and private.

128. The progress made at the IMF on the Special Data Dissemination Standards (SDDS) to promote a comprehensive and timely disclosure of economic and financial data, including on countries' reserve positions, is a positive development in this regard. Although the number of countries adhering fully to the SDDS is still low, the IMF and its member countries are expected to intensify their efforts to strengthen the SDDS, including by improving the contents of national data on the Internet. (The SDDS is discussed further in the next chapter.)
129. *National authorities can usefully adopt a high level of transparency about their own risk and liquidity management strategies and operations, and about official, including regulatory, policies governing private sector risk and liquidity management. Particularly in circumstances where there is a risk of contagion, authorities should provide information that will allow banks (and other creditors) to distinguish between a fundamental deterioration in credit quality and other elements -- which may be related to events in other countries -- that can lead to pressure on sovereign borrowers, particularly in times of crisis. In particular:*
- *Governments should publicly disclose their institutional arrangements for public sector debt and liquidity management, in domestic currency and in foreign currencies, making clear any division of responsibilities between agencies.*
 - *Governments should publicly disclose their risk and liquidity management objectives, covering the domestic currency and foreign currencies separately where relevant.*
 - *Governments should aim to publish, on an annual basis, a balance sheet listing and valuing their assets and liabilities, both financial and (to the extent feasible) real. Governments should regularly disclose the scale of any public sector contingent liabilities under deposit insurance or other investor protection schemes.*
 - *Central banks or, where appropriate, other financial agencies should publicly disclose their policies for financial institutions' liquidity management.*
130. *The IMF and the World Bank should continue to assess the extent to which national authorities comply with the IMF's codes for transparency of fiscal policy and of monetary and financial policy.*
131. *National agencies with a responsibility for financial stability should aim to publish an annual assessment of liquidity conditions in the economy as a whole, and in individual important sectors of the economy, in particular the banking sector and other parts of the financial sector. This will help market participants and credit-rating*

agencies to make more informed assessments about the liquidity of a country, as well as increasing the incentives for prudent debt and liquidity management.

132. As noted above, *national authorities should promote, if necessary via corporate law, the adoption and implementation of accounting standards that require companies to disclose, in their audited report and accounts, the composition of their liabilities and financial assets, including by maturity and currency.*

C. Supervisory, regulatory, and private risk management capacity

133. The international community has focussed much attention on strengthening financial systems, especially following the 1995 G-7 Summit meeting in Halifax in the wake of the Mexican crisis. Standards, guidelines, and sound practices have been formulated to cover a range of issues, and the IMF and World Bank, in co-operation with other standard-setting bodies, are jointly looking to assess the extent to which countries adhere to various standards. Members of the Financial Stability Forum have prepared a Compendium of standards that will provide easy access, through the Forum's web site (www.fsforum.org), to the key international standards in the financial area. The task now is to provide incentives, preferably but not only market-based, to encourage their implementation. The Task Force on Implementation of Standards, set up by the Financial Stability Forum at its meeting in September 1999, is addressing this issue.
134. Individuals both in the private sector and in supervisory agencies must have the technical expertise to implement and enforce sound risk management procedures. In this regard, the Financial Stability Forum also offers, on its web site, a directory of training programs for financial supervisors.
135. The joint IMF/World Bank Financial Sector Assessment Program (FSAP) referred to previously will undertake comprehensive assessments of financial sector strengths and vulnerabilities in their member countries. Identifying such vulnerabilities will allow national authorities to address them, with the help of technical assistance and other follow-up efforts on the part of their peers in other countries and international institutions.

V. Data on external financial positions

136. Good information is crucial to sound risk management. Greater transparency on the part of market participants, as noted above, is important, but it is not sufficient that individual participants know their own and their counterparties' financial position. They must also have aggregate information that allows them to evaluate the forces that affect vulnerability to a crisis in financial markets in general, and, as a result, risks of repayment and volatility of asset prices.
137. Two important aspects of this are data on the structure of countries' indebtedness and the exposure of financial institutions to country risk. Statistical reporting systems need to address the major shortcomings in such data revealed by recent crises (for example, because of off-balance-sheet exposures, guarantees by third parties, or undrawn credit lines).
138. Serious efforts have been made by the international community to enhance aggregate data on external debt and capital flows, which are key ingredients for the assessment of vulnerabilities. These efforts must be supported, and the importance of their success highlighted, if they are to maintain the needed momentum. However, while significant progress has been made, there remain gaps in the availability of data necessary for comprehensive risk analysis, as well as apparent inconsistencies in data from different sources (although in some cases those data are intended to address different questions).
139. A comprehensive assessment of an economy's risk and liquidity position requires not only aggregate data but also information on conditions in individual sectors, notably the financial and corporate sectors. Data requirements for such sector-specific evaluations are substantially more complex.
140. Key initiatives to improve data dissemination include steps to enhance the Special Data Dissemination Standard (SDDS), the work of the Inter-Agency Task Force on Finance Statistics (TFFS) on a new guide for external debt statistics, and efforts to improve the dissemination of creditor and market data.¹⁵
141. *Following a proposal by the Working Group, the IMF, in co-operation with the Group, hosted a conference in Washington on 23-24 February to generate a dialogue between data users and compilers, discuss recent initiatives to improve data on capital flows and external debt, and identify priorities for further work in this area. The conference proved to be a useful step in enhancing the sensitivity of both users and compilers to the different perspectives they bring, which should help to further convergence of priorities in this area. In addition, it highlighted the different uses for*

¹⁵ The TFFS includes the BIS, OECD, World Bank, IMF and other agencies. It was set up under the auspices of the United Nations and is chaired by the IMF. It was reconvened in 1998 to co-ordinate work amongst the participating agencies to improve the quality, transparency, timeliness, and availability of data on external debt and international reserve assets.

which data are required and, correspondingly, the need for data to be compiled on more than one basis.

A. Data on foreign exchange reserves

142. To enhance the SDDS data category on international reserves, a data template was developed jointly by the G-10 central bank Committee on the Global Financial System (CGFS) and the IMF. The IMF Executive Board approved the data template on international reserves and foreign currency liquidity in March 1999. Under this new standard, SDDS subscribers will disseminate data on reserves and related items, including short-term foreign currency debt of the government on a remaining maturity basis, as well as other actual and potential drains on reserves such as large central bank forward positions.
143. Countries subscribing to the SDDS will be required to disseminate the data presented in the template on a monthly basis with a lag of no more than one month. Data on gross reserves will continue to be disseminated monthly with a one-week lag. Weekly dissemination of all template items is encouraged. A set of operational guidelines to assist countries in completing the template has been circulated to all IMF member countries and is posted on the IMF web site.
144. The purpose of the new template is to enhance transparency in the dissemination of reserve data, providing timely information on the level of usable reserves, avoiding surprises and preventing the market disruptions that typically follow such surprises. Periodic reviews of the data template on international reserves and foreign currency liquidity are envisaged, which will seek to ensure that it fulfils this role.

B. National data on international investment position and external debt

145. *Improvements under way.* In December 1998, the IMF Executive Board decided to strengthen the dissemination of data under the SDDS on external debt and on the international investment position (IIP, the balance sheet of a country's external financial assets and its liabilities). The decision specifies a three-year transition period for the dissemination by subscribing countries of annual IIP data with a lag of no more than six months.
146. While external debt can in principle be derived from the IIP as the sum of non-equity liabilities, it is proposed to include a separate data category for external debt in the SDDS to provide for greater focus in the dissemination of external debt data. According to the new debt category, debt data would be disseminated on a quarterly basis with a one-quarter lag, with breakdowns by sector (general government, monetary authorities, banks, and other), and maturity. This would, for instance, imply dissemination of quarterly data on the short-term debt of the private sector. A detailed questionnaire was circulated to identify areas of weaknesses in the external debt data of SDDS subscribers

and to gather views on the appropriate transition period for the new external debt data category in the SDDS.

147. To improve the dissemination of debt data more generally, the TFFS is working on a comprehensive guide for compilers and users of external debt statistics (a replacement for the 1988 “Grey Book”). This new guide, a draft of which has already been prepared, intends to set internationally agreed definitions and standards for the compilation of debt statistics. The proposed methodology will be set within the IIP framework, subject to adjustments necessary to reflect external debt concepts. In addition, the guide will cover supplementary information, such as information on ultimate risk (that is, based on the residence of the party ultimately responsible for the repayment of an obligation) and off-balance sheet items, including contingent liabilities and financial derivatives. Based on this guide, the TFFS is organising several seminars or workshops to assist countries in their efforts to compile accurate and timely external debt statistics.
148. Enhancing data dissemination frequently requires technical assistance to help implement new standards and recommendations. International institutions, including the IMF and the World Bank, are providing such assistance to their members, but more is needed.
149. The international statistical community has been working for a number of years toward producing standards for the measurement of financial derivatives. A number of countries are working toward the implementation of some of the initial results of this work, including in the context of the SDDS reserves data template..
150. With the assistance of the IMF, systems for high frequency monitoring of the external liabilities of domestic financial institutions were established in a small number of countries to expand their capacity to manage crises and to provide early warning of emerging problems. The coverage of the monitoring systems has been limited to interbank transactions of domestic banks (including their offshore branches and subsidiaries) vis-à-vis foreign banks. The monitoring systems typically cover a large proportion of the domestic banking sector and entail the collection of weekly information, with reports on roll-over rates, changes in exposure, changes in average maturity, and changes in spreads.
151. *Scope for further improvements.* Important gaps remain in national external debt statistics, especially regarding the assessment of liquidity risk: data by residual maturity rather than original maturity; by face value as well as market value; with a distinction by currency as well as residency; information on embedded put options in bond contracts; and amortisation schedules (including interest payments). The demand for data on external debt service and the scope for providing these is being investigated in the context of the consultation process for the SDDS and the debt guide.
152. Gaps in national external debt statistics differ from country to country. IMF staff enquiries in the course of Article IV discussions about data issues help to identify data gaps and, thus, areas where additional efforts are required. These consultations, along

with discussions in other international fora, will also be important ways of identifying priorities for technical assistance to national compilers and promoting the identification of providers of such assistance.

153. The IMF stands ready to provide assistance to countries in the introduction of high frequency monitoring systems. Such systems are relatively resource intensive and, therefore, not suitable as a general approach. However, details on the maturity structure of the foreign liabilities of the banking sector could perhaps be collected within the framework of existing monetary surveys that are usually conducted at relatively high frequencies.

C. Creditor and market data on external debt

154. While the responsibility for collecting and publishing data on external debt rests with the authorities in the debtor country, since that is where the responsibility rests for managing the associated risks, creditor and market-based sources of data on external debt may provide a useful complement to debtor-based data. However, the primary purpose of creditor-based debt reports is to measure exposures of financial institutions, which may entail different valuations from that of external debt. Moreover, such exposures are not simply the counterpart of borrowers' external debt to banks (i) because loans can be guaranteed by third parties; (ii) because exposures assumed through loans can be offset or accentuated by off-balance-sheet contracting and (iii) because of undrawn credits (such as irrevocable contingent credit facilities). For these and other reasons, creditor-based data are unlikely to coincide with the counterpart of external debt as measured by the debtor.
155. Creditor data are compiled both on a residency basis as in the balance of payments and IIP statistics (e.g., BIS Locational Banking Statistics) and on a consolidated basis, which measure institutions' world-wide exposures (BIS Consolidated Banking Statistics).
156. *Improvements under way.* The BIS has improved the timeliness of its Consolidated International Banking Statistics by six weeks, with a further substantial reduction of publication lags envisaged this year. The frequency of the Consolidated Statistics will increase from semi-annual to quarterly. From end-June 1999 onwards, the BIS has begun to publish data from the Consolidated Statistics with a full counterpart country coverage and on an ultimate risk basis. In addition, consultations are under way to increase the number of reporting countries for both the Locational and the Consolidated Statistics and to extend the coverage of ultimate risk data.
157. In March 1999, four international agencies (the BIS, IMF, OECD, and the World Bank) introduced a new series of quarterly statistics on external debt for 176 developing and transition countries, the Joint BIS-IMF-OECD-World Bank Statistics on External Debt (Joint Debt Statistics). These statistics bring together information on components of external debt currently compiled and published separately by the contributing

institutions. The data are mostly from creditor sources, (e.g., the BIS International Banking Statistics), supplemented by data from market sources (e.g., the BIS International Securities Statistics and the OECD data on nonbank trade credits), and by data from debtor sources (data on Brady bonds). The publication also includes data on international reserves and a series of methodological notes. As essentially creditor-side data, they do not provide a fully comprehensive and consistent measure of external debt for each country, but they bring together the best international comparative data currently available.

158. The completion of the Coordinated Portfolio Investment Survey for end-1997, which covered 29 countries, will help improve debtor-based debt and international investment position statistics.¹⁶ The survey, an initiative of the IMF Committee on Balance of Payments Statistics, was conducted in response to the growing imbalances at the global level between recorded asset and liability transactions in portfolio investment securities. Another Coordinated Portfolio Investment Survey is planned for end-2001.
159. *Scope for further improvements.* Non-resident purchases of domestically issued bond and money market instruments constitute a significant part of capital flows in some countries. While the BIS publishes quarterly data on net issuance and outstanding stocks of domestic debt, there are important gaps in this area. In principle, information is needed on maturity structure (amortisation schedule), the nature of interest payments (whether fixed, floating rate, or indexed to the price level), and currency status (foreign currency denominated or indexed). It may be particularly important to have such data for public sector debt. The BIS intends to give some priority to extending the coverage of data on domestically issued securities; an important aim is to eliminate overlaps with BIS data on international bonds. Consideration is also being given to collecting data on foreign holdings of such bonds (e.g., through a survey of major custodians). Such an initiative would be co-ordinated with the IMF's work with countries on international investment position data and the Coordinated Portfolio Investment Survey.

D. Reconciliation between debtor and creditor data

160. Participants in the Working Group drew attention to substantial discrepancies between the creditor-based BIS International Banking Statistics and debtor-based sources for some countries. While a complete reconciliation is not feasible for various methodological and practical reasons, and cannot be an overriding objective given the different primary purposes, efforts to reconcile as much as possible or at least explain the differences are essential for the credibility of these data. Agreement needs to be reached on the concepts of debt that ought to be embodied in the data, with, for

¹⁶ The results were published by the IMF in January 2000, in "Results of the 1997 Coordinated Portfolio Investment Survey." Although there are significant gaps in the coverage, more than \$6 trillion of portfolio assets from creditor sources were reported, in which the counterpart debtor countries, in the case of debt securities, are identified.

example, distinctions amongst different liabilities based on the nature of the risks involved (including identifying clearly any contingent liabilities, as when a resident of one country guarantees an obligation of the resident of another country). Also, the international organisations that publish data need to work to minimise errors in publications.

161. Efforts to reconcile differences between debtor and creditor data are a focus of regular work by IMF and BIS staff in conjunction with country authorities. Greater impetus is required to resolve these problems and then systematise the reconciliation efforts. To this end, the TFFS plans to include some case studies in the planned guide to external debt statistics, with a view to facilitating reconciliation. However, reconciliation efforts are hindered by gaps in the data in the Locational Banking Statistics, such as the lack of detailed information on claims in the form of debt securities held by offshore centres. In addition, there is the issue that data on cross-border claims in the Consolidated Banking Statistics indistinguishably include local foreign currency claims that may not represent external debt, as these claims might be partially or fully financed locally in foreign currency.¹⁷

E. Data requirements

162. *Noting that sound risk management requires good data to assess an economy's vulnerability, the Working Group urges senior policy makers in each country (representatives of the finance ministry, central bank, statistical agency and supervisory bodies) and the international organisations to seek collaboratively and actively to understand the nature of the key data and the problems associated with both their compilation and interpretation. National policy makers should give high priority to upgrading external debt statistics, including addressing gaps with respect to data by residual maturity rather than original maturity; by face value as well as market value; with a distinction by currency as well as residency; information on embedded put options in bond contracts; and amortisation schedules (including interest payments)¹⁸. Adequate budgetary resources must be provided for this task -- a recommendation that applies also to the international institutions. International institutions, including the IMF and the World Bank, are providing technical assistance to members in implementing the recommended strengthening of their data systems and data dissemination practices, but more is needed.*
163. *While the Working Group urges that adequate resources be allocated to improving the availability of data on external positions, the Group recognises that there are*

¹⁷ Local funding in foreign currencies is becoming increasingly important due to the sale of banks with local networks to banks headquartered in BIS reporting countries.

¹⁸ The demand for data on external debt service and the scope for providing these are being investigated in the context of the third review of the SDDS.

alternative uses for those resources. The Working Group feels that authorities responsible for financial policy, who would benefit from enhanced data on external positions, must work closely with statistical agencies in reporting countries to explain the importance of such data and to help set meaningful priorities with respect to the allocation of resources to the reporting and collection of data.

164. The Interagency Task Force on Finance Statistics is an important forum at which the needs of the main official users of statistics are raised. The Working Group underlined the importance of taking such views fully into account in consideration of developing creditor-based statistics.

165. The Working Group noted that the statistical coverage of financial institutions' exposures to particular countries is at present inadequate in several ways and supported efforts under way at the BIS to improve coverage. Banks' credit exposure data should be based on the residence of the party ultimately responsible for the repayment of an obligation (ultimate risk) and not on the residence of the immediate borrower. However, separate information on the basis of residence of the immediate borrower was considered important also for country risk, since guarantees may be called only in extreme circumstances. The Working Group was encouraged that such issues are under active consideration by the Committee on the Global Financial System, which is responsible for the BIS banking statistics. It is desirable that the BIS Consolidated Banking Statistics (which are at present reported according to the residence of the immediate borrower) develop in time into more detailed reports on an ultimate risk basis, which is consistent with commercial banks' own risk management practices. Where feasible, reported data should cover all relevant aspects of financial institutions' exposures -- including guarantees by third parties, undrawn contingent credit facilities, and off-balance-sheet financial contracting.

166. The Working Group identified important gaps in creditor and market-based statistics and urged the appropriate bodies to continue, or undertake, efforts to fill them. In particular, the appropriate bodies should:

- Explore the possibility of adding a maturity breakdown in the Locational Banking Statistics. The aim would be to enable a breakdown by sector and maturity (and not just one or the other).*
- Improve and enlarge the coverage of reporting by offshore centres, in particular by providing more detailed information on banks' very sizeable holdings of debt securities; by increasing the number of reporters (not all offshore centres report to the BIS); and by improving timeliness. The Working Group on Offshore Financial Centres is also considering this issue.*
- Examine whether private placements of debt securities held by the non-bank sector are adequately covered by the BIS International Securities Statistics or by market sources.*

FINANCIAL STABILITY FORUM

- *Consider the usefulness of data that might be available from global custodians and the use of the co-ordinated portfolio investment survey to close gaps in data on non-residents holdings of domestically issued securities.*
- *Continue efforts by national authorities to compile data on non-resident purchases of domestically issued bond and money market instruments.*

167. The Working Group drew attention to substantial discrepancies between the creditor-based BIS International Banking Statistics and debtor-based sources for some countries. While a complete reconciliation is not feasible for various methodological and practical reasons, including the different objectives of debtor-side and creditor-side data, efforts to reconcile as much as possible or at least to explain the differences are essential for the credibility of these data.

Working Group on Capital Flows

Terms of Reference

Drawing on work carried out by the institutions and groupings represented in the Forum and elsewhere, and on the experience and expertise of recipient countries and the private sector, the working group on capital flows should:

1. Evaluate prudential policies, regulations and risk management (including debt management) practices in borrowing countries that may help reduce the risks to financial systems associated with the build-up of short-term external indebtedness;
2. Identify any regulatory or other factors that may have introduced an unwarranted bias in favor of short-term flows, and recommend actions to reduce such bias;
3. Review progress in improving the adequacy and timeliness of the data and reporting systems on which authorities and investors rely to monitor and assess risks associated with capital flows, and give impetus to improvements as needed;
4. Evaluate other potential measures in debtor and creditor countries to reduce the volatility of capital flows and its adverse consequences for financial system stability.

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Illustrative sources of bias in national policies

Incentives created by capital account regulations. The capital account regulations in the three Asian crisis countries with a sizeable build-up of short-term debt (Indonesia, Korea, and Thailand) do not seem to have directly created a bias toward short-term external borrowing to any great extent, except in one aspect in Korea (see below).¹⁹ It seems, however, that the commercial banking system played a key role in intermediating foreign capital inflows, in particular in Korea and Thailand, where capital account regulations biased flows toward the domestic banking system while keeping other types of short-term inflows fairly restricted. This institutional bias, in turn, seems to have indirectly favoured short-term rather than longer-term flows, since banking institutions tend to rely on shorter-term finance.

In Korea the authorities followed a very gradual approach to capital account liberalisation, beginning a cautious liberalisation of capital inflows into the domestic securities market in the mid-1990s.²⁰ The letter of the foreign exchange law did not entail a preferential treatment for short-term inflows, reflecting the authorities' view that short-term flows could hamper macroeconomic and financial market stability. However, two aspects of the capital account regulations sought to control longer-term flows. First, the regulations favoured foreign borrowing (and on-lending) by banks over direct access by corporations to international markets: foreign exchange banks were authorised to borrow abroad, but direct foreign borrowing by corporations (which would tend to be longer term) was controlled through prior approval requirements (with the exception of trade credits), which apparently discouraged this kind of operation. Second, beginning in 1994, the ceiling on commercial banks' lending in foreign currency was lifted, but the Bank of Korea applied "window guidance" in the form of ceilings on commercial banks' medium and long-term borrowing from international markets. These two regulations together, which encouraged greater intermediation through banks and forced banks seeking to borrow abroad to rely on short-term liabilities to finance long-term loans at home, indirectly encouraged recourse to short-term inflows.

In Thailand, where the authorities adopted a more aggressive policy of attracting capital inflows and liberalised capital movements progressively during 1989-92, the general thrust of the regulatory framework also did not differentiate between the maturity of capital flows per se. However, with the establishment of the Bangkok International Banking Facility (BIBF) in

¹⁹ See Exchange Rate Arrangements and Currency Convertibility: Developments and Issues, Chapter VI, IMF World Economic and Financial Surveys, 1999.

²⁰ Restrictions were removed on a range of transactions, including forwards, futures, currency options, and various forms of bonds and loans, but most transactions remained subject to prior approval. In 1992, non-residents were permitted limited access to the stock market, the types of securities that residents could issue abroad were expanded, and some forms of trade financing were deregulated, which led to a rapid growth in trade credits.

1992 and the Provincial International Banking Facility (PIBF) in 1995, the government tried to improve the access of domestic entities to international capital markets through the banking system and gave BIBF banks tax incentives and preferential treatment in their operations.²¹ Some foreign banks saw the expansion of BIBF and PIBF as a step toward acquiring a full branch in Thailand, which may have also provided an incentive to build up business. Although a 7 percent cash reserve requirement was imposed on short-term non-resident baht accounts and new borrowing by commercial and BIBF banks in 1996 to limit short-term inflows, certain transactions were exempt (overdrafts and liabilities from currency trade, international trade financing, and non-resident deposits at BIBF banks). While it is difficult to quantify the magnitude of these exemptions, they may have served as potential channels for circumvention of the existing controls on short-term inflows.

In Indonesia, where capital inflows were liberalised relatively gradually, capital account regulations contained neither an obvious direct bias toward short-term flows nor a bias toward bank-intermediated inflows (in fact, bank foreign borrowing was more restricted than private corporate borrowing, and in some cases ceilings were imposed on foreign commercial borrowing except for financing of long-term projects). Banks' foreign borrowing was temporarily liberalised in 1989, but tightened again through direct controls in 1991 on concerns about an excessive build-up of foreign liabilities. However, these restrictions, which remained in place in 1992-96, excluded short-term trade financing and borrowing for certain other purposes (e.g., borrowing by private companies to finance private projects unrelated to public entities and certain borrowing required in the context of money and capital markets).

Incentives created by financial regulatory measures. In some cases, financial regulatory measures in a country may provide intended or unintended incentives for certain types of capital flows. In particular, for the purpose of defining regulatory ratios, such as reserve and liquid asset requirements, authorities may differentiate between residents and non-residents or between local and foreign currencies. The former has a direct impact on capital movements. The latter can also influence the capital account, especially where controls continue to be applied to other channels for capital flows and where foreign currency deposits are the main or only channel for capital flows. Moreover, as foreign currency deposits tend to be more short-term, differentiated regulatory ratios that favour such deposits create a bias toward short-term flows.

A differentiation in the reserve ratio between resident and non-resident deposits has been applied in some countries to regulate capital flows.²² In India, for example, most non-resident deposits (foreign and local currency) were not subject to reserve requirements, while deposits of residents were; in addition, external rupee accounts of non-residents were subject to a lower

²¹ PIBF banks could obtain funding from overseas and extend credits both in baht and foreign currencies, while BIBF banks could take deposits or borrow from abroad and lend in foreign currencies in Thailand and abroad.

²² See "Review of Experience with Capital Account Liberalisation and Strengthened Procedures Adopted by the Fund," SM/97/32, Supplement 1 (2/6/97).

reserve requirement. In Korea, the reserve requirement for foreign currency deposits of residents was much higher than that for non-residents (9 percent vs. 1 percent); in China, different reserve requirements existed for foreign and domestic banks; and in Israel, while the same ratio applied to bank accounts held by residents and non-residents denominated in foreign or domestic currency, interest was paid only on reserve requirements that applied to non-resident foreign currency accounts.

Different reserve (and liquid asset) requirements for the local and foreign currency deposits taken by banks were also used by a number of countries. Since this kind of measure alters the relative cost of local and foreign currency funding for banks, it is likely to have an impact on the composition of liquidity between local and foreign currencies and on foreign currency intermediation. For example, in a number of countries, reserve requirements were imposed on local currency deposits, while no such requirement applied on foreign currency deposits (the Philippines, Singapore, Barbados, Colombia, Croatia, Dominican Republic (up to a certain amount), Kenya, Macedonia, Saudi Arabia, Slovenia, and Syria). In a number of other countries (China, Egypt, Jamaica, Poland), foreign currency accounts are subject to a lower reserve requirement, compared with that on local currency accounts. Similarly, a higher liquid asset requirement was imposed on domestic banks than on foreign banks (in China); no liquidity requirement was applied on foreign exchange deposits (in Barbados, Singapore), or the requirement was set lower than that on domestic currency assets (in Jamaica, Turkey).

Exchange rate guarantees. Explicit exchange rate guarantees provided by the government are believed to have contributed to the build-up of external or foreign currency debt (in some cases short-term) in a number of other countries, as the interest premium needed to attract investors was reduced. Examples of such explicit guarantees include: the sale of dollar-indexed government bonds to residents and non-residents (Mexico); the forward cover scheme provided by the central bank to authorised banks' short-term borrowing (South Africa); the forward exchange rate guarantee provided by the central bank for short-term ruble T-bills (Russia); and central bank sterilisation operations via foreign exchange swaps at a forward rate that was close to the spot exchange rate in the context of a fixed exchange rate regime (Thailand).

Incentives ***created by the macroeconomic environment.*** Beyond the underlying reasons for market preferences for shorter-term or bank-intermediated external borrowing and beyond any additional biases that may have been created by capital account and other regulations, incentives created by the monetary and exchange rate policy mix may also have contributed to the build-up of short-term external or foreign currency debt in the Asian crisis countries. Domestic interest rate policy aimed toward internal stability objectives resulted in high domestic interest rates, especially short-term. At the same time, active pursuit of exchange rate targets (de facto U.S. dollar peg in the Philippines and Thailand; horizontal band and crawling band regimes within the tightly managed exchange rate arrangements in Korea and Indonesia, respectively;) led to expectations of stable exchange rates. Thus capital inflows were encouraged that were substantially short-term -- particularly in the form of (largely unhedged) foreign borrowing by banks.