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INTERNATIONAL MONETARY FUND

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**1. Liquidity Management**

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Staff : Kincaid, Desruelle, PDR

Length: 2 hours, 30 minutes

**Executive Board Attendance**

A. Krueger, Acting Chair

| **Executive Directors** | **Alternate Executive Directors** |
|---|---|
| S. Al-Turki (SA) | |
| I. Bennett (CO) | |
| | G. Meissner (GR) |
| M. Callaghan (AU) | |
| | S. Boitreaud (FF) |
| S. Indrawati (ST) | |
| | B. Andersen (NO) |
| N. Jacklin (UA) | |
| | J. Prader (BE) |
| | H. Torres (AG) |
| | M. Daïri (MD) |
| | L. Palei (RU), Temporary |
| D. Ondo Mañe (AF) | |
| | M. Schwartz (CE) |
| P. Padoan (IT) | |
| M. Portugal (BR) | |
| B. Misra (IN) | |
| | M. Brooke (UK) |
| A.S. Shaalan (MI) | |
| I. Usman (AE) | |
| | H. Ge (CC) |
| J. Kremers (NE) | |
| | S. Antic (SZ), Temporary |

S.J. Anjaria, Secretary
J. Puig, Assistant

**Also Present**

IBRD: R. Ritter. ECB: O. Wijnholds. Asia and Pacific Department: L. Leigh. European Department: N. Mates. External Relations Department: P. Loungni. Finance Department: M. Kuhn, Director; J. Lin, D. Nyberg, Y. Sun, N. Wagner. International Capital Markets Department: N. Blancher, C. Blitzer. Legal Department: B. Steinki. Monetary and Financial Systems Department: P. Dijkstra, M. Filipsson. Office of Budget and Planning: M. Cangiano. Policy Development and Review Department: M. Allen, Director; D. Desruelle, M. Guerguil, J. Hicklin, R. Kincaid, P. Kongsamut, J. Mathisen, C. Mumssen, A. Pitt, J. Rahman, C. Rosenberg, . Tamirisa. Research Department: O. Jeanne. Secretary's Department: L. Hubloue, P. Martin, P. Ramlogan. Statistics Department: W. Alexander, L. Fernando. Western Hemisphere Department: A. M. Jul.
Senior Advisosr to Executive Directors: S. Bakhache (MI), A. Baukol (UA), W. Cho (AU), D. Farelius (NO), C. Pereyra (AG), M. Roovers (NE), S. Rouai (MD), A. Tombini (BR). Advisors to Executive Directors: D. Lombardi (IT), F. Meyerhoefer (GR), T. Skurzewski (SZ), D. Wang (CC).

## 1. LIQUIDITY MANAGEMENT

Mr. Schwartz submitted the following statement:

Staff has produced an interesting and multi-topic encompassing paper. It is encouraging to see that crisis prevention is a major concern in Fund's analysis. Staff's effort to integrate several important topics such as reserve adequacy, public debt and private liability management under a common umbrella and study their interactions is commendable.

However, one has to admit that whenever an ambitious paper tries to cover a very wide spectrum of topics, it will inevitably leave loose ends and unanswered questions. The document at hand is no exception. That is, besides covering a varied selection of topics without a thorough analysis of any of them, the document goes from expecting a clear and precise stand point from the Board, on whether the referred augmented ratios of foreign currency liabilities to reserves are helpful for reserve adequacy analysis, to very general and vague recommendations for sound public and private liability management. Moreover, even the title of the paper is confusing and only after reading it carefully one gets the idea of what the paper is all about. Empirical evidence to support some of the arguments is also missing.

Past crises have provided us many lessons. Currency and maturity mismatches from the public and private sectors, interest rollover and exchange rate risk, among others, have become important elements that, if not properly addressed, could trigger or magnify a crisis. It is thus satisfying to see how the Fund has learnt from past experiences and tries to update its toolkit to detect and anticipate imbalances that, if left unattended, could evolve into crisis situations.

However, I am not totally convinced that computing and imposing on countries new measures to comply with is the appropriate way to proceed. Staff's intention to produce a set of indicators, that if fulfilled by countries will make the Fund "more comfortable", offers no warranty that countries will be heading towards a crisis-free-environment. Furthermore, relying heavily on these instruments could even deviate our attention from other sources of concern. Crises are different from one another and each one has its particular roots. Thus, one thing is to recognize that the world has changed and that previously unattended imbalances or mismatches have become relevant variables to monitor, and another is to develop additional yardsticks and benchmarks through which countries should be measured against and asked to comply with.

I am totally in favor of the Fund's need to improve its analysis and monitoring of relevant data. The development of the referred augmented ratios of debt liabilities to reserves, that consider short-term foreign currency-linked public domestic debt as well as resident's foreign currency deposits in domestic banks, is welcome, provided that these indicators act only as a reference and guide to aide

the Fund and government authorities to detect vulnerabilities and are not included as one of the compulsory financial indicators that countries are expected to observe.

Rolling liquidity analysis where reserve coverage ratios are projected, can certainly provide additional information. Nonetheless, these should be computed for reference purposes only. One of Mexico's 2003 Selected Issues Paper recent exercise provides evidence on how this type of indicators, if not properly measured, can become a cause for concern. A staff paper on reserve adequacy of the Central Bank motivated a serious and heated debate between staff, my authorities and myself. As a result of methodological differences and data sources, reserve projections and carrying cost measures produced by staff resulted in huge discrepancies (of about half a percentage point of GDP) with what my authorities considered an adequate and reliable measure. Given this experience, I see with concern this type of measures be taken too seriously by staff, particularly when there is not yet an agreed methodology to be used, and thus becoming operational as a benchmark that countries would be expected to adhere to.

Moreover, indicators that rely on information on foreign private corporate debt should also be taken with caution. Besides the well known problems to obtain and verify the quality of this information, on many occasions, these liabilities are related to trade transactions where the principal is backed by the underlying activity. Trade financing and other lines of credit for trade- and business-related activities are ample and many of those, even in a crisis scenario, would not require reserve coverage by the central bank.

I agree with staff that reserve adequacy assessments require a comprehensive understanding of institutional arrangements and practices. Public debt management, supervision and regulation of financial institutions, corporate governance, and the exchange rate regime, among other variables, are important determinants of reserve's adequacy. Furthermore, before computing the referred augmented ratios to infer reserve adequacy, institutional arrangements should be thoroughly understood and considered.

That is, as opposed to staff's recommendation to compute the referred ratios taking into consideration the underlying institutional arrangements, we would prefer to assess reserve adequacy with institutional arrangements in mind, such as the exchange rate regime for example, and then, if deemed necessary, to complement the analysis with the aforementioned augmented ratios or with any other relevant information.

Additionally, instead of the Fund policing countries to comply with the proposed ratios, the institution can help economies reduce vulnerabilities associated with currency mismatches by providing technical assistance on the

required institutional arrangements. Advice and support on regulation, supervision and on the development of hedging markets would greatly benefit countries.

It is encouraging to see that the Fund is now better prepared and equipped to detect vulnerabilities and sources of instability. However, it seems difficult to develop a set of indicators that would bring us home safe and free. I would rather opt for a more comprehensive and unbiased view of each economy, taking proper consideration of its underlying institutional arrangements, where, if needed, the augmented ratios or other indicators, depending on the case at hand, can freely be constructed and analyzed.

On public debt and on the promotion of sound private liability management, we coincide with the views presented in the paper and believe that these could indeed help focus Fund's policy advice on these matters.

Mr. Portugal and Mr. Tombini submitted the following statement:

The paper's exclusive focus on emerging markets, and in particular its emphasis on Latin America, is inappropriate and disappointing. We see no justification for leaving advanced economies out from staff's analysis, particularly on topics such as public debt management. The paper is poor in terms of presenting convincing justification for some of the proposals presented, in particular the suggested augmented benchmarks for reserve adequacy. In spite of treating the issues superficially, the staff makes the surprising claim that the paper has established clear links between the structure of public debt and the composition of liabilities of the private sector and the magnitude of potential pressures on reserves. There are some issues raised for discussion that have barely been addressed in the paper.

The paper fails to address an important issue that has been present in the various crisis episodes of the 1990s and beyond, namely, the effects on emerging market economies of changes in the monetary policy stance of advanced economies. It would be quite useful if staff would analyze carefully ways in which these policies have affected emerging economies, helping them minimize the detrimental effects of the capital flows cycle, as observed in 1993–94, 1996–97 and 2003–04.

We remain particularly unconvinced by the staff's emphasis on public debt obligations to residents indexed to a foreign currency as a key source of pressure on foreign exchange. The staff suggests that, in spite of not involving BoP flows, these liabilities (indexed to a foreign currency) may induce substantial demand for foreign exchange under certain circumstances. The "logic" behind this argument rests on the view that in periods of stress, residents may call into question the public sector's capacity to honor this type of debt, and thus switch to "real dollars". We believe the argument used to justify a special status to "foreign-exchange indexed" debt is flawed for the following reasons:

First, if there are concerns regarding the capacity of the public sector to repay its debt, the flight out of local currency holdings would take place irrespective of the nature of the instrument. This could happen with floating interest rate instruments, fixed-rate instruments, and inflation-indexed instruments. There is no point in singling out dollar-indexed instruments. Since the flight from local currency, if it happens, would not likely be related to the nature of the instrument itself, an "augmented" ratio would require the addition of further instruments to the numerator, and in the end the indicator would become a ratio of broad money to reserves, an indicator that, as staff acknowledges in paragraph 19, second bullet, "has not shown to be that valuable".

Second, the staff should have carefully examined the factors affecting the demand for such "dollar-indexed instruments". Our view is that the demand for "dollar-indexed" bonds is, to a large extent, linked to capital inflows. In the absence of well-developed markets that could generate sufficient private supply of exchange-rate hedging, players borrowing in foreign currency in international markets see these instruments as a way to hedge their dollar liabilities in the domestic market. While there is obviously a portion of the demand that may be purely speculative, the main source of demand for dollar-indexed instruments emerges from international capital inflows, whose counterpart is the stock of private external debt. Therefore, the pressure on the exchange rate or on international reserves, at the end of the day, derives from the need of private agents to repay their external debts, and not because they decide to switch to other sources of hedging such as spot holdings of dollars.

For the above reasons, it is unclear that the reserve adequacy assessment would gain with the proposed "augmented" ratio, which encompasses "dollar-indexed government bonds" in addition to short-term external debt. For instance, the change in the demand for exchange rate-indexed bonds (and foreign exchange swaps) tends to be positively correlated with the change in short-term private external debt, which will render the inclusion of dollar-indexed debt in the augmented ratio redundant for anticipating pressures on international reserves and would create a double counting of such pressures.

Additionally, if consideration is given to "augmenting" the numerator of reserve adequacy ratios, we might need to consider what should be counted in the denominator as well. For instance, a case might be made for adding to the denominator undrawn balances from contingent credit lines and resources of oil stabilization funds, to mention a few examples.

The staff pays lip service to the analysis of country specific circumstances in considering reserves adequacy. But, in fact, the staff's proposed ratio of reserves to short-term external debt and the proposed benchmark value of one for all countries, entirely disregards country-specific circumstances. The most important country circumstance, namely the type of exchange rate regime, is ignored by the staff. The proposed benchmark value of one for the ratio does not

vary according to the type of exchange rate regime. The staff argues that such ratio is the starting point of analysis, but the recommended value of one to ratio never changes during the analysis. The idea to present cross-country tables displaying short-term external debt to reserves ratios, which we do not support, is another way of ignoring country-specific circumstances.

The examples quoted in the paper refer to countries and periods when a fixed exchange rate was pursued or a transition was being made from a fixed to a floating exchange rate regime. The staff should have studied the behavior of the variables during crises under a flexible exchange rate to assess whether a benchmark value of one would be appropriate.

We also not only found useless, but also see significant problems in the proposal of undertaking "rolling liquidity analysis". The staff proposes to project a baseline trajectory for the reserve-ratios, while also adding alternative scenarios. We fail to see how projecting the ratio in the short and medium term would be useful to orient policy decisions. More importantly, we think that projecting this reserve ratio under alternative scenarios is a naïve and dangerous proposition. The implication is twofold: first, the authorities or the Fund in projecting an alternative path for the reserve ratio would be giving away important information as to what would be the policy reaction function under certain circumstances (alternative scenario); second, this type of mechanistic projection would give the wrong impression that the policy response will be independent of the existing circumstances of a given economy, such as, for instance, the economy's position in the cycle. If this bad idea prospers, then staff should add favorable alternative scenarios as well.

The idea to consider external liabilities of the private sector in the assessment of reserves adequacy is based on the idea that the public sector is going to bail out the private sector. This is likely to generate serious moral hazard concerns. In spite of moral hazard being central to the topic under discussion, the staff simply mentions it in a footnote and the paper does not analyze the issue.

We appreciate the staff's call for further examination of the costs and benefits of holding international reserves and agree with the view that the desirable level of international reserves should reflect specific circumstances, including institutional strength as well as the chosen policy framework. In this regard, we share staff's view that more reserves are not always better.

On public debt management, we broadly agree that a desirable composition of public debt should reflect the revenue structure of the public sector, limiting, as market conditions allow, the indexation of debt instruments to variables such as the interest rate and exchange rate. However, as the staff acknowledged, adequate debt management is no substitute for sound macroeconomic policies and often the debt structure—including composition and maturity—reflects the macroeconomic circumstances, and not the other way

around. Accordingly, we agree with the staff that lengthening public debt maturity should not be undertaken irrespective of cost. It should be mentioned, however, that a blanket recommendation to avoid completely foreign-exchange indexed debt would be ill-advised. As noted in Appendix IV, the debt to GDP ratio is affected not by the nominal depreciation of the currency, but by the excess of nominal exchange rate depreciation over GDP growth. If the real exchange rate displays a mean reversal behavior over time, long-term foreign exchange indexed bonds issued in periods of weaker-than-average currency might be a financially sound issuance strategy.

The paper contains a useful suggestion that we would like the staff to further explore. This is the proposition made in paragraph 34, which suggests gradually increasing the interest rate resetting periods on floating-rate debt.

We agree that mismatches in foreign currency in the banking system should be carefully regulated and monitored. However, we do not agree with staff's call for close monitoring of corporate sector indicators as part of the Fund's policy advice. The available data for undertaking such monitoring is in most countries partial and unreliable. The banking system is usually well-positioned to assess corporate sector information and the public sector should direct its focus to overseeing the risks contained in banking operations. Going one step further to directly monitor corporate sector indicators is expensive and intrusive. In less developed capital markets, such as in emerging market countries where financial resources are mainly intermediated through banks, there is little to gain from direct monitoring of financial indicators of non-financial corporations. Box 1 complains that non-financial corporations are difficult to regulate and suggests that the authorities monitor the overall capital adequacy of non-financial private sector institutions. However, there are no specific agreed capital requirements for non-financial corporations or for sectors of activity. We believe that the definition of such requirements would be an undue and unwarranted interference of the public sector in private business and fail to understand what the staff has in mind.

With respect to foreign exchange risk, an alternative to regulating or monitoring the corporate private sector in the borrowing country would be to regulate and monitor banks in the lending country, something that is not sufficiently explored by the staff.

Paragraph 47 raises some issues for discussion that have not been dealt with in the required detail in the paper. We agree with the suggested further work with respect to the first bullet point that deals with data reconciliation. However, we do not endorse the proposals for further work in the second bullet point where the staff suggests developing deficit or debt indicators that reflect potential costs of price or exchange rate indexation. Progress made in enhancing the Fund's Debt Sustainability Assessment (DSA) has been adequate, and the framework is still

too recent for us to undertake further steps at this point. Additionally, as currently framed, the DSA already reflects, in essence, the underlying debt structure.

Mr. Torres and Mr. Pereyra submitted the following statement:

We welcome this follow-up to the staff's work on liquidity management, which underscores the key role of reserves in providing a liquidity buffer against shocks, and proposes to broaden its framework to address a wider range of potential sources of pressure. The issue has analytical, methodological, and policy advice implications that bear importantly on the Fund's surveillance work. At the same time, the staff report stresses that sound indicators and financial stability rely basically on the strength of the macroeconomic framework—and therefore the ability to preserve and improve confidence. In this regard, we note the staff's remark that "reserves can neither substitute for sound policies nor make up for fundamental external imbalances."

Regarding the potential sources of pressures on reserves, the staff acknowledges that a higher level of reserves may be necessary in countries where the export base is narrow and the price of the few key exports is particularly volatile. This is, unfortunately, the case of several developing countries and emerging economies where exports are highly concentrated in a few agricultural commodities whose prices are subject to unpredictable climate factors, and also to the very predictable effects of the export and production subsidies massively used in several OECD countries. These economic incentives, by dumping surpluses onto the international market and by isolating domestic producers from the message conveyed by depressed prices, compound the price volatility that is intrinsic to agricultural commodity production.

Beyond this, the staff also explores the scope for other possible sources of strain on reserves. In this respect, the staff points out that resident investors holding public or private obligations denominated in, or indexed to, foreign currency, may generate a sudden increase in demand for foreign currency, if they perceive a weakening in the ability to roll over such debt. While under a peg reserves would automatically fall if such pressures materialize, under a flexible exchange rate regime an abrupt depreciation of the currency could occur. The staff also warns about public guarantees that can result in the transfer of external liabilities of the private sector to the government. Quite importantly, this expanded approach draws attention on the key institutional arrangements and practices that would be instrumental in preventing potential sources of pressures on reserves, as described in paragraph 18.

We welcome the staff's proposals to enhance the Fund's current methodology along the lines described in paragraph 21. In this respect, we would like to offer the following comments:

Work should continue to develop augmented ratios of debt liabilities to reserves, including "rules of thumb" that can be readily constructed and interpreted, to take account of the risks from foreign currency liabilities to residents. Therefore, it is appropriate to consider the ratio of short-term foreign currency-linked public domestic debt—in addition to short-term external debt—to reserves, as well as the banking sector's capacity to cover their foreign currency liabilities—that is, residents' foreign currency deposits in domestic banks net of domestic banks' liquid foreign currency assets to reserves.

Regarding the suggestion to develop ratios covering the medium term (rolling liquidity analysis), we agree that it could be instrumental in reinforcing the projections and stress testing in debt sustainability exercises. By the same token, the main considerations for the design of the debt sustainability framework should apply to the design of the proposed rolling ratios, i.e., that scenarios should incorporate both upside and downside risks, so that baseline scenarios are not turned into best-case scenarios. Also, while a longer-term approach can be useful in exploring trends and identifying future risks, due to forecasting limitations and the risk of inducing adverse market expectations, use of "threshold" levels for reserve coverage ratios should be avoided. With these considerations, cross-country tables showing short-term external debt to reserves ratios as well as the augmented ratios could become part of selected multilateral surveillance exercises, as suggested by the staff. In addition, we would like to ask the staff to elaborate on the nature and use of the short-to-medium-term reserve targets mentioned in bullet 2 of paragraph 21.

In this context, it is appropriate to extend the scope for institutional arrangements and practices to include public debt management, financial supervision and regulation, corporate governance, and the level of financial development. In particular, from the experience in several countries, an adequate insolvency regime reduces risks of disorderly movements in the financial market or costly official intervention, and therefore contributes significantly to strengthening market confidence.

We would like to make the following comments on the staff's policy advice regarding currency and maturity/rollover risks embedded in public debt (paragraphs 31-35):

Extending maturities can provide a considerable buffer in case pressures on reserves increase. However, as the staff points out, it is necessary to evaluate the cost of such lengthening, as well as other important tradeoffs—especially increasing reserves vis-à-vis reducing debt stocks in buy-back operations.

The use of inflation-indexed debt instruments in domestic currency, as in the case of Chile, provides an avenue to be explored by countries seeking to diminish the vulnerabilities associated with exchange-rate-linked debt. As pointed out by the staff, given that the surge in domestic prices during crises tends to be

smaller that the depreciation in the exchange rate, they offer a significant hedge. Moreover, they can contribute to de-dollarization by increasing bank intermediation in domestic currency, and provide an interest rate benchmark for main financial transactions. It should be kept in mind, however, that successful implementation depends crucially on the achievement of low and stable inflation by an independent central bank.

We agree on the risks arising from interest and exchange rate mismatches in private balance sheets, as well as on the staff's emphasis on the possibility that they can undermine the ability to implement necessary monetary and exchange rate policy adjustments. Also, it should be underscored that dollarization is the result of the experience with high inflation episodes; that de-dollarization cannot be forced but rather induced through a gradual build-up of confidence in the macroeconomic framework; and that during such process even a significant level of dollarization can be made consistent with lowering vulnerability through the development of adequate hedging instruments and markets (as explained in Box 1). Furthermore, banking practices should adapt to a dollarized environment—for example requiring debtors to hedge, either through assets or earnings in foreign currency, or by means of financial instruments.

In any case, financial supervision should emphasize regulation and monitoring of maturity and currency mismatches, and we concur that they are essential to increase market discipline and ensure financial stability. Moreover, we welcome the staff's stress on the need to expand regulation to include close reviews on banks' foreign currency lending practices; monitoring and disclosure of mismatches in the corporate sector; and disclosure requirements on interest and exchange rate exposures by corporations in the context of stock listing and borrowing operations.

We see merit in continuing work on the analytical issues listed in paragraph 47, such as refining the debt sustainability framework by better reflecting debt structure, as well as achieving a full cost-benefit analysis of reserve accumulation by incorporating forward-looking elements. Particularly, specification of assumptions about elements such as future potential shocks is technically difficult, and therefore should be approached carefully.

As regards other analytical topics that deserve further consideration (question posed in paragraph 47, in fine), we believe that it would highly important to consider in a next board meeting what are the effects of subsidies with pro-cyclical effects on prices in determining the appropriate level of reserves for countries whose current account is dependant on exports of agricultural commodities. In this respect, the staff could draw on previous assessments made by the OECD secretariat on the price effects in the international markets of subsidies to agriculture.

Finally, as it has been pointed out in past Board meetings, data limitations—especially regarding the debt structure and the assets and liabilities of the banking sector—need to be addressed, mainly for balance sheet analysis. We welcome the work already done in some member countries (including in this constituency), and look forward to the next discussion on the occasion of the 2004 biennial surveillance review.

Mr. Bennett submitted the following statement:

Key Points

While a high level of reserves can buy time for corrective action, prudent policy and sound institutions are the best defences against crises.

Although private foreign liabilities can exert pressure on public reserves, we would caution against members accumulating reserves as a buffer against private sector currency mismatches. The Fund should advise governments on ways to increase incentives for private liquidity management that minimizes vulnerabilities.

Reserve adequacy should be assessed from the larger perspective of foreign currency sources and uses.

There is scope to reduce data deficiencies through enhancing the coverage of the SDDS.

Stress testing of reserve adequacy is important.

Prudent policy and a sound institutional environment is essential

We broadly agree with the paper's main conclusions. Foreign exchange reserves can provide a liquidity cushion to help withstand periods of stress. However, they can neither substitute for sound macroeconomic policies and prudent debt management, nor make up for fundamental external imbalances. At best, they buy time to put in place corrective policies. We agree that the paper's specific principles on containing risks related to the currency and maturity structure of public debt complement those laid out in the Guidelines for Public Management and should underpin the Fund's policy advice. Moreover, the interactions between macroeconomic policy and liquidity management should become a more prominent aspect of Fund surveillance (in both Article IV consultations and UFR documents), as should policy recommendations to minimize economic vulnerabilities created by interest rate exposure, currency risks, and foreign currency mismatches.

The private sector needs incentives to manage its liabilities prudently; the public sector should not take responsibility for private mismatches

The staff notes that private foreign liabilities can exert pressure on public reserves. However, as elaborated by Messrs. Portugal and Tombini, simply assessing the adequacy of reserves against potential public and private draws could exacerbate the problem of unhedged private liabilities by reinforcing implicit public guarantees. We would caution against advising members to accumulate reserves as a buffer against private sector currency mismatches. Just as foreign exchange risk hedging is greater when the government does not guarantee the value of the currency, we would expect the private sector to take more care in managing its exposures when the buffer is its equity capital and not public reserves. Thus, it is important that the Fund advise governments on ways to increase incentives for prudent private liquidity management. In that context:

Strong regulatory regimes, particularly for the banking sector, are important. In the absence of clear guidance from the Basel Committee, we think that the Fund could work with supervisors to delineate what best practice is for reducing currency mismatches in the banking system and disseminate this information to the membership.

An efficient bankruptcy regime is also essential in limiting draws on international reserves. The government needs to dispel any notion of implicit guarantee and actually allow bankruptcies to take place for there to be an incentive for the private sector to exert prudence.

Reserve Adequacy Can Be Assessed from an Even Broader Perspective

We appreciate the staff's efforts to improve the current approach to reserve adequacy. We support looking at measures that go beyond short-term external debt to reserves since short-term debt is not the only draw on international reserves. We would go a step beyond what the staff proposes and look at reserve adequacy in an even broader context—the entire picture on foreign currency sources and uses.

Sources of foreign exchange include reserves, exports and net transfers. Debt service and imports are uses of foreign exchange. Recent research has shown that the ratio of uses to sources of foreign exchange is a good predictor of default. From this perspective, the adequacy of reserves depends on the magnitude of the other sources and uses. For example, a large trade deficit or high debt service would argue for a larger stock of reserves. Moreover, the benefit of holding more reserves can be calibrated in terms of a lower probability of default. Since the sources and uses are somewhat fungible, this framework also points out the alternatives to increasing reserves—lengthening the maturity of external debt to lower amortizations or engineering an improvement in the trade balance.

Finally, the data requirements for measuring the sources and uses of foreign exchange are relatively easy to obtain.

We also concur with Mr. Schwartz that it is important to give adequate weight to country-specific institutional arrangements when assessing augmented ratios and making inferences on reserve adequacy. Nevertheless, these ratios are essential in terms of making informed quantitative judgments on reserve adequacy and should become a standard part of Fund surveillance. In particular, we believe that it would be useful to include cross-country comparisons of short-term external debt to reserves (as well as augmented ratios) in all surveillance documents.

Surveillance Can Be Strengthened by Broadening the Coverage of the SDDS

This paper reaffirms the continuing work on the balance sheet approach in getting a clearer picture of vulnerabilities. Progress has been made in operationalizing this analysis, but data deficiencies remain a key constraint. There is scope to address this problem through the SDDS by broadening the data coverage in select areas, namely: i) non-central government portion of "public and guaranteed debt"; ii) domestic and external public financial assets, and iii) external debt service (only an encouraged item). We look forward to the upcoming biennial review of surveillance which will provide an opportunity to review the balance sheet approach in the Fund's work and consider data issues more generally.

Stress Testing is Important

On other analytical priorities, we welcome the emphasis on rolling liquidity analyses under a baseline and different alternative scenarios. Stress testing along these lines can provide significant useful information that would both complement and enhance projections and stress tests made in the context of the debt sustainability framework. We encourage the staff to broaden DSAs to incorporate this analytical innovation so as to give a clearer indication of macroeconomic risks and policy priorities in the medium term, including short-to medium-term reserve targets.

Mr. Callaghan and Mr. Cho submitted the following statement:

Key Points

This is a useful paper, although great care is required in specifying a benchmark for determining reserve adequacy.

While the paper says that such benchmarks are only a 'starting point', there is a danger that they may attract excessive attention and country-specific and qualitative judgments will be overlooked.

The two augmented ratios are most applicable to dollarized economies and their usefulness will depend on data availability.

Foreign portfolio investment can be a major source of foreign exchange volatility in emerging markets.

A detailed, country-specific cost-benefit analysis of reserve accumulation is difficult and 'false science' in undertaking such analysis should be avoided.

The staff have produced a useful paper which complements a range of work on such topics as: balance sheet analysis; guidelines on public debt management; financial stability in dollarized economies; and, most recently, sovereign debt structures for crisis prevention. Our comments cover some of the general issues related to the topics covered in the paper as well as a few specific matters.

Reserve Adequacy

It is appropriate to build buffers to handle liquidity shocks and reserves can serve this purpose. However, there are a range of difficulties when the Fund attempts to identify what constitutes an adequate level of reserves for a particular country (the reference in paragraph 10 should preferably be an 'adequate' rather than 'sizeable' level of reserves).

Problems with Using Benchmarks for Reserve Adequacy

There is the danger that in specifying a benchmark to determine the adequacy of a country's reserve levels, this may give an impression that a country is insulated from shocks or, at worse, contribute to a weakening in the stance of domestic policy settings. A point that is mentioned in the paper but needs to be appropriately emphasized is that reserves are not a substitute for sound policies and will not overcome fundamental external imbalances. Mr. Schwartz highlights this point in his preliminary statement.

The Importance of Considering Country-Specific Circumstances

Any attempt to assess what constitutes an adequate level of reserves for a country must focus on the specific circumstances facing the country. As the paper notes, some of the factors that may affect the magnitude of pressure on reserves for a country include: exchange rate arrangements; degree of openness of the capital account; external imbalances; foreign currency obligations to non-residents; public obligations indexed to foreign currencies; external liabilities of

the private sector; public debt management; degree of financial market development; supervision and regulations of financial institutions; adequacy of corporate governance and insolvency regime; macroeconomic management and overall policy credibility.

Only some of the above factors can be assessed in any quantitative sense and the rest depends on qualitative judgments. While a quantitative benchmark such as the ratio of short-term external debt to reserves may be, as the paper states, a useful 'starting point' for determining reserve adequacy, the danger is that the caveats around the benchmark and the need for country-specific, qualitative judgments may be overlooked. Similarly, the two augmented ratios raised in the paper are most applicable to dollarized economies and are not as relevant for all economies. There is a tendency for the market to rely heavily on financial indicators since (a) these provide a quantifiable basis for review and therefore are regarded as a more objective assessment, and (b) they are relatively more available as compared with qualitative-based country-specific factors. The Fund's declared use of quantitative financial indicators may fuel this tendency, leaving less room for country-specific considerations.

With this general caveat in mind, we offer a few comments on some of the specific issues raised in the paper.

First, data availability is essential for valid assessments of reserve adequacy. The adoption of the two augmented ratios should ideally proceed in tandem with the enhancement of information systems, particularly with respect to private sector balance sheets. This would in turn require further consultation and more detailed institutional arrangements with regulatory authorities.

Second, the "starting point" with respect to reserve adequacy focuses on a country's short-term external debt position. The paper recognizes, however, that short-term debt is not the only factor which can influence pressure on reserves. Foreign portfolio investment, particularly in equities, can be another major source of foreign exchange volatility in emerging markets. Consequently, the proportion of foreign investment in a country's stocks can also be another relevant consideration in determining reserve adequacy.

Third, a country-specific assessment of reserve adequacy would require a detailed cost-benefit analysis of reserve accumulation. This is a difficult task, for the 'cost' side of the equation is substantially easier to calculate than the 'benefits', which would require a precise identification of the cost and probability of crises. The paper concludes that 'work on some of these issues (namely, cost-benefit analysis) is being pursued. We have significant reservations as to how far definitive, country-specific cost-benefit analysis on reserve accumulation can be taken and we are fearful of excessive 'false science' with such work.

The policy advice regarding public debt management was covered in some depth in the recent seminar on sovereign debt structures. We fear, however, that it is easier to make a theoretical assessment as to the most appropriate public debt structure for a country than to convince a country of the desirability to adjust its approach to debt management. For example, while it may be apparent that the risks associated with foreign currency-denominated debt are significant in countries where the exchange rate is overvalued, in practice each country may well dispute whether their exchange rate is in fact overvalued.

In addition, the paper notes that for countries whose current debt structure is low and who have no external imbalances, then issuing a portion of public debt in foreign currency may be appropriate. This could be seen as somewhat analogous to the claim that in order to avoid any default risk, banks are only willing to lend money to those who do not need to borrow. As was noted in the seminar on sovereign debt structures, greater reliance on short-term and foreign currency debt by emerging markets is because of problems they have in issuing long-term local currency debt on their domestic markets.

The commentary on private liability management raises similar issues. As the paper notes, ideally the private sector would minimize liquidity risk by hedging exposures and building adequate buffers against rollover risks. However, we do not live in an ideal world and both the public and private sectors are exposed to significant interest and exchange rate risks because long-term domestic financing is not available or the exchange rate risks associated with foreign borrowing are discounted because of explicit or implicit public exchange rate guarantees—such as a fixed exchange rate. The paper identifies a range of regulatory or disclosure requirements in order to reduce interest rate and currency exposures, although they largely depend on the existence of a robust regulatory environment and strong institutional arrangements.

Mr. Meissner and Mr. Meyerhoefer submitted the following statement:

We commend staff's further work on the adequacy of reserves and on public and private liability management. Both are core questions in the context of crisis prevention and their relevance for the stability of the national and the international financial systems cannot be overestimated.

The paper's analysis of reserve adequacy considers the costs and benefits of holding reserves, the degree of access to international capital markets, the potential sources of pressures on reserves, and the role of institutional arrangements and practices. Do members agree?

We deem in particular important the work on the effects which the macroeconomic and institutional background of a country has on reserves, indebtedness, and the exchange rate policy.

In this context and given that economies with a fixed exchange rate regime tend to be more vulnerable to a sudden depreciation of the exchange rate and the following outflow of reserves and liquidity squeeze, it would be interesting to learn why countries with flexible exchange rate regimes do not hold lower reserves than those with fixed exchange rates.

The paper takes the view that the Fund's current operational approach to reserve adequacy, while still broadly appropriate, would benefit from some enhancements that could be used in both bilateral and multilateral surveillance. Do Directors agree?

We endorse for further work aiming at an enhancement of the current approach, while at the same time we share staff's view that the ratio of short-term external debt to reserves remains a particularly useful indicator and the benchmark value of one can continue to serve as a starting point of the analysis.

However, it remains unclear how additional indicators proposed by staff have been selected. The highest statistical correlation in terms of predicting a crisis can be achieved by augmenting the short-term external debt by the current account position. Against this background, we would welcome staff's comments why this indicator has not been selected, in particular as the current account position is crucial also for countries which have access to capital markets (Fig. II.1 and II.2).

We share staff's view that rolling liquidity analysis can provide significant additional information and complement the projections and stress testing made in the context of the debt sustainability framework.

In general, a pure mechanistic approach to the use of indicators should be avoided. Normative targets (benchmarks) could be misleading and/or be not operational given additional country specific institutional factors. E.g. a ratio of short-term debt to reserves of above one can still be sustainable for a country in a stable macroeconomic environment and with access to foreign currency revenues, whereas a more favorable ratio can be not sustainable if the country experiences an environment of significant external shocks.

What are Directors' views on public debt management?

We concur with staff that public debt should ideally be mainly denominated in domestic currency—in line with government revenues—and be of long average maturity without any marked lumpiness in the repayment schedule, so as to reduce risks emerging from credit roll-overs, and significant and sudden exchange rate adjustments. Precondition for a domestic market being able to absorb long-term maturity public debt is a long and stable macroeconomic track record, in particular an internally and externally stable currency, a prudent fiscal

stance, as well as a strong regulatory framework promoting transparency and sound financial institutions.

For institutional reasons, an external debt management agency might increase efficiency and focus on profitability and risk assessment.

If issuing foreign currency debt is considered, the bonds should be denominated in a currency that is linked to some sources of the country's external income (currency match, e.g. oil revenues and US$). Hedging the foreign currency denominated debt, if available, could be a complimentary measure to insolate foreign currency debts against external shocks.

Finally, the discussion of public debt management should not exclude the absolute level of public debt. According to the findings of the WEO of September 2003 the sustainable debt level of EMEs is at approximately 25 to 50 percent of GDP, thus significantly lower than their recent actual level of indebtedness of approximately 70 percent.

What are Directors' views on promotion of sound private liability management?

In view to overall economic risks emerging from liquidity constraints and an unsustainable debt level in the private sector, a well functioning debt and risk management, also in the private sector of the economy is of great importance. Here, we see a high responsibility of regulators to provide the appropriate legal framework to promote stable balance sheets in the private sector that are able to resist financial crisis and that do not generate pressure on foreign reserves, damage public liquidity and solvency, and do not undermine the authorities' ability to respond effectively to external shocks. Setting an adequate framework is even more important as in economies without capital control, coverage and structure of liabilities of the private sector, especially the non-banking sector, are difficult to assess.

Taking exposure in foreign currencies bears many risks for the private sector and for the economy as a whole. In particular, in economies with a long-standing fixed exchange rate regime and a stable level of interest rates, the perception of market participants in view to currency and/or interest rate risks might have been eroded over time. Against this backdrop, an exposure in foreign currencies should not be taken as a substitute neither for a sound equity capital basis nor for debt issued in the domestic market. Therefore, regulators must assure (a) that market participants are aware of the risks associated with an exposure denominated in foreign currencies, (b) that the building of equity capital is promoted, or at least not discriminated by tax legislation, and (c) that an adequate role of domestic borrowing is allowed and that credible alternatives, in particular a well functioning domestic capital market, exist.

In the financial sector, crisis prevention should focus on the banks' own controlling and management of risks. These should be subject to the transparent rules of banking supervision. If the banks themselves do not yet have the administrative capacities for a comprehensive risk controlling, adequate reserves and deposit insurances, in particular for credit risks denominated in foreign currencies, should be at the core of policy objectives.

Do Directors see merit in pursuing these analytical issues? Are there other analytical topics that deserve to be considered further?

We support further analytical work and its operationalization on an enhanced debt sustainability analysis, and comment their extension to alternative scenarios and stress tests. Moreover, efforts should focus on further integrating the Fund's work on the adequacy of reserves, liquidity management and debt sustainability analysis.

Mr. Padoan and Mr. Lombardi submitted the following statement:

The main challenge is to translate good principles into operational advice.

The roles of, and interactions between, reserve adequacy, public debt management and private liability management in crisis prevention have traditionally been underestimated both in academia and in policymaking. The paper before us today is welcome since it sheds light on an issue of particular importance for the Fund's membership. In doing so, it integrates results from the current literature, develops new reserve adequacy indicators and aims to reconcile the use of benchmark indicators with country-specific factors, including the exchange rate regime, the existence and nature of capital controls, the financial sector supervision and regulation and the framework of corporate governance.

We agree with the thrust of the staff analysis and its policy implications as outlined in this paper. We strongly encourage staff to fully operationalize the implications of this study into the current framework of economic and financial surveillance. We expect that such principles be translated into clear guidance for staff. For instance, with reference to reserve adequacy, the development of rolling liquidity analysis could validly complement that on debt sustainability and help better identify potential vulnerabilities.

The Costs of Excessive Reserves Should be Further Explored

Still on reserve adequacy, we would have greatly appreciated insight coming from the application of the suggested framework to some country cases so as to give more operational content to general policy advice. For instance, what is the cost borne by those Asian countries holding large amounts of reserves given relevant institutional features such as exchange rate regimes and the degree of financial liberalization? Looking ahead, this is an important area where Staff

should try to operationalize the proposed framework to the benefit of the membership.

Quantitative Indicators Should be Evaluated in the Proper Institutional Context.

We also encourage the staff to carry out further robustness analysis on the additional indicators put forward in this paper. “Rule of thumb” thresholds for indicators should be adopted (also as a way to improve program design) only once ample evidence is provided in this respect. Also one should be wary of the fact that as the number of indicators increases so does their correlation, thus decreasing their informational content. Staff comments would be welcome.

FSAP Reviews Could Provide Important Advice

With reference to private liability management, the feasibility for the private sector to hedge its exposure vis-à-vis interest and exchange rate shocks is conditional on the degree of development of financial markets. In this respect, FSAP rsviews could provide important advice to relevant member countries. For instance, they could provide advice on the promotion of appropriate buffers and hedges in the private sector and, more in general, thoroughly assess liquidity risks that could have macroeconomic implications.

The Costs of Data Production Are by Far Surpassed by the Benefits of Crisis Prevention

We concur that the paper highlights the need for sufficiently detailed data. While we look forward to the forthcoming biennial surveillance review, here we would like to put forward the following observation. That is, costs related to the production of more detailed statistics should be considered in light of the benefits stemming from a strengthened crisis prevention framework. As pointed out in the paper, capital account crises have sizable real effects that, for instance, during the emerging market crisis of the 1990s amounted to swings in real GDP growth of about 10 percent in the most directly-affected countries. Costs related to data production clearly stand at much lower levels.

The Implications for First Time Borrowers Should Be Better Clarified.

An aspect that is not explored in the paper regards the implications for those countries accessing capital markets for the first time. Following a recent Board paper on this issue by ICM, it would be interesting in the future to explore the implications of the proposed framework for the latter category of countries. For instance, what would the implications be in terms of the values of the proposed indicators? Which other indicators could also be helpful in assessing the liquidity risks faced by this category of countries?

Similarly, work could be done with reference to low-income pre-emerging countries that are likely in the near future to access private capital markets. How can the framework developed in the paper be adapted to them? Along the same lines, technical assistance and FSAP reviews could be further tailored to the specifics of this latter category of countries with the aim of better enabling them to access capital markets in the future.

Mr. Misra submitted the following statement:

The paper views reserve adequacy purely from individual country's perspective and demand side. If the coverage had been extended to related issues from the multilateral perspective, it would have taken care of symmetrically the supply side problems of international liquidity.

Foreign currency denominated and indexed debt can be an important source of pressure, but this could be very serious in countries with high level of 'dollarization'. Reserves level is also an insurance in the process of capital account liberalization.

No single indicator can give a comprehensive view about the reserve adequacy. While we welcome two augmented measures, the process of reserves build up is equally important. New instrumentalities like stress testing should be complemented by conventional analysis and publication should guard against misinterpretation.

Lengthening of maturity of public debt may be useful in a cost-effective manner.

Monitoring of liquidity indicators would be helpful, but extreme caution needs to be taken in attempting cross-country comparisons. Regulation and supervision in this regard should be left to the authorities.

Filling up of debt gaps should be undertaken within the scope of cooperative and voluntary approaches.

We welcome the seminar on liquidity management highlighting the consolidated work done by the Fund in relevant areas and indicating avenues for further work. The paper rightly focuses upon external sector, touching at the same time links with the domestic public and private sectors.

While a major part of the paper is devoted to aspects relating to reserve adequacy, in our view, the reserve adequacy in the paper is viewed purely from the individual countries' perspective concentrating essentially on the demand side. If the coverage had been extended to other related issues in the context of fast integrating global markets and economy from a multilateral perspective, it would have taken care of symmetrically the supply side problems of international

liquidity. Such issues would include *inter alia* the role of the Fund as a lender and insuring against risks and unexpected shocks, the maturation process of the international capital markets and how the strengthening of this maturation process could arrest sudden reversal of capital flows or ensure stable capital flows governed more by fundamentals rather than speculative information and the role of exchange rate regimes and management particularly of major currency areas to avoid high volatilities and disruptive adjustments. Yet another angle would be the questions relating to regional currency arrangements and initiatives like the Asian Bond Fund in influencing adequacy of reserves.

We broadly agree with the view that foreign currency denominated and indexed claims among residents can be an important source of pressure on reserves. In this context, the efficacy of the financial supervisory and the regulatory regimes and the quality of corporate governance practices have only indirect influences on the perceptions of the required level of reserves. Credibility of the overall policy framework is the crucial element in this regard. The level of reserves would also depend on the extent of foreign currency denominated debt held by local residents as a proportion to the total debt denominated in foreign currency which could vary widely across countries. The level is expected to be much higher in countries with high level of 'dollarization'. The level of foreign currency denominated debt held by residents is expected to be much lower for most of the EMEs. Thus, the effect of 'dollarization' on reserve levels would be mostly restricted to a few country groups. Secondly, the fact that higher reserves are required in the process of liberalizing capital account as an insurance against unexpected shocks also needs to be recognized , as evident in the aftermath of the East Asian financial crisis.

In our view, no single indicator can give a comprehensive view about the adequacy of reserves. Traditional indicators based on import cover would be as important, given a specific situation, as other capital-account based measures of reserve adequacy such as the ratio of short-term debt to total reserves. We would favor a broad based and multi-indicator approach towards measurement of reserve adequacy. While we welcome the proposal for introduction of two more augmented measures of reserve adequacy, we re-iterate the relative relevance of such measures more for countries, which have undergone significant dollarization. We therefore support the recognition of country specific institutional factors in reserve adequacy assessments. In this regard, we stress three points. First, there is a need to give adequate focus on the process of reserve build-up over a period of time in addition to the quantum based indicators. Second, in the context of adoption of stress testing, such new instrumentalities should be undertaken with caution and complemented by other conventional and time tested approaches such as the traditional ratio based analysis. Finally and not least of all, publication of such findings should be closely monitored lest the results could be misinterpreted.

Regarding public debt management, lengthening of the maturity of public debt, in principle is desirable from a liquidity perspective. The paper rightly cautions that lengthening average debt maturity should not be undertaken irrespective of cost. Cost-effective strategies such as gradually increasing the interest rate resetting periods on floating rate debt to reduce rollover and interest rate risk, and issuing inflation indexed debt are indeed welcome.

As was evident during the East Asian crisis, presence of explicit and implicit government guarantees could encourage unfettered increase in unhedged exposures of the private sector. The resulting imbalances in the balance sheet of the private sector could pose a threat particularly when a currency peg is found to be unsustainable. Policies towards the management of liquidity risks, thus, should also consider the moral hazard of domestic borrowers arising out of expectations about their being bailed out in the event of a crisis. We broadly agree with the suggestions for close monitoring of liquidity indicators and exposure of banking sector to private sector in regard to assessment of interest rate risks, maturity mismatches and currency risks. In this regard, it needs to be recognized that accounting and provisioning practices and norms vary significantly across countries and cross-country comparisons being difficult should be undertaken with extreme caution. Therefore, the design and instrumentalities for regulation and supervision of such risks should be left to the discretion of the country authorities.

As regards filling up of data gaps and various suggestions made in the paper, though there may be a need to strengthen the surveillance process on the lines suggested by the paper, the efficiency of the surveillance process in general, and the data provisions required to affect such surveillance, in particular, should be primarily contingent on the adoption of a voluntary and co-operative approach by the member countries. In the similar vein, the arguments for adopting the prescribed tools for assessing debt sustainability should be left to the discretion of member countries. In this context, efforts towards enhanced transparency should guard against becoming counter productive, as such enhanced postures could throw adverse market signals where situations may not really warrant. Candidness should be duly complemented by pragmatic considerations, while undertaking such exercises. Any discordance or asymmetry in market interpretation could adversely affect not only the member countries but would also undermine the co-operative principles that form the cornerstone of such a surveillance process.

Ms. Indrawati submitted the following statement:

We welcome this seminar, which further expands on the work to improve the effectiveness of surveillance and crisis prevention. The paper, in our view, essentially raises issues on two separate albeit related topics, i.e. reserve adequacy and liability management.

On the discussion on reserve adequacy, the paper points out that an assessment of adequacy would have to take into account exchange rate commitment arising from the exchange rate regime, and that the presence of capital controls or the flexibility of exchange rates would alleviate pressures on reserves. It should also be noted that countries that operate managed float regimes do not necessarily require more reserves, especially when there is flexibility to re-centre or widen band as needed.

In general, we believe that it is premature for the Fund to be taking any steps towards formalizing its advice on this issue. As is clear from this paper, "an authoritative and operational cost-benefit approach to reserve adequacy assessments is yet to be developed", and there are considerable challenges to achieving this goal, including the subjective nature of specifying assumptions. Even if such an approach were developed fully, it would still not be able to quantify the uncertainty factor characterized by the flaws in the international financial architecture, against which countries derive security from holding reserves, whether real or perceived. Specifically on the emerging economies in Asia, we note the Fund's objective of calling attention to potential costs of holding "excessive" reserves, but against the backdrop of the Asian financial crisis, the explicit costs rather than the opportunity costs are the focus of concern. Moreover, more broadly, the benefits of holding reserves against not only financial crises, but also national disasters and other emergencies tend to be underestimated.

We understand conceptually why staff proposed the two augmented ratios and the rolling liquidity analysis to complement other indicators used by the Fund. In particular, we believe that the rolling liquidity analysis could be useful for medium-term assessments of reserve adequacy. However, we would appreciate clarification from a statistical perspective. For example, on the ratios, what is the definition for liquid foreign currency assets? Would domestic banks include foreign bank branches? On the rolling liquidity analysis, we would like to know the exact methodology and the added data requirements. Such an approach might be very onerous and difficult to implement. It is likely that many emerging economies would have problems collecting these data, and the Fund will be required to provide the technical assistance. Moreover, identifying shocks that are relevant to the economy and assessing its probability of occurrence and hence impact on reserves is relatively subjective. Staff and the authorities are likely to have differing views on the scenarios.

In general, we would emphasize that these indicators are only broad "rules of thumb" and the careful use of these in Fund surveillance is necessary. Indeed, we do not think that the tools that the Fund has at the moment could provide it with a comprehensive view on reserve adequacy in member countries, and as pointed out by Mr. Schwartz, these indicators should not be used as one-size-fits-all benchmarks against which countries' reserves are measured or compared. We do support the greater emphasis on country-specific analysis, which includes but

is not confined to the area of public debt management. Consideration should also be given to the depth of financial markets, openness and exposure to volatility in global financial flows, and the wealth of resources available to the country, among others. On the wealth accumulation aspect, we would like to encourage staff to look into the subjective time preference or discount rate across different countries in holding reserves. In many countries, reserves are valued as a store of wealth, and reflect the savings of the population. We feel that this aspect may also play a role in determining the levels of international reserves deemed "appropriate" for each member country.

On liability management, we support staff's efforts to explore enhancements to the Fund's policy advice on public and private debt management. We broadly agree with the framework to focus the Fund's advice on public debt management. On the lengthening of the maturity of public debt, which is desirable from a liquidity perspective, we would emphasize that it is equally important to avoid "bunching" of principal repayments, which could expose the country to future liquidity risks. Regarding the issuance of public debt in domestic currency, it can only be encouraged if there is a well-developed domestic debt market, hence priority should be given to supporting such activities.

For private liability management, we also broadly agree with the analytical considerations of staff. However, we share the concerns of other Directors who have highlighted the data shortcomings for proper analysis and policy advice. While corporates can be encouraged to have effective asset and liability management put in place to manage liquidity risks, as well as to increase transparency of their operations, the Fund would be better placed to assess vulnerabilities via the banking system where data is more readily available.

Mr. Shaalan and Mr. Bakhache submitted the following statement:

We welcome this opportunity to discuss issues of direct relevance to one of the Fund's core mandates, namely crisis prevention. The increasing integration of the world economy and the crises of recent years have brought issues of reserve adequacy and debt management to the forefront of the debate on crisis prevention. These issues are likely to take on more importance in the period ahead given the current state of the world economy and the potential vulnerabilities facing emerging markets in particular as we move into a higher interest rate environment. While we broadly agree with the messages of the well-written staff report, we have a number of comments to make on the issues for discussion.

On reserve adequacy, the fluctuation in current account flows is an important variable to take account of in determining the level of reserves that needs to be accumulated in many countries regardless whether they have limited or high access to capital markets. In fact, a number of emerging market economies, which have a relatively narrow export base and whose export prices are volatile, are subject to the traditional current account vulnerabilities regardless

of their exposure to international capital markets. Clearly though, as borrowing from international capital markets increases, demands placed on reserves are likely to become predominately of a capital account nature. In addition to the need to service foreign public debt, high demand for foreign exchange can occur if there is a risk in rolling over domestically held foreign currency debt, or that the government would assume private sector foreign currency debt. We fully agree with the staff that the extent to which each of these factors can lead to pressures on reserves depends on a host of factors, including the structure of public debt, supervision and regulations of the financial sector (to manage foreign currency exposure), and the ability to firewall corporate failures.

Based on these considerations, we agree to complement the ratio of short-term debt to reserves with two augmented ratios, and to make use of rolling liquidity analysis in assessing reserve adequacy. Interpreting these ratios and the result of the rolling liquidity analysis depends on the potential extent of currency and maturity mismatches which themselves are influenced by institutional factors as discussed in the paper. While it would be useful for the staff to do further analysis to provide some guidance in interpreting these ratios, and we believe research in this direction should be pursued, a great deal of caution is needed in using specific benchmarks for comparison given that a whole host of institutional factors, as well as country specific potential vulnerabilities, need to be taken into account in drawing conclusions about the adequacy of reserves.

Assessing the benefit of reserves' accumulation is an inherently subjective exercise that should take into account (1) the probability of a crisis, (2) the effect of higher reserves on borrowing cost, and (3) the extent to which reserves can and should be used to address pressures on the exchange rate. Institutional factors such as those discussed in paragraph 18 of the staff report are important determinants of (1) and (2) above. With regard to the third factor, it should be emphasized that in situations where the potential pressure materializes, it is not expected, nor would it be appropriate, to exhaust reserves in meeting the private sector demand for foreign exchange. Other instruments, including interest rate and exchange rate adjustment, should be employed in bearing the burden of absorbing the shock.

Another issue that we believe should be examined in determining the adequacy of reserves is currency composition. Fluctuations in the exchange rate of major currencies have an effect on the value of foreign currency denominated debt and hence on the cost of servicing it. As such, there needs to be some hedging against valuation changes resulting from exchange rate movements. For instance, would it be advisable to use the currency composition of foreign debt as a determinant of the currency composition of reserves? We would welcome staff's comments on this issue.

Moving to debt management issues, it should be recognized at the outset that developments in these areas are to a large extent dictated by the environment

under which policy makers operate. In particular, the prevailing macroeconomic situation in a country, coupled with the state of international capital markets, has a strong influence on the structure of the debt. Country authorities may well be constrained by the availability of domestic financing at a particular point in time and may have to resort to foreign borrowing even at the risk of increasing vulnerabilities associated with servicing the debt. Having said that, we share the staff's broad recommendations with regard to public debt management, including the risks associated with foreign currency borrowing and the need to balance maturity and cost considerations.

We also share the staff's views on the need to address private sector exposure to interest rate, currency, and rollover risks. Here, data limitations are important hindrance to effective monitoring of the balance sheet of the private sector. While in principle it would be useful to have the required data for this analysis, it may not be productive to attempt to improve the data on balance sheet related variables, particularly in countries where the private sector consists to a large extent of small-or medium-size enterprises that are not publicly listed. We believe that the monitoring effort should be focused on the banking sector and extended to the non-financial corporate sector in those countries where it is a priori believed to be potentially exposed to mismatches.

With regard to further considering analytical issues, we support the staff's proposal to continue work in the areas discussed in the paper. At the same time, it is important that the application of emerging tools and broad policy advice to specific country cases be sufficiently flexible to account for variations in institutions and vulnerabilities which themselves can affect the cost and benefit analysis of reserves and the optimal way of accumulating reserves.

Finally, as we have emphasized during previous discussions on related issues, Fund's analysis and recommendations should be directed at crisis prevention and avoid creating impressions in markets that the Fund is predicting a certain crisis. In presenting the results of the application of the proposed enhanced framework to specific countries, it is important that due attention is given to the potential negative or unduly positive signals these results could send to market participants.

Mr. Andersen and Mr. Farelius submitted the following statement:

We welcome the paper which we find to constitute a comprehensive overview of different aspects of liquidity management, and we certainly agree that proper management in this field is essential for crisis prevention. We are in broad agreement with staff's analysis and policy implications. As noted by others, the main challenge is now to operationalize staff's advice. While it is clear that this paper is a building block in the discussion on balance sheet analysis, as noted in the outline to the biennial review of surveillance discussed informally in March, it is uncertain how this work is to be taken forward. It would be natural to integrate

this advice in the biennial surveillance review document and the following general surveillance guidance note. Staff's comments would be appreciated.

It is clear that the way countries manage their debts, as well as the way reserves are handled, can have crucial effects for their ability to both mitigate the risks and eventually cope with chocks. While sound and sustained policies and institutions are the first-best defense against crisis, it seems also straightforward that sound policies in the areas of reserve and debt management become increasingly important as countries are able to tap international capital markets. One chief conclusion from the recent capital account crises, as also pointed out in the paper, is the need to maintain an adequate level of reserves, at least to cover the liabilities falling due in the short term. At the same time, we agree with Mr. Bennett that the public sector should not take responsibility for private mismatches. As also noted by Mr. Meissner, we stress the important role regulators have in i.a. making market participants aware of the risks associated with an exposure denominated in foreign currency.

Reserve Adequacy

The new proposals to enhance the Fund's approach to reserve adequacy are intuitively appealing. However, more empirical evidence and underpinning would have been preferable. Moreover, it would be of interest to learn from staff whether these proposals would imply changes to program design.

Also in the area of reserve adequacy, there is no "one-size-fits-all". We fully agree with the general comment that reserve adequacy assessments should give explicit consideration to various factors, including the exchange rate regime. In this connection, a more detailed cost-benefit discussion on the level of reserves under various monetary regimes would have been useful. For example, the difference between reserve accumulation as a result of exchange rate policies, i.e. interventions, and reserve accumulation as a result of borrowing from abroad could have been discussed more. In some countries the relatively large reserves can be explained by the exchange rate policy being implemented. In other countries the reserves depend on public borrowing. In countries with inflation targeting it is fair to state that the reserves constitute a form of an insurance that can be used in case of crises. We find it important to distinguish between these two issues; it is not meaningful to discuss accumulation of reserves in countries with fixed exchange rates from the perspective only of insurance.

The paper rightly focuses on cases in which countries have access to capital markets. At the same time, in paragraph 19 staff briefly discusses the traditional reserve adequacy ratios used for countries without access to capital markets. For such countries, holding reserves at a minimum of the equivalent of 3 months of imports has been a widely used benchmark. It would be interesting to learn from staff whether this assertion still holds for low-income countries, especially since more countries today have adopted floating exchange rate

regimes, or if more nuanced "case-by-case" recommendations are needed. More generally, we agree with Mr. Padoan and Mr. Lombardi that the costs of holding excessive reserves should be further explored, both for the country concerned and globally.

Liquidity Management

One important conclusion for debt managers is the need to focus on building institutions and incentives for a domestic market for public debt. As the market for short-term debt is developed, focus can be shifted towards longer maturities. In order to reduce and limit currency risks, and related risks to reserves, short-term public borrowing should also be predominantly in domestic currency while longer debt could be denominated in foreign currency. However, it should be kept in mind that such a strategy may increase the interest rate risk.

In paragraph 26 staff asserts that public debt should ideally be mainly denominated in domestic currency. This is, of course, a reasonable recommendation. However, it could be noted that in some cases external debts are accumulated in order to increase reserves. In this respect, an asset-liability perspective is important. Thus, in countries where most of the central bank profit is transferred to the central government, and the government's foreign debt is primarily raised to provide the central bank with adequate exchange reserves, the currency distribution of the government debt and the foreign exchange reserves can be considered as one, implying that close coordination is warranted.

For many countries in the world, the problem of "original sin" is there to stay, i.e., their ability to issue long term debt in their own currencies remains very limited, at least internationally. Therefore, the seemingly appealing policy advice is straightforward—the exchange rate risk would be reduced by local borrowing. However, local markets in most emerging and developing countries remain inherently susceptible to economy-wide shocks that could translate into liquidity risk. Therefore, while tapping the local market may decrease exchange rate risk, the still existing liquidity and interest rate risks should not be underestimated. Governments may face rapidly increasing rollover costs also in the local market, and may try to use "non-market ways" to persuade local financial institutions to take on board more government debt at interest rates below the prevailing market rate. From the other side, while local financial institutions and pension funds may seemingly provide a lucrative source of financing for governments, they may face confidence problems once local markets fall and they are supposed to mark their assets to market. Such confidence problems may in turn well end up on the public sector balance sheet.

Thus, as long as small local markets remain vulnerable to economy-wide shocks, care should be taken in relying on local borrowing. It is very important for governments to use prudent and conservative risk assessments in projecting their borrowing costs; it is equally important that local financial institutions price in all

risks even if investing in domestic paper. All-in-all, well diversified public debt structure involves both domestic and foreign borrowing. And more forceful fiscal consolidation and reduction of net public debt is very often the optimal policy choice.

In paragraph 35 staff states that the introduction of inflation-indexed instruments may be interpreted as a signal of weaker resolve to fight inflation. This could well be the case. At the same time, the opposite conclusion could also be probable as indexation could give the authorities incentives to lower inflation. As also noted in footnote 33, the introduction of inflation-indexed instruments has not resulted in higher inflation in advanced economies. Moreover, as also pointed out in the paper, the possibility for lengthened maturities could be enhanced by inflation indexation.

While we agree that deeper financial markets with a greater variety of financial instruments and derivatives can be used for hedging risks, we would like to emphasize that these instruments also can be used to increase the risk exposures.

Finally, we would like to stress the importance for countries to improve the availability of data. While this might prove burdensome for some countries, it should not discourage us from moving ahead in this area. As pointed out by Mr. Padoan and Mr. Lombardi, the costs related to the production of more detailed statistics should be seen in the light of the potential very significant benefits stemming from better crisis prevention.

Mr. Ondo Mañe submitted the following statement:

We thank staff for the paper on liquidity management aimed at improving Fund's analysis of crisis prevention. This paper analyzes countries' reserves and liability management in a broader perspective and complements the Fund's work in other areas of crisis prevention. However, data availability and reliability in some countries may constrain the analysis. Therefore, we encourage the Fund to pursue further this research. The endorsement by the Executive Board of an action plan to improve data availability will serve the needs of the various balance sheets approaches.

Reserve Adequacy

We agree that reserve adequacy should be assessed within a broader perspective on a case by case basis, and should give due considerations to key policy features and institutional arrangements. Good institutions, proper regulatory and supervisory frameworks, along with sound macroeconomic policies, can play an effective role in weathering external shocks. We believe that the Fund's approach to reserve adequacy can be enhanced by greater attention to the domestic sources of liquidity pressures whose relevance is supported by the

empirical outcomes in Figure II.6. It should also benefit from increased emphasis on qualitative analysis of relevant institutions.

The proposed augmented ratios of foreign currency liabilities to reserves can also complement the standard ratio of short-term external debt to reserves, as the empirical results depicted in Figures II.1. and II.2. of the Appendix make evident. We also agree with the staff that improved analysis should take account of country-specific factors. However, we call for caution on using the augmented ratios as required indicators to be observed by countries; instead, we favor using them only as guidance tools for the Fund and authorities.

We are disappointed to note that, while claiming that the ratio of reserve to imports remains particularly meaningful for countries without access to international capital markets, the paper falls short of presenting evidence of this indicator's significance for those countries. In this respect and others, the paper fails to address the concerns of countries without access to capital markets, notably low-income countries, and, as a matter of fact, to put any emphasis on the need for advanced countries also to follow similar guidelines.

We share the view that rolling liquidity analyses, with alternative scenarios in line with the DSA framework, can provide additional information for policy advice and implementation. We will particularly be interested in the extent to which the retained benchmark value of one for the short-term external debt to reserves ratio remains appropriate in face of adverse shocks on export prices, interest rates or market access. We anticipate that flexibility and judgment are warranted in this respect.

Institutional arrangements and practices outlined in para. 21 of the paper, notably public debt management, supervision and regulation of financial institutions, corporate governance and the exchange rate regime, also affect currency and maturity mismatches in balance sheets and, hence, their inclusion in surveillance exercises is necessary. Fund has a key role to play in working with other IFIs for the enhancement of the institutional capacities of countries. Technical assistance will certainly help countries reduce the likelihood or magnitude of crisis stemming from institutional inadequacy.

Obviously, further work is needed in fine-tuning the analytical tools and methodology underpinning reserve adequacy analysis. In particular, the costs and benefits of holding reserves should be carefully analyzed, and we look forward to the outcome of this difficult undertaking.

Public Debt Management

We agree that not only the level of public debt but also its structure can create major vulnerabilities in a country's aggregate balance sheets. It is worth noting that in emerging countries that have had success in hedging their public

debt structure against currency and rollover risks, a strong record of sound macroeconomic policies helped promote public debt instruments with longer maturity, or facilitate the issuance of innovative instruments. Strategies aimed at progressively improving the public debt structure can help reduce liquidity risk if pursued in the context of long term fiscal adjustment that strengthens public solvency. Here again, the Fund should assist countries in strengthening their debt management capacity.

In our view, what matters the most is the ability of the sovereign country to service its short-term debt when due. This depends on the credibility and sustainability of the budgetary policy and the signals it conveys to markets' participants. Considerations should also be given to the development and deepening of domestic financial markets. We are pleased to note that, in the case of Mexico, the authorities have been able to extend the range of domestically-issued debt instruments, thus gradually increasing the share of peso-denominated domestic debt. Lessons should be drawn from this experience for Fund's trusted policy advice to other emerging economies. This is another area where the Fund and the Bank could contribute to helping countries develop segments of the financial markets and create instruments tailored to governments' financial needs.

Private Liability Management

We share the view that the Fund's analysis and advice need to take account of macroeconomic risks from private liabilities and the benefits of appropriate buffers and hedges in private balance sheets. The issue of contingent liabilities needs also to be explored further. Proper and appropriate regulatory frameworks for the banking system should be established and sustained. We agree that sound corporate governance helps strengthen market discipline and risk management in the corporate sector. Publication of timely and candid information from companies, certified by reliable external auditors should contribute to reducing the information asymmetry between markets participants. Recent experience shows that these requirements are definitely applicable also to the private sectors in advanced economies.

On Fund's policy advice, we share the view that, since several of the considerations would be expected to be covered under the FSAP, the voluntary nature of this exercise should be maintained. We also agree on the need to strengthen the regulatory framework and promote disclosure requirements on maturity mismatches in foreign currency and on currency risks in the banking system.

On Further Work

We see merit in pursuing the analytical topics outlined in para. 47 and look forward to the outcomes. Another analytical issue that deserves consideration is that of low-income, mature stabilizer countries that would soon

access private capital markets. In our view, specific guidance to help these countries prepare for increased capital flows (inward and outward) and reduce the likelihood of crisis is highly needed. Staff comments are welcome.

Mr. Ge and Ms. Wang submitted the following statement:

We thank staff for the interesting and concise paper analyzing the roles of reserves, public debt management and private liability management in addressing liquidity risks, which is a further welcome step in the Fund's work on crisis prevention.

Regarding the analysis of reserve adequacy, we share the view that foreign-currency-denominated claims among residents can be an important source of pressure on reserves. We also agree that institutional arrangements and practices should be considered, especially the supervision of financial institutions and financial market developments. However, we emphasize that reserve adequacy assessment should take full account of each country's specific circumstances, such as exchange rate regimes, the degree of openness of the capital account, macroeconomic management and the regulatory and incentive structures within which the private sector operates—including supervision of financial institutions and corporate governance and insolvency regimes. We concur with Ms. Indrawati's point that it is difficult to quantify the uncertainty characterized by the flaws in the international financial architecture and countries may derive security from holding reserves.

The ratio of short-term external debt to reserves may be, as the staff has pointed out, a useful 'starting point' for determining reserve adequacy. However, country-specific factors should never be neglected. The augmented ratios may provide additional information in some circumstances but are not as relevant for all economies. These indicators should act as a reference to help the Fund and the authorities identity vulnerabilities and should not be used mechanically.

We agree that the improved structure of public debt can help reduce currency and maturity risks. We generally share staff's proposals to improve the currency composition and maturity structure of the public debt. However, there is no easy substitute for sound macroeconomic policies, especially credible monetary policies and prudent fiscal policies. All emerging market countries that have successfully issued longer-maturity domestic debt have a strong record of economic stability and sound policies. At the same time, it is important to develop the domestic financial market and build up investor confidence.

We agree that private sector risk exposures could undermine governments' ability to respond effectively to external shocks and that private liability management should be strengthened. We broadly agree with the proposal for close monitoring of foreign currency maturity mismatches in the banking system and interest rate exposure of the corporate sector.

We share staff's view that it is important to have sufficient detailed data on the structure of public debt and the assets and liabilities of the banking sector. The quality of the data is closely related to financial sector development and the supervisory capacity of the authorities. The Fund could provide assistance in these areas.

We encourage staff to continue work on the reconciliation of data on public debt stocks, deficits, and valuation changes, as well as tools for debt sustainability analysis. As the paper points out, cost-benefit analysis of reserves accumulation requires the quantified assessment of several elements, which are not easy to deal with. Staff should be prudent in pursuing work in this area.

Ms. Jacklin and Mr. Baukol submitted the following statement:

Key Points

We broadly concur with the analysis and proposals in the paper and urge the staff to operationalize work on balance sheet issues into the Fund's ongoing activities, recognizing that sound macroeconomic policies and the appropriate choice of an exchange rate regime are the most important factors in avoiding liquidity crises.

On reserve adequacy, a variety of factors play a role in determining whether reserves are adequate in a particular country. Case-by-case approaches are essential to determining whether reserves are too low or too high.

On debt management, the paper underemphasizes two fundamental points: First, at the core of sound public debt management is an accurate and complete analysis of foreign currency and domestic currency sources and uses of funds. Second, deep and broad funding markets, in particular domestic local currency debt markets, are the best way to reduce rollover risks. Each of these items deserves priority attention.

On private sector risks, financial institution supervisors should require intermediaries to build into their risk management systems the risks posed by balance sheet mismatches of their corporate clients.

Operationally, Fund management needs to establish a work plan on liquidity management issues that is coordinated among the many departments involved and set clear priorities so that results are achieved in this essential work.

We welcome the seminar to explore the inter-related issues of reserves, public debt management and private liability management. We broadly concur with the proposals in the paper as a step towards institutionalizing a more rigorous approach to balance sheet issues.

Reserve Adequacy

The paper makes the important point that measuring reserve adequacy for countries with market exposure should take into account the situation of domestic balance sheets and soundness of domestic institutions, not just the level of reserves relative to short-term external debt. In different circumstances, a variety of balance sheet factors may pose vulnerabilities that would demand the use of public sector reserves. Capital account crises tend to occur when shocks (real or financial) interact with balance sheet mismatches in the public or private sectors. Many recent crisis cases were exacerbated, or even driven, by such vulnerabilities.

Institutional arrangements, in a broad sense, can play a key role in determining the level of vulnerability to these balance sheet effects. The paper cites several examples, including the effective management of public debt, the adequacy of supervision of financial institutions, the adequacy of bankruptcy and corporate governance regimes, and the depth and regulatory framework of financial markets. As noted by other Directors, the exchange rate regime is another important institutional factor that could add substantially to risk. The independence and credibility of the central bank can also be a factor.

We welcome the staff's proposal to enhance the traditional approach to measuring reserve adequacy (reserves/imports and reserves/short-term debt) with augmented ratios, as in paragraph 21. But, we should recognize that the addition of the augmented ratios would still not cover all potential vulnerabilities. External liabilities of the private sector can create liabilities for the public sector if the limits on public sector responsibility are not clearly established or institutional and regulatory systems are weak. Thus, a case-by-case approach that focuses on vulnerabilities inherent in specific countries, including institutional weaknesses and the risk management tools appropriate to each environment, will continue to be critical.

We concur with the staff that more reserves are not always better. We encourage the staff to do additional work in specific cases in which reserve levels appear high, such as the analysis in the fall 2003 WEO on Asian reserves.

In other countries where reserves appear too low, we encourage the Fund to address the policy options available to boost reserve levels. This analysis should take into account the ability of countries to generate foreign currency receipts. For example, a country with a small export base may need higher reserve levels for a given amount of debt than other countries. The challenge will be to find the most efficient way to build reserves.

Liability Management

Debt management is a key issue for the Fund, given the impact that sound policies can play in reducing vulnerabilities. We welcome the elaboration of additional considerations to complement the Fund's ongoing debt management advice. In this context, at the heart of public debt management is a sound understanding of both the sources of financing and the uses of the borrowed funds (both foreign and domestic currency). Accordingly, this needs to be part of Fund surveillance of a country's own liquidity management. For example, public sector sources and uses tables could be a valuable addition to IMF surveillance reports.

In the best cases, emerging markets put in place strong and credible macroeconomic policies supported by independent monetary and supervisory institutions that encourage investors to purchase long-term debt in domestic currency. It is encouraging that a number of countries have been able to build domestic markets after just a few years of solid policies. The Fund should provide technical support to countries to broaden and deepen their domestic financial markets to help reduce costs and vulnerabilities. The development of broader and deeper markets, particularly domestic markets, would make a substantial contribution to reducing rollover risks, and we think this aspect has been greatly underemphasized in this paper.

Of course, many emerging market economies have not developed domestic markets and resort to borrowing in foreign currency or with links to exchange rates, prices or interest rates. Clearly such borrowing raises vulnerabilities, and the paper notes that exchange-rate risk has often been underestimated in the past, particularly in the context of fixed exchange rate regimes. While some risks cannot be avoided, the Fund should work with member countries to help ensure that all public and publicly-guaranteed debt is transparent and disclosed to the public. The authorities' debt management team should also be familiar with its evolving investor base and have a good data base and understanding of the details of their debt documentation.

Private Sector Issues

Liability management in the private sector can have important implications for the public sector, particularly through implicit guarantees. These potential risks are exacerbated when the private sector is unable to hedge interest and currency risks. Close monitoring of bank exposure to maturity and currency mismatches is essential, as banks are a primary source of risks. And, monitoring and disclosure of various mismatches in the corporate sector would help provide market discipline, particularly where there are strong incentives for mismatches (with fixed exchange rates and large interest differentials).

As suggested by Messrs Portugal and Tombini, monitoring balance sheet exposures in the corporate sector is likely to be most efficiently done through the

supervisory regime of financial intermediaries. Not only are financial institutions well placed to, and should as a prudential matter, seek data on balance sheet vulnerabilities from corporate clients, a sound risk management system in the financial intermediaries will have the effect of reducing balance sheet risks in the borrowers. And, the requirement of sound risk management systems would likely support the development of additional hedging instruments.

Future Work

We urge the staff to give priority to adding balance sheet analysis into the operational work of the Fund, focusing on areas with the highest vulnerability. Additional work will be needed going forward, including steps to improve data collection and develop cost/benefit analysis for judging reserve and public debt management recommendations. The analytical issues listed in paragraph 47 are also worthy of further investigation. The challenge for the Fund will be to follow up on these issues in a prioritized and comprehensive manner.

As we noted above, high priority should be given to the development of domestic debt markets. One idea is for the IMF (in collaboration with the World Bank and IFC) to sponsor a symposium, including debt managers from advanced and emerging economies at various stages of development in their debt markets, to share their experiences. Investment bankers could be included to discuss the role of domestic and foreign pension funds, mutual funds, insurance companies and other investors in the development of local markets. Giving the issue greater public focus and priority can enhance the practical evolution of markets. In addition, some case studies could be quite useful. For example, Mexico, South Africa and Chile have made great strides in the past decade in strengthening their debt profile and domestic markets, and their experience could provide useful lessons for other countries.

We would be interested in the staff's comments on the next steps in the Fund's work on balance sheet issues. Close coordination of all relevant departments (FAD, ICM, MFD, PDR and Research) in pursuing mutually-reinforcing efforts will be essential to lead to measurable improvements in the Fund's operations to the benefit of the membership. We also note that the World Bank has engaged in a significant effort to work with countries on debt management issues. The staff's comment on the status of collaboration with the Bank on these issues would be welcome. We expect that the upcoming work program would address this in a comprehensive and coordinated manner.

Mr. Usman submitted the following statement:

We commend staff for a good paper, which assesses the economic, as well as institutional conditions that determine the adequacy of reserves at any point in time. In our opinion, the whole essence of the paper is captured in the third paragraph of the executive summary and paragraphs 3 and 8 of the paper. In

particular, staff give a good assessment of different scenarios on the usefulness of reserve adequacy, which considers the level of a member's access to the international capital market and implies country-specific application of the policy. They also admit that reserve adequacy should not be measured and determined on the parameters of financial vulnerabilities alone, but also on the weak institutional and corporate governance factors that give rise to them, such as key policy issues on the exchange regime, the existence and nature of capital controls, public debt management, and financial sector supervision and regulation. These facts only underscore the need to apply caution and ensure that the usual one-cap-fits all approach is not adopted for this new policy.

We cannot agree more with most of the submissions of staff in the paper. However, there is need for a second look on the following issues: cost-benefit analyses of reserves accumulation; demand for a higher level of reserves for countries with weak export base and natural disasters; and on the issue of data availability. We can dispense with the issue of cost-benefit analyses by agreeing with staff that an authoritative and operational cost-benefit approach to reserve adequacy has not been concluded, and that there is still a need to point at which level reserve accumulation, which is costly, may become excessive. We also add that it takes more than mere economic consideration of costs and benefits or, if you like, quantitative measures, to include other equally important qualitative factors in many instances. For instance, how would the cost of potential crises be measured?

There is also, the moral hazard of keeping large reserves in the face of a dire need for resources for development, and as staff admit, foreign exchange reserve levels should reflect, among other things, the state of domestic balance sheets, and not that more reserves are always better. It is in that context that one needs to assess the adequacy policy in relation to developing countries for which the consideration of reserves adequacy cannot be isolated from the other issue of weak export base and natural disasters. While it cannot be contested that there is need to keep adequate reserves to meet natural disasters and pre-empt weak export revenue source, it is doubtful if most developing countries that are barely earning enough to keep developing programs going, can for most times, afford to keep reserves beyond the basic minimum of three months of imports. This is why the issues of increased international trade market access and substantial foreign direct investments to diversify developing economies become pertinent and urgent.

Institutions and regulatory, as well as supervisory regimes and macroeconomic policies play a key role in external shock absorption, but then, as staff pointed out in the paper, without data availability and filling important gaps in statistical data may constrain assessments of reserve adequacy, particularly on public debt and assets and liabilities of non-financial private sector. This calls for substantial technical assistance from the Fund to member countries in those areas that will support the policy.

The paper rightly indicates that significant private sector exposures to foreign exchange liabilities without close monitoring and sound institutional arrangements to ensure borrowers' ability to repay, give rise to larger public sector liabilities. This devolves from implicit or explicit guarantees of government, including application of the lender-of-last-resort function. This is true for developing countries that are not largely exposed to international capital market shocks as it is for emerging markets and others. It is even more relevant if the public sector is the main supplier of foreign exchange and the private sector is largely dependent on this main source.

Indeed, it can be affirmed that the genesis of the current debt crisis afflicting developing countries is traceable largely to this phenomena of implicit or explicit guarantee of private sector liabilities and dependence on one source for foreign exchange flows. For this reason, many developing countries have now introduced functioning safeguards against mismatch in private sector liabilities, including setting guidelines for contracting external loans or other forms of instruments used for financing external trade.

From the perspective that foreign exchange reserves are meant to address short-term financial needs, there is need to subject the policy of its adequacy to regular review and risk assessment, rather than adopting a static approach to the policy. The ongoing policy paper on debt sustainability for low-income countries could also benefit from some of the assessment and issues raised in this paper, especially with regard to considerations of augmented ratios of foreign liabilities.

In sum, the staff paper has been able to harness the Fund's ideas on policies relating to issues of public sector management, reserves management and debt sustainability. But what remains is how to successfully apply the rules in view of the identified conflicting conditions in the varying factors affecting each of the policy instruments, as well as the constraints to implementation, especially given data limitations and gaps.

Mr. Brooke submitted the following statement:

We broadly agree with the policy advice proposed by staff and join Mr. Padoan in calling for this note to be revised in the light of Directors' comments and to be worked up into a guidance note to staff.

Reserve Adequacy

Staff highlight that an authoritative cost-benefit analysis of reserve adequacy has yet to be developed and that such a framework would be complicated and difficult to derive. As such, it is not surprising that this section of the staff report has received the largest amount of comment from Directors.

We fully agree with Messrs Schwartz, Bennett, and Callaghan that reserves only provide a temporary buffer for the development of appropriate policy responses to shocks. As such, we need to be careful not to suggest or imply that reserves targets are a sensible policy goal in their own right or that they can substitute for sound policies. While this point is made in the paper, we feel it should be given greater prominence in any guidance note to staff.

Second, when considering the adequacy of reserves, any guidance note could helpfully provide a more detailed discussion about the prioritization of the various determining factors and an assessment of how a country's exchange rate regime and its degree of dollarization interact with the other elements identified in the staff paper. For instance, our impression is that countries with floating exchange rate regimes and a low degree of dollarization have a smaller incidence of mismatched foreign currency positions on private sector balance sheets. If this is indeed the case, such interactions should be taken into consideration when assessing reserve adequacy.

Third, we agree with Messrs. Bennett and Portugal that the Fund's principal policy advice in the area of private sector liability risks should be for countries to put in place the appropriate regulatory, legal and institutional arrangements to ensure that the private sector optimally minimizes its liquidity risks and has no expectation of a public sector bail-out in the event of a crisis. This being said, we recognize that such institutional reforms are complicated and often take time to implement. It is sensible, therefore, for staff to also consider the adequacy of a countries' reserves in the context of its private sector liability structure and the existing exchange rate and institutional arrangements. This information should not be used as a justification for making increases in reserves a principal policy objective; rather it should be used to highlight the risks that a country faces, the temporary nature of the buffer provided by the reserves and the need for fundamental policy reforms.

Fourth, while we agree with staff's analysis about the considerations that influence the costs and benefits of holding reserves, the discussion of the costs could usefully be expanded. In particular, the paper should also have mentioned that rapid reserve accumulations may reflect exchange rate rigidity and/or exchange rate misalignment. Both considerations, if sustained, can lead to the accumulation of significant macroeconomic risks, through the discouragement of companies and households from taking out adequate insurance against the risk of exchange rate variability.

Turning to operational considerations, we can support the proposals outlined in paragraph 21 to enhance the existing approach towards monitoring reserves adequacy. We would, however, like staff to elaborate on whether they envisage a significant expansion of the discussion of reserves adequacy considerations in Article IV staff reports. Given the need for the Fund to focus its policy advice on the implementation of sound policies, consideration of the

proposed augmented ratios for monitoring reserves adequacy should, we feel, take place in the broader context of staff's debt sustainability and balance sheet analyses. As such, the various reserves adequacy ratios should be presented alongside the ratios of external debt to exports and external debt service to exports. Similarly, we agree with Mr. Bennett that such analysis should take full account of the relative strength of the current account position. In principle, the proposal to introduce scenario analyses for the evolution of reserves sounds sensible. It would have been helpful, however, if staff were to have presented a fully worked up example of what they have in mind in this area. Do staff envisage a simple modification to the existing balance of payments projections contained in Article IV staff reports or something more detailed?

Given the above comments, we support the suggestion of doing more work on (a) the calibration of DSA stress tests to better reflect a country's debt structure; and (b) the costs and benefits of reserve accumulation. In this latter regard, we note that the September 2003 WEO developed a multivariate regression approach to determine whether a country's reserves appear out of line with international norms. We would be interested to hear why staff chose not to propose this approach as a starting point for the more detailed and country specific qualitative analysis of reserves adequacy outlined in this paper.

Finally, do staff have any intentions to apply this work on reserves adequacy in the context of Fund program design?

Public and Private Liability Management

We agree with the proposed policy advice in the area of public debt management. Our only comment here is that Fund and Bank staff could usefully work together to provide a more specific set of guidelines about the type of cost-benefit analysis a country should undertake when it is considering debt buy-back and debt swap operations to improve the composition of its debt stock.

We broadly concur with the proposal for staff to monitor more closely leverage ratios and mismatched positions in the private sector. Our perception is that the proposals here do not go much beyond the already agreed balance sheet approach for surveillance. As such, any guidance to staff in this area should draw on the Fund's balance sheet approach and highlight the linkages to FSAP reviews and the various ROSCs on banking supervision, corporate governance, and insolvency and creditors' rights. Staff highlight the need for 'a stronger regulatory environment and disclosure requirements' on banking system maturity mismatches and open foreign currency positions. We would be interested to hear from staff if they feel, therefore, that the existing agreed international best practices are inadequate in these areas. If so, as Mr. Bennett identifies, it would be sensible for staff to raise this issue with the Basel Committee and work with banking supervisors to come up with a new set of best practices.

Data Issues

We strongly agree with staff on the need for sufficiently detailed data on the structure of public debt and the assets and liabilities of the banking sector. Our understanding from previous staff reports is that the provision of such data to the Fund has been improving. Unfortunately, however, there is still a long way to go. We would encourage staff to raise concerns in Article IV staff reports more forcefully when key information about the composition of public debt and banking sector assets and liabilities are not made available to staff. Undertaking more detailed DSAs and including balance sheet analyses in a wider array of Article IV staff reports would help to highlight these data concerns. Going beyond this, any guidance note to staff should also emphasize the benefits of sovereigns maintaining regular contact with their creditors and publishing full information about their debt obligations and contingent liabilities.

Mr. Al-Turki submitted the following statement:

I thank the staff for the timely paper on liquidity management. A better understanding of this issue is clearly important for implementing sound liquidity management, which is a critical component of crisis prevention.

Higher reserve holdings could enhance confidence, reduce interest rates on foreign borrowings, and provide a cushion to shocks. At the same time these holdings come at a cost. Therefore, it is essential to have a fuller appreciation, of both the costs and the benefits in order to ensure a cost-effective level of reserves. This is not an easy task, however, and more work and research in this area is needed.

I agree that the appropriate level of reserve holdings will vary on a case by case basis. The composition and maturity of debt, the volatility of current account receipts, and the exposure to international capital markets are important factors in that regard. The staff also stresses the relevance of foreign-currency-denominated claims among residents and the institutional conditions for determining the appropriate level of reserves.

Against this background, the staff's proposal to complement the short-term external debt to reserves ratio with two additional ratios reflecting risks associated with foreign currency liabilities to residents appears reasonable. Making use of rolling liquidity analysis would also shed further light on the risks and the adequacy of reserves. Caution is needed, however, not to exaggerate the risks and overstate the need for reserves.

I am not convinced that the benefits of cross-country comparison of the reserves ratios outweigh the risks. Indeed, as the staff rightly notes, the adequacy of the level of reserves depends on a number of factors and institutional conditions and thus vary from one country to another. Therefore, merely

comparing a set of ratios could give a misleading picture on the adequacy of reserves.

On issues related to public debt structures, I agree that the guidelines for public debt management could help focus the Fund's advice on this issue. However, as I stated in the discussion on sovereign debt structures two weeks ago, it is important to take fully into account both the underlying reasons for a risky debt structure and the costs associated with changing the structure.

Reducing the risks embedded in the structure of private balance sheets is clearly important for preventing or at least reducing the severity of a crisis. In this regard, I agree with the staff's recommendations regarding monitoring and regulating the banking sector's mismatches in foreign currency maturities as well as exposure to currency risks. As for the corporate sector, data limitations may hinder analysis of its vulnerability to interest rate and currency shocks.

Mr. Kremers and Mr. Roovers submitted the following statement:

General

We welcome staff's paper on liquidity management, which covers wider issues of public debt structure and management, vulnerability assessments, and institutional issues of supervision and corporate governance. These factors are foremost a reflection of the need for sound policies that cannot be insured by specific levels of reserve requirements. We generally concur with the analysis and suggestions for operational guidance. Indeed, given the key importance of this discussion for crisis prevention, it may have warranted a more formal setting, allowing the Board to take a more forceful stance after having had two informal sessions on related issues. As such, the advice and its further operational implementation should be taken up further in the context of the biennial review on surveillance.

Reserve Adequacy

Regarding the first part of the paper on reserve adequacy, we agree that the ratio of short term external debt to reserves remains a valuable indicator, with the benchmark value of one serving as a useful starting point for analysis. This should by now be standard practice, where data, especially on the public sector external debt position, should be (made) available. Moreover, we see value in the proposed augmented ratios of debt liabilities to reserves, although it seems that a more fundamental argumentation is needed to explain why these ratios would be the most appropriate. Perhaps some empirical evidence can be provided to support these choices? While a quantitative benchmark is difficult to establish, they can help identify potential risk and possible danger zones, and focus further analysis on these risks. Moreover, the proposed rolling liquidity analyses can provide valuable, additional information on the medium term sustainability of the debt

position, and, as such, add to the depth of the debt sustainability analysis. An important aspect of reserve adequacy that is somewhat missing in the analysis is the appropriate composition of reserves. Clearly, in assessing (potential) external debt liabilities to reserves, one has to take account of their denominations.

However, the policy recommendations that could follow from such assessments are not straightforward, where there can be no automatic link between single benchmark indicators and adequate reserve requirements. This also follows from the qualitative, institutional factors that have to be taken into account. In this area, institutional independence, effective regulatory enforcement and transparency appear crucial but very difficult factors to measure. As a proxy, indicators on liquidity, solvency and exposures in the banking sector and debt servicing of the corporate sector remain important. However, even if weaknesses in for example bank and corporate balance sheets can be identified, higher reserves may not be the answer and could even enhance perverse incentives. In any case, the measurement of such insurance against potential liabilities from the private sector would pose further, analytical challenges. For example, in assessing private sector currency exposure, one also has to look at portfolio diversification on other assets or the (foreign) ownership or geographical diversification of banks and companies.

In assessing reserve adequacy in the context of the exchange rate regime, care should be taken not to draw 'easy' conclusions. Thus, most regimes are intermediate, suggesting some extent of exchange rate targeting that could translate in overconfidence in the external value of the currency and possible mismatches in balance sheets. Expectations on real appreciation and / or an exit into a fully fixed regime may fuel such overconfidence. Moreover, we agree with Mr. Andersen that there may be other reasons than insurance to accumulate reserves, both in a fixed and flexible exchange rate environment.

A major limitation in operating the suggested enhancements remains data availability. It is precisely the provisioning of such data that reduces vulnerability, by enabling the market and the public sector to manage lending and borrowing risks properly. In other words, limited data availability may reflect underlying vulnerability. In that respect, staff may indicate what relevant data can be made available with relatively little effort that can flag potential vulnerabilities, for example by the BIS? The upcoming biennial review of surveillance should further look into data provisioning to underpin the balance sheet analysis.

Liability Management

On liability management, staff's suggestions for complementing the Guidelines for Public Debt Management are straightforward and sound. However, as with the discussion on appropriate sovereign debt structure, one should acknowledge that risky currency and maturity compositions of sovereign debt are mostly a reflection rather than a cause of underlying vulnerabilities. Indeed, one

could even argue that if only healthy, open economies with low debt levels and no external imbalances should issue public debt in foreign currency, there would be limited scope for the international bond market. Of course, the prospect of real appreciation in these countries would make international issuance attractive. Specifically on this issue, it would be worthwhile to analyze in more detail at what stage of macro economic stabilization and development, some diversification from domestic debt to external issuance could be appropriate.

Future Work

Finally, we see merit in the analytical issues identified for further consideration, but agree with Mr. Callaghan that an in-depth cost-benefit analysis of reserve accumulation would require substantial work on probability analysis and cost assessments of crises, while the outcome of such work could lead to false precision.

In addition, like Ms. Jacklin, we would be interested to hear staff's views on next steps in operationalizing the balance sheet approach, fully benefiting from the various expertises available in the relevant departments, while avoiding duplication of work.

Mr. Daïri and Mr. Rouai submitted the following statement:

We thank the staff for a useful paper on liquidity management. Although we continue to see benefit in expanding the toolkit for crisis prevention, we caution against the tendency to add indicators and other benchmarks of general application that could mask country's specificities or tax their administrative capacities. The staff proposes to enhance the Fund's approach to reserve adequacy by adding two other indicators to the ratio of short-term external debt to reserves. Before generalizing these indicators and include them in regular surveillance exercises, we prefer to proceed cautiously and experiment with their operational use. Our position is based on the following considerations:

First, we consider that in many emerging countries, the priority, and the available resources and associated technical assistance, should be directed to reinforcing the institutional arrangements for sound reserves and debt management and for improving the compilation and dissemination of related data. The World Bank and the Fund have done a commendable job in designing guidelines for public debt and foreign exchange reserves management in order to strengthen country's institutional infrastructure. However, it is not clear for us how these guidelines are being used by countries to improve their institutional arrangements. We regret that the staff paper did cover this important issue and we consider that a review by the Board of these policies could be useful.

Second, while we agree with the staff that the ratio of short-term external debt to reserves is a starting point for the analysis of reserve adequacy, we would

like to point out that in many countries the use of this ratio is limited to the Article IV consultation discussions and documents. By contrast, the ratio of reserve to imports remains widely used not only in official circles and publications but also by the private sector because of its simplicity and the availability of data. We believe that the Fund needs to promote further the ratio of short-term external debt to reserves before considering other indicators.

Third, like Mr. Callaghan and Mr. Cho, we are concerned that the multiplicity of benchmarks may attract excessive attention and could mask country-specific and other qualitative judgments. We believe that any assessment of reserve adequacy should be done paying due consideration to countries' specificities, including, among other things, the exchange rate regime, access to international capital markets, and the overall strength of the macroeconomic framework. The recent staff report on Morocco's Article IV consultation includes an interesting analysis of the relation between workers' remittances and the strength of the external position. Such country-based analysis is a good example and is, in our view, more useful than a generic benchmark in assessing potential external vulnerabilities.

Extending his remarks, Mr. Tombini made the following additional statement:

I have an issue on the nature of the current Board discussion. A few Directors requested in their preliminary statements that the proposals presented in the paper and the outcome of the current discussion be used to prepare a guidance note for staff. In this connection, I would like to ask the Legal Department whether the summing up of the current Board discussion will constitute Fund policy, and as such could be used as a basis for guidance to staff.

We understand that in addition to explicit decisions, Fund policy is also elaborated through summings up of formal Board meetings. Our current discussion is a seminar, and as such in our view neither the paper nor the summing up become eligible for Fund policy. We believe that there are good reasons why this meeting and the previous meeting on this topic were both conducted as seminars. And we praise the staff and management for having decided to have these meetings as seminars. The reason is that the issues and the proposals under discussion do not yet pass the test of quality that is required to become Fund policy. The Fund cannot transform into policy to advise its membership proposals or concepts that are not backed by an authoritative theoretical reasoning or by robust empirical evidence.

This is not yet the case, as we are still at an early stage in the area under discussion. As Mr. Schwartz and other Directors, including this chair, pointed out, there are still too many loose ends, unanswered questions, and insufficient evidence to come to firm conclusions on this issue. The staff itself recognizes that an authoritative approach to reserves adequacy is yet to be developed. Later in the discussion we would like to hear the Legal Department's opinion on the nature of

the current discussion and management's views on what are the plans for moving ahead on this issue.

We have some further comments that we will make later on in the discussion.

The Secretary (Mr. Anjaria) observed that seminars provided Directors with an opportunity to have an initial exchange of views on a topic that was a work in progress with the aim of helping build the institution's intellectual capital. While not all seminars called for statements from Directors and for the preparation of concluding remarks, the views expressed in the current seminar held in regular session would be reflected in the concluding remarks by the acting chair to provide broad directions to the staff for its work in the area of liquidity management. The concluding remarks were not intended to provide a policy-setting definitive view of the Board on the issues under discussion.

Mr. Tombini asked if there would be a need for an additional formal Board discussion in order to provide precise guidance to the staff on how to move forward on the issues covered in the staff paper.

The Secretary and the Acting Chair (Ms. Krueger) confirmed that that was the case.

Mr. Daïri was concerned that the general tone of the staff paper could give the impression that reserve accumulation reflected the existence of vulnerabilities, and that its purpose was only to reduce those vulnerabilities or potential shocks. Perhaps the paper should be revised to avoid giving that impression, as reserve accumulation in countries with exchange rate pegs should not be seen as an insurance policy, but as an unintentional effect of the lack of exchange rate flexibility, which would prevent the exchange rate from strengthening in response to a favorable external position. In addition, there was excessive geographical concentration in the liability side of the analysis presented in the staff paper. A broader geographical coverage, taking into account data available from several other countries, including from his chair's constituency, would have been preferable. Regarding publication, the preliminary nature of the work presented in the staff paper and the need to take into account the comments made by Directors raised questions about the desirability of publishing the paper at this stage.

Mr. Andersen agreed with Mr. Daïri that reserve accumulation could be related to the lack of exchange rate flexibility in some cases. However, he did not agree that the work presented in the staff paper was at such a preliminary stage that would preclude providing the staff with specific guidance to apply the proposed approach, as the subject under consideration had been discussed on several occasions by the Board. The views of the Board expressed in the summing up of the current Board discussion could be reflected in the biennial surveillance review and in a guidance note if clear conclusions emerged about, for example, the suggested ratios for reserve adequacy.

The Deputy Director from the Policy Development and Review Department (Mr. Kincaid) confirmed that, as indicated by the Secretary, the current seminar was intended to provide the Board with a progress report on the staff's work on assessing reserve adequacy, placing that work into the context of other work on public debt management and implications of

private sector liabilities, and to present Directors with issues for discussion and options to prioritize the staff's future work in those areas. Thus, the concluding remarks of the current discussion would not form the basis of a Board decision. It would also be premature to prepare a guidance note for the staff at the current juncture. Further work would be needed following the current Board seminar, and it was unclear whether more definitive conclusions could be reached by the time of the biennial review of surveillance. Based on the views provided in the preliminary statements on the conceptual basis of the staff's work and on the empirical underpinnings of specific thresholds or rules of thumb proposed, there was still substantial work to do before more definitive conclusions could be reached.

Mr. Prader made the following statement:

In light of the Fund's specific mandate on international financial stability and exchange rate issues and also in the face of the current discussions on important cases of huge reserve accumulation, today's discussion is very pertinent and perhaps even overdue (considering the long gestation period of the staff paper). At any rate, today's discussion should complement usefully previous Board discussions on the balance sheet approach and debt sustainability.

Let me say at the outset that the basic approach of the paper on reserve adequacy, debt management, and private liability management—the emphasis on the ratio of short-term external debt to reserves and the inclusion of policy and institutional arrangements, including the relationship with private sector liabilities—seems reasonable and comprehensive enough. We also support the staff's conclusions following from this approach, that more research is needed in a number of specified areas—such as augmented ratios of foreign current liabilities to reserves and projecting reserve coverage ratios under alternative scenarios. In the end, a possible adjustment or refinement of the guidelines on public debt management and of the guidance for the Fund staff in surveillance and program design may also be required. But we are mindful of the reservations made in a number of preliminary statements—such as those of Messrs. Schwartz and Callaghan and Cho and take their point that one has to be careful about the interpretation of quantitative results and the choice of benchmarks and that we are only at the beginning of our work.

Furthermore, from discussions with the staff, I learned that they also fear being overloaded with additional indicators, the proliferation of which leads to more correlation and less information value, as pointed out in Mr. Padoan's and Mr. Lombardi's preliminary statement.

On excess reserve levels, while supporting the proposed approach and more work, we would like to stress that all work should be informed by the understanding that the results should be taken with a grain of salt. Specifically, if one accepts the "key message of the paper"—that "foreign exchange reserve levels should reflect the state of domestic balance sheets as well as the soundness of domestic institutions"—it becomes quite clear that a number of judgments are

involved, such as on the quality of debt management, banking supervision or the state of corporate governance. For instance, while we may have a lot of information in many countries on banking supervision through the FSAP process, the Fund has little or no information about corporate governance in many member countries.

Also, while accepting the broader approach proposed in the paper that we must look at the external liabilities of the private sector because, as pointed out in the paper, in many countries the Lawson doctrine (that the public sector is not responsible for and does not cover the liabilities of the private sector) does not apply, it is doubtful whether all the relevant data on the debt of the private sector will be available to the Fund. There is no way that the central bank or statistical office of a country without capital controls could collect data on the indebtedness of nonfinancial private enterprises. On the other hand, it would be interesting to learn from the staff in which or in how many countries the Lawson doctrine holds because there are sufficient firewalls in the form of good bankruptcy laws. The response to this question is quite relevant in terms of the message that the Fund wants to send and in terms of whether there is a potential moral hazard in the Fund's approach.

Given the constraints on policy makers in the form of the underlying monetary and exchange rate regimes, we are not very hopeful that "an authoritative and operational cost-benefit approach to reserve adequacy"—as expressed in para. 12—could ever be prepared by the staff or any research institute. In my opinion, the Fund's analysis and advice can and should be improved but expectations of a perfect and authoritative system of analysis would not be realistic.

Nevertheless, we think that the appeal and the impact of the staff paper could have been improved by demonstrating the relevance of the proposed approach and the underlying theory in the form of presenting some empirical examples or case studies of some current cases of high reserve levels. I for one would have been very interested in seeing what the implication of the proposed approach for China, India and Japan is. If the results were to show the existence of excessive reserves and the associated high financial costs and the respective authorities could still give good arguments for accepting such costs and might even have a different cost concept. Mr. Padoan and Mr. Lombardi rightly propose to further explore the cost of excessive reserves in the context of the challenges of financial liberalization and exchange rate regimes. At any rate, perhaps in the follow-up discussion, we could see some illustrative examples which would bridge the gap which exists in the present paper between presentation of principles and an exploration of the applicability of the approach to the practical discussions going on in the Fund.

One cannot avoid the impression that not all Fund missions' assessments of exchange rate issues and excess reserve levels are built on as complex

considerations and analyses as outlined in the paper at hand. Therefore we share the view—expressed sometimes in the form of questions by other speakers—that the analytical findings of this paper and the results of possible future research and work should at some time—i.e. after carefully weighing the objections made by many speakers today and a discussion of the additional research and refinements in the Fund's approach—be eventually incorporated in the surveillance and program design work of the Fund.

We were surprised that little or no attention is paid in the staff paper to one basic consideration that public authorities would likely keep in mind when choosing between foreign or domestic indebtedness, namely the expectation that foreign debt would impose for most countries a higher degree of discipline on economic policy than would domestic debt. While we all want to prevent crises, it is also clear that crises have a useful function: the specter of an exchange market reaction or crisis will keep irresponsible policies in check.

Finally, it may be interesting to look into the methodology and benchmarks used by other surveillance bodies. I am specifically thinking about the rating agencies that rate the countries' long and short-term foreign debt. What is the methodology and what are the criteria used by these agencies to assess reserve adequacy which may result in changes in the ratings? Can the staff comment whether this could be an avenue to explore or if the Fund's approach is similar?

Mr. Miyoshi made the following statement:

Like other Directors, we welcome today's discussion and thank the staff for preparing a useful paper. It rightly highlights the interconnectedness between the issue of reserve adequacy and that of public debt management or private liabilities management. Although the title of the paper may have been somewhat confusing, we find this broad approach appropriate.

As some Directors pointed out, however, the paper lacks enough compelling evidence as to why the staff's proposals are justified and others are not, including the proposed two augmented ratios for evaluating reserve adequacy. Although most of the staff's observations are indeed appealing theoretically or conceptually, it seems that they are over-ambitious in some proposals and reaching for excessive generalisation in others. While we encourage the staff to work further on this issue, we are not fully prepared to endorse the proposed avenue for that work. To that end, the staff's comments at the beginning of the discussion seem sensible.

Turning to our substantive comments, we agree with Messrs. Schwartz, Bennett, Brooke, and others, that reserves cannot substitute for sound policies and strong institutions, and we think that the paper should have emphasised this point further. As Mr. Brooke mentioned, however, institution building often takes time,

and it also does for a country to convince investors that it will sustain sound policies. Market confidence matters greatly in this area, and it is therefore appropriate for countries that have not yet established confidence to have a sufficient buffer in the form of reserves, even though that buffer should be of a temporary nature.

On assessing reserve adequacy, we broadly concur with the arguments put forth by Mr. Callaghan and Mr. Cho. A quantitative benchmark of the short-term debt to reserve ratio of one may be a useful starting point for further analysis. As the staff paper rightly states, however, country-specific or institutional factors are of key importance here. Since not every factor can be assessed quantitatively, there is danger in relying so much on quantitative indicators that the need for country-specific judgements is overlooked. In this respect, we cannot support the proposed cross-country tables of the short-term external debt to reserves ratio in multilateral surveillance. We also share Mr. Callaghan and Mr. Cho's reservations about the work on a cost-benefit analysis of reserve accumulation. While it is understandable that prominent economists such as the Fund staff are tempted towards a more quantitative or "scientific" approach, there is the danger of "false science" with this work, which should be avoided.

We think that the staff's policy advice on public debt management is generally appropriate. But here we join Mr. Kremers and Mr. Roovers in emphasising that risky currency and maturity compositions of sovereign debt are mainly a reflection rather than a cause of underlying vulnerabilities. As Ms. Jacklin and Mr. Baukol suggest, the development of broad and deep domestic bond markets would contribute substantially to reducing risks stemming from currency and maturity mismatches. Yet, again, a country needs to have put in place sound policies and strong institutions in order to develop these markets. Unless investors have sufficient confidence in the soundness of policies, institutions, the currency and, ultimately, the country concerned as a whole, such a desirable environment is difficult to obtain.

With regard to private liability management, we share the staff's view that ideally the private sector would and should minimise liquidity risk by hedging exposures and building adequate buffers. But we do not live in an ideal world, as Mr. Callaghan and Mr. Cho point out. In the absence of deep domestic markets and hedging instruments, both the public and private sectors are exposed to significant market risk, which calls upon a significant level of international reserves to respond to shocks. While the staff seems to stress the importance of a robust regulatory environment, this cannot be built in a day. Finally, we agree with Mr. Portugal and Mr. Tombini, as well as Ms. Jacklin and Mr. Baukol, that monitoring balance sheet exposures in the corporate sector is likely to be done most efficiently through financial supervisory regimes. We would reiterate our view that the problem of the lack of timely and accurate data on corporate sector balance sheets is likely to persist and that, even if substantial resources are spent in this area, the expected benefits would be minimal.

Mr. Palei made the following statement:

We welcome the staff paper aimed at integration from a liquidity management perspective of various strands of the Fund's related work. Indeed, vulnerability analysis and related indicators, financial soundness indicators, debt management and debt sustainability analysis, balance sheet approach, data initiatives and the use of alternative economic scenarios feed into many ideas offered in the staff paper. The staff paper is a good input to the upcoming review of surveillance, which will take stock of these initiatives and propose plans for future work. As many thoughtful statements demonstrate, the proposed umbrella material is likely to further stimulate the discussion on the issues central to the Fund's work, and we support publication of this paper.

The description of the main factors affecting the determination of the adequacy of reserves is broad, and we generally agree with the thrust of the analysis. At the same time, we would have preferred to see a more explicit distinction between the static evaluation of the adequacy of the reserves and a more dynamic approach. In many countries current authorities have to deal with inherited problems and their actions in terms of making improvements are rather constrained by the existing institutional arrangements, as well as by the level and structure of domestic and external debt. The challenge is to design a strategy of moving from the current state to a more optimal structure of the reserves and debt, to a more resilient institutions and more developed financial markets. The Fund should become more active in advising the countries on the design of these strategies.

Similar to other Directors, we would emphasize more the transitional nature of the anti-crisis defense based on accumulation of foreign exchange reserves, and the important role of the overall incentives' structure in the economy, a point well-made by Mr. Padoan and Mr. Lombardi.

The issues of availability of additional liquidity support from the international financial institutions as well as from bilateral official sources could also have been addressed in the paper in more detail. Here the staff could elaborate on the role of the international lender of last resort. Also, for example, under the Chiang Mai initiative, the network of bilateral swap agreements can significantly affect the conclusions about the adequacy of foreign exchange reserves in at least some of the participating countries.

For a few countries with open capital account and exposure to international financial markets, such as Mexico, Chile, Russia, and South Africa, the terms of trade shocks working through current account still play an important role in the determination of the adequacy of reserves. I believe that Mr. Shaalan and Mr. Bakhache made a similar point in their Gray. It is no accident that some of these countries have special stabilization funds where foreign exchange is accumulated at the times of favorable prices in order to facilitate economic

adjustment when the situation deteriorates. As Mr. Portugal and Mr. Tombini have pointed out, the analysis of stabilization funds could have been included in a comprehensive framework of liquidity management.

The staff emphasized in their paper the importance of institutional features affecting the conclusions on the adequacy of reserves. The case-by-case analysis is, therefore, imperative as is the qualitative analysis in addition to quantitative benchmarks. At the same time, the staff recognized the role of the latter and proposed two augmented ratios to judge the adequacy of the reserves as well as the use of rolling liquidity analyses. While, in Appendix II, the staff tried to provide an empirical evidence on the explanatory power of various indicators in explaining the *crisis index*, more justification is certainly needed to justify the proposed use of augmented ratios as a part of typical vulnerability analysis. On the rolling liquidity analysis, we have always favored the use of the alternative scenarios. This practice is not yet uniform. If the use of alternative scenarios becomes a norm and the augmented ratios prove to be useful, a rolling liquidity analysis may also be applied. Again, at this stage, it would be premature to make any decisions on their widespread use. We are also wary of the idea to include cross-country tables comparing the augmented ratios, since they may distract from the in-depth analysis of the countries distinctive features.

Most Directors insisted on having better defined operational recommendations and suggested various avenues to achieve this goal. The staff would be well-advised to reflect on these proposals and identify the most promising ones. It seems to me that most of them will affect the Board's work program rather than result in a new guidance note for the staff. In particular, I see a need to formulate the complementary principles of debt management and propose their inclusion in the future editions of public debt management guidelines; to refine the proposals on the bank supervision and prudential regulation and decide whether they should be discussed with the Basel Committee, as some of the Directors have proposed, or, alternatively, whether the best practices should be more systematically analyzed and disseminated; the staff could also think on whether any amendments to the design of the FSAP are needed in order to have a better grasp on liquidity management. Additional work on these and other proposals should follow today's discussion.

Mr. Boitreaud made the following statement:

We welcome an interesting and much awaited paper on the interaction between reserves, public debt management, and private liability management. These themes were to the point, judging from the various and sometimes contrasted reactions of previous speakers. We broadly concur with the proposals in the paper as key elements in implementing our balance sheet approach and support its publication.

I have, at the outset, one general comment rather similar to the one expressed during our discussion on sovereign debt structures. Refining the liquidity of reserves or improving the composition of public debt is certainly laudable objectives but they are subordinate to:

- first, sound and prudent macroeconomic policies aimed at reducing external vulnerabilities ;

- second, to the existence and proper functioning of a robust regulatory and institutional environment.

These two objectives are not the focus of today's discussion but we should keep them in mind while examining the issues at stake.

Now, on the core of the report, I will make three remarks.

First, we strongly support the paper's objective to enhance the Fund's approach to reserve adequacy. As mentioned by staff, as well as by several speakers, the current framework seems a bit constrained and limited with regards to the complexity and diversity of country circumstances. From this point of view, supplementing the ratio of short-term external debt to reserves with the two other ratios proposed by staff, appears sensible and should allow for more refinement on our assessment of the adequacy of reserves. Widening the list of factors examined when reaching a judgment on the appropriate size of reserves to other categories of liabilities, such as external liabilities of the private sector, or foreign currency liabilities of the private sector to residents, also seems the right way to go. At the same time, we agree with the reservations expressed by several Directors on the dangers of rigid and standardized benchmarks. What the staff of the Fund and our Board need is an enriched information to facilitate as much as possible case-by-case assessments and, when relevant, case-by-case decisions and I believe that today's paper go in the right direction. Like Mr. Bennett, we believe it would be useful to include cross-country comparisons of the ratio of short-term external debt to reserves, as well as the augmented ones in all surveillance documents while ensuring that the comparisons are drawn from similar cases, for example countries with a pegged currency or countries with limited external trade. We also welcome the staff's insistence that reserves do bear a cost and that we should aim at an appropriate, rather than at a maximal level of reserves. Like others, we expect further work on this particular issue in the months ahead.

Second, we support the staff approach with regard to liabilities' management, in particular their focus on combined maturity and currency mismatches in the private sector. Liability management in the private sector can indeed have important implications for the public sector, particularly through implicit guarantees as empirically demonstrated by the experience of the last ten years. These potential risks are exacerbated when the private sector is unable to hedge interest and currency risks which strongly advocates in favor of a close

monitoring of bank exposure to maturity and currency mismatches, as they are a primary source of risks. As mentioned by several speakers, the supervisory regime of financial intermediaries should play a central role in monitoring these imbalances and mismatches, which is related to my first point on the importance of an efficient and respected regulatory regime. On a more technical aspect, we share Messrs. Andersen and Farelius's remark that the introduction of inflation-indexed instruments may not necessarily be interpreted as a signal of weaker resolve to fight inflation but could also be understood as giving the authorities incentives to lower inflation.

This leads me to my third and final point on the current constraints on data availability where improvements are crucial. We had several opportunities over the past months to discuss the question of data provision to the Fund and the progress on the financial soundness indicators. I was struck during these discussions by the limited availability of data, not only on the debt of private financial or non financial entities, but also of the government itself. I would like to know how far staff's proposals could be implemented with the data currently available. In particular, I would be interested to know from the staff the number of countries where they have precise information on the composition of public domestic debt. Like Mr. Brooke, we would encourage the staff to raise concerns in Article IV staff reports more forcefully when key information about the composition of public debt and banking sector assets and liabilities are not made available to them.

To conclude, the focus now should be to ensure the rapid implementation of the recommendations of the paper. I thank Mr. Kincaid for the information provided today but I would appreciate if the staff could give us a more detailed sense of the road map and the steps ahead. Is the staff going to try this enriched approach to a few selected cases and get back to us with concrete proposals as is currently the case with our DSA approach toward LICs? How far are we from the elaboration of a guidance note to the staff, as mentioned by Mr. Brooke? What are the synergies with the current emphasis set by the World Bank on debt management issues, a point also raised by Ms. Jacklin and Mr. Baukol? These questions are all the more relevant since we are meeting today in a seminar framework. From this point of view, I fully share Messrs. Kremers and Roovers's point that the importance of this discussion may have warranted a more formal setting, allowing the Board to take a more forceful stance after having had two informal sessions on related issues.

Mr. Moser made the following statement:

Let me note that we were not disappointed with the paper's focus on emerging markets. On the contrary, we thought that the focus was appropriate, given that compared to advanced countries, emerging market countries rely heavily on risky forms of debt, such as short-term and foreign currency debt, which are clearly associated with a higher frequency of crises. This fact has been

clearly established in the staff paper on sovereign debt structure discussed at the Board recently. The composition of the Fund's lending portfolio also helps understand the emphasis given to Latin America in the staff paper, which is a sign of efficiency and not inequality of treatment.

Like many other Directors, we would like to stress that neither reserves nor sophisticated liability management procedures can substitute for sound policies and fundamentals. This point could have been given greater prominence in the paper.

On reserve adequacy, we agree with the staff that a benchmark value of 1 for the ratio of reserves to short-term debt is a sensible starting point of analysis for emerging market countries. The practical relevance of this indicator for crisis prevention is clearly supported by the empirical literature.

Regarding the proposed augmented ratios, although theoretically appealing, they are lacking sufficient empirical support at this stage, as mentioned by other Directors. As also noted by Messrs. Meissner and Meyerhoefer, judging from the simple econometrics scheme mentioned in the appendix, augmenting short-term debt for macroeconomic fundamentals seems to provide a much better indicator of vulnerabilities. This indicator would also be much less costly to compile, given the data requirements of other proposed indicators. I understand that there is some circularity in asking the staff for more empirical evidence and at the same time acknowledging that data requirements are not in place, but nevertheless we would like to ask the staff to do more work in this area, including on the suggestions made by Mr. Bennett, before we can support any specific additional indicators.

On institutional arrangements and practices, we agree that they should be taken into account when assessing reserve adequacy ratios. We wonder whether some suggestive quantitative evidence for the relevance of different institutional arrangements could be gained with the help of historical ratios for different countries or country groups, according to institutional arrangements.

On public debt, we fully concur with the staff that it is not only the size but also the structure of public debt that can, and often has been, an important factor in financial crises. The staff's policy advice on public debt management seems thus sensible.

Regarding private liability management, however, we concur with Messrs. Portugal and Tombini and other Directors that monitoring and regulating private sector liabilities is most efficiently done through the supervisory regime of financial intermediaries.

Finally, on future work, further work on the analytical issues mentioned by the staff is supported by this chair.

The representative of the European Central Bank (Mr. Wijnholds) made the following statement:

> The Fund has a central role to play in advising member countries on the adequacy of their reserves and debt management. The present discussion is, therefore, very welcome. In my previous capacity as Executive Director, I expressed some surprise that little original work on reserves had been done by the Fund for many years, unlike the situation from the 1950s through the 1970s. Since 1999 the staff has provided a few useful papers on the subject and the report under discussion is another helpful contribution.
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> But as the staff itself indicates, and many Directors have also pointed out, further work is needed in a number of areas. Liquidity management is after all a very complex matter which does not lend itself to a few simple prescriptions. At the same time, countries face important policy choices with respect to their reserve holdings and debt management. Under programs with the Fund, performance criteria are often set with respect to the floor for net international reserves (NIR) and ceilings for external borrowing, yet the way that NIR targets are arrived at remains somewhat of a mystery, at least for some of us. Under Fund surveillance, much attention has been paid lately to debt management. It seems to me that a more systematic analysis of reserve adequacy in the scope of Article IV consultations is also desirable. This can also be useful to highlight instances where reserve accumulation appears to go well beyond the optimal level—this was pointed out by Mr. Padoan and other Directors.
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> The remainder of my remarks relate mainly to reserve adequacy, where the real big challenge lies. A variety of countries face real issues, sometimes touching on the relationship between the central bank and the political authorities in this area. The general proposition, as in the case of exchange rate regimes, is that the optimal levels of reserve holdings of individual countries are strongly correlated to the characteristics of each country's economy. The staff makes a distinction between countries with no access to international capital markets, those with significant but uncertain access, and those whose currencies play a dominant role in international transactions. The first two categories are pretty much parallel to low-income countries and emerging market countries.
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> As regards the major currency areas, reserves in the United States, the euro area, and Japan may be used in exceptional situations to ensure orderly conditions of foreign exchange markets. The recent massive reserve accumulation by Japan, however, appears to have little connection with the need for a buffer against shocks.
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> For other advanced countries that tend to have a floating exchange rate with little intervention, reserve needs and hence actual reserve holdings tend to be relatively small. To the extent that these countries borrow in foreign currency, matching liabilities and reserve assets is an important consideration.

Messrs. Kremers and Roovers pointed out the importance of the composition of reserves in this particular instance.

As regards low-income countries, where more fixity of the exchange rate is often desirable, relatively sizable reserves are needed in view of the potential external shocks to which these economies are subject. For those countries where capital market access is largely or wholly absent, the traditional rule of thumb of allowing reserves of at least three months of imports can be seen as a useful starting point. This can be augmented with analysis of aid flows and foreign direct investment.

The most challenging questions with respect to reserve adequacy are faced by emerging market countries. Although most of them are currently operating floating exchange rates, the float tends to be a managed one, reflecting among other factors the thinness of their foreign exchange markets and the proneness to abrupt changes in capital flows. For these countries, relating reserves to short-term external debt is the most useful starting point. But this is not enough as the staff recognizes in the paper, leading to suggestions for additional ratios. These ratios can be useful additions that could cover situations like the crisis related to Mexican tesobonos a number of years ago or the Uruguayan run on foreign currency bank deposits.

A missing piece in the staff's analysis is how to incorporate into reserve adequacy analysis a more encompassing measure of potential capital flight. The staff's augmented approach does not cover situations "à la Argentina," where a major run on the banks in order to opt out of a mistrusted currency was only halted through extremely restrictive measures. Of course, reserves should not be used to defend an overvalued exchange rate for a prolonged period, but sudden and disruptive bouts of capital flight on account of nonfundamental factors should not be allowed to play havoc with the exchange rate. Hence, developing a more comprehensive approach to reserve adequacy than is contained the staff paper seems to be called for. One way of doing this is to add to short-term external debt a fraction of broad money supply as a proxy for potential capital flight. The staff is rather dismissive of the ratio of reserves to broad money supply, pointing out that the greater the degree of economic stability, the larger money demand and thus the lower the ratio of reserves to money. But this seems to be a problem only for countries where the process of monetization is still underway. For those emerging market countries where inflation has been contained, for instance through successful inflation targeting by the central bank, I doubt that this argument still has much validity. Furthermore, in order to get a better indication of potential capital flight, it may be useful to correct the ratio that incorporates broad money supply—or any other measure used as a proxy for sudden domestically-initiated outflows—with a measure of political or country risk. The higher such risk the more likely the occurrence of a sudden rush for the exit. Country risk measures are produced by many instances, including the economist intelligence unit.

The staff paper does not discuss other approaches to reserve adequacy that have been developed. A recent study by the central bank of Colombia takes into account elements such as the probability of an external crisis and the cost of holding reserves. While estimating the probability of a crisis is a difficult undertaking, the approach taken in this study merits a closer look. The recently published report to congress by the central bank of Venezuela on the adequacy of its reserves would also be worth mentioning. I also missed references to the recent literature on whether some countries, especially in Asia, are currently holding excess reserves. A recent paper by Bird and Rajan examined this issue under the title "Too Much of a Good Thing? The Adequacy of International Reserves in the Aftermath of Crises." All of this points to the need for further work, including on cost-benefit analysis of reserve accumulation, as the staff has recognized.

Finally, with regard to liability management, the staff enumerates a number of useful, though well-known, lessons. The stern warning against the dangers of borrowing in foreign currency is certainly in order. The staff nuances the general conclusion with the caveat that in countries with low debt ratios, no external imbalances, and a tendency toward appreciation, some foreign borrowing would not be sinful. Countries with high potential growth rates can also be included. While countries that are set to adopt the euro in the future may or may not be included in these categories, it seems clear that for these countries it would be appropriate to conduct some borrowing in euros, subject to the Maastricht criteria on fiscal deficits and government debt ratios. The staff also provides sound advice that short-term foreign currency denominated public debt should be hedged through reserve backing. This implies that short-term foreign currency borrowing should only be undertaken to build up international reserves and not to finance budget deficits; perhaps this should be made a little clearer.

I look forward to participating in future meetings of this highly important subject, which is especially relevant to central banks.

The Deputy Director from the Policy Development and Review Department (Mr. Kincaid), in response to questions from Directors, made the following statement:

I will start by making a few general points and then turn to my colleague who will answer many of the specific points raised by Directors. Let me begin by thanking Directors for their thoughtful statements. We appreciate the considerable interest shown in this topic, particularly the general support in the statements for the conceptual framework contained in the paper.

By the same token, we have listened attentively to the criticisms and the reservations that various Directors have expressed, as well as the calls for further work, both in analytical and empirical terms. The staff recognizes the need for further work in these areas, and indeed we referred to some avenues for future work in the issues for discussion listed in the staff paper. Directors have also pointed in their statements to new areas for work and we appreciate that. We will

study the statements and contact Directors bilaterally, as we try to come to some sense on how best to incorporate these various suggestions in the staff's work program.

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There is broad agreement among Directors and with the staff that international reserves do not substitute for sound macroeconomic policies and prudent debt management. That is a fundamental message which many Directors would have liked to see underscored to a greater extent in the paper. The staff agrees that international reserves are intended to provide a buffer allowing more time for adjustment. We were trying in the paper to better gauge how much additional time reserves provide a country in this adjustment process. At the same time, we recognize that higher international reserves are not always desirable. There is an opportunity cost of holding reserves and countries can hold excessive reserves, both from a domestic and an international perspective.

The paper proposes to enhance the Fund's approach to assessing reserve adequacy by having a more systematic consideration of augmented indicators to reflect the fact that there are possible sources of reserve drains that stem from foreign exchange denominated debt or foreign exchange demands of domestic residents. This augments the usual analysis of foreign exchange demands from nonresidents.

At the same time, we have stressed the importance of key policy and institutional arrangements—such as the exchange rate regime, openness to capital flows, financial sector supervision, and corporate governance—in assessing reserve adequacy. The greatest difficulty lies in how to bring these considerations into that assessment. We recognize that, when trying to do this, the staff and the authorities will face challenges related to data availability, analytical limitations, and the interpretation of the ratios. Fundamentally, we do not have at this time the empirical basis to suggest possible rules of thumb or benchmarks for these augmented indicators—that is part of our future work program—nor are we satisfied that we have the empirical basis to allow us to take into account in a quantitative matter the country specific factors mentioned before. What staff was looking for and found is strong encouragement from Directors to improve its analytical understanding of how to bring those factors into play in assessing reserve adequacy. While recognizing that judgment must play a factor in any such assessment, the staff feels that providing structure and empirical support for its analytical framework is a useful disciplining device. At the same time, it will provide more convincing evidence which can be presented to country authorities in the context of, for example, Article IV consultations.

Regarding the role of private sector liability management in the assessment process, we agree with those Directors that stated that the public sector should not take responsibility for private sector mismatches, cautioning in particular against higher reserve accumulation in a way that could be seen as creating moral hazard or implicit guarantees. That was not the intention of the

staff when drafting the paper. Indeed, we agree that financial sector supervision is crucial to avoid excessive mismatches in financial institutions, and, by extension, to ensure that their clients do not have excessive mismatches. Having said that, it is still important for the staff to work with the authorities to assess the possible implications of mismatches in the private sector for macroeconomic developments, including the soundness of the financial system. Such analysis is performed in the context of FSAPs. There is a difference between the objective of accumulating reserves as a hedge against imprudent private sector activity and the need to be aware of the policy implications of possible mismatches in the private sector.

Directors express interest in the staff's work program. As I made clear in my opening remarks, we do not see the next step as a guidance note. We see the need to undertake more analytical and empirical work and present it to the Board before we are in a position to present a revised framework that could become the basis for a guidance note. The interdepartmental committee in charge of assessing vulnerabilities, which includes PDR, ICM, MFD, Research, and area departments is a natural forum to bring together the various perspectives within the staff on debt management, soundness of the banking system, and an assessment of the prudence of macroeconomic policies. These departments will individually be producing papers as part of their own work program that will make contributions in these areas—some of these papers have already been issued, others will be forthcoming. PDR will in the next few months present for Board consideration, probably in a seminar format, further work on the balance sheet approach, including its application to individual countries, to show how, with some ingenuity, the limitations with respect to data can be handled to still obtain a clear picture of the imbalances that exist in some economies. This is the kind of case study work that some Directors have requested. In addition, the work program seeks to enhance the empirical understanding of the various indicators put forward in the staff paper, although it is unclear at this stage when this empirical work will come to a successful conclusion in the form of working papers or Board papers.

The staff representative from the Policy Development and Review Department (Mr. Desruelle), in response to questions from Directors, made the following statement:

Let me first cover the questions on the use of quantitative indicators, in particular the questions asked by Messrs. Padoan and Lombardi on the value of additional indicators. There is likely to be decreasing returns to scale with the addition of new indicators. However, additional indicators may prove valuable, particularly when they move in a different way from baseline indicators, as such divergent behavior provides a starting point to ask probing questions.

On the choice of indicators, Messrs. Meissner and Meyerhoefer asked about the possibility of augmenting the reserve to short-term debt ratio with the current account position, given the empirical evidence found by the staff for such

an indicator. This is indeed a promising indicator and certainly one on which it would be interesting to do further work. The main attraction of this indicator at the conceptual level is that it combines potential pressures from the current and capital account sides. The drawback of the indicator compared to the other indicators presented in the paper is its complexity—it relies on a formula that is based on econometric results, which take account of a variety of variables. This in itself complicates the interpretation of the indicator. It also raises questions about its robustness, linked to the robustness of the underlying econometric estimates.

As to the indicators proposed in the paper, Messrs. Portugal and Tombini questioned the rationale to focus on public debt obligations to residents that are indexed to foreign currency. To be precise, for a variety of reasons, the paper puts emphasis on short-term foreign-currency-linked debt, that is to say foreign currency indexed or foreign currency denominated public debt to residents. These reasons include the fact that this type of debt instruments carry particular risks stemming from combined maturity and currency mismatches; the fact that, from the point of view of relevance to a large number of countries, we have seen a rise in the issuance of foreign currency denominated public debt; the fact that this kind of instruments has played an important role in past crises; and the fact that from the initial work carried out by the staff, there is some degree of empirical support for the use of this indicator. Nevertheless, we fully recognize the importance of doing further work in this area.

Mr. Brooke and a number of other Directors asked why the staff has not followed the approach adopted in the context of the WEO, which is to focus on cross-country panel regressions. We definitely see this as a promising approach, but it is important to realize what can and cannot be achieved through this approach. The Research Department was extremely careful in phrasing the conclusion of this chapter of the WEO, saying that "analysis suggests that foreign exchange reserves in some economies have recently increased more quickly than warranted by traditional comparisons." This chapter analyzed the value of reserves in particular countries across time in search for a potential structural break in the evolution of reserves. The type of regressions used for this analysis is not well suited to make comparisons of levels of reserves against an international norm that would apply across countries. This is definitely an area where further work would be useful.

Regarding questions on data issues, at the recent discussion on data provision to the Fund, the Board endorsed a pragmatic action plan to improve data availability and serve the needs of the various balance sheet initiatives. A number of the envisaged steps relate directly to the data that would be useful for liquidity management analysis. These include further work on reporting public debt data to the Fund with adequate breakdowns on the composition of debt; and promotion of enhanced collection and sharing of monetary data, including the assets and liabilities of the banking sector, also with adequate breakdowns. There will also

be consultations on the prescribed elements on public debt in the context of the next review of the SDDS.

In terms of what can be done at this stage with available data, there was a question on the possibility of using data available from the Bank for International Settlements (BIS) or other institutions. There is a substantial amount of BIS data that is valuable in cases where country data is not available. The approach of using creditor-side data to validate or complement country-side data has been used over the past four years in the development of external debt statistics. For instance, the BIS consolidated banking statistics and BIS data on debt securities provide useful information. However, these sources cannot provide a complete view of the puzzle.

Finally, a number of Directors asked about collaboration with the Bank on debt management issues, an area where the Bank is very active. There is ongoing coordination on technical assistance between the Fund and the Bank in this area. The World Bank holds biennial conferences of debt managers. The next is scheduled for the Fall of 2004 and Fund staff is expected to participate in that conference.

Mr. Portugal made the following additional statement:

I am glad that we are holding this seminar to discuss the issue of liquidity management on which there is still limited knowledge. I would like to comment on three issues that have not been sufficiently addressed in the staff's responses.

First, on the value of one for the ratio of short-term debt to reserves. This value first came about as a suggestion of countries with fixed exchange rate regimes, as an attempt to build confidence on currency board regimes. The staff took this suggested value and started using it more widely, lending what I think is unwarranted credence to it. The staff indicates that this is just a starting point for the analysis, but my impression is that it is both the starting and the end point. If this was really a starting point, then we should have two starting points to take care of countries that have different exchange rate regimes. The staff observes that there is some confirmation of this critical value because the crisis index used in its analysis lends credence to that. However, this index was constructed using only data for emerging market countries for a period when these countries had mostly fixed exchange rate regimes. If the staff had broadened the sample to also include advanced economies and periods when emerging market countries adopted flexible exchange rate regimes, I suspect that they would have obtained different results. My insistence on including advanced economies is not just a question of equality of treatment, but also of need to improve the analysis. Testing the explanatory power of a certain variable requires including in the sample countries with different characteristics. Since reserves are costly to accumulate, we need to have more certainty before advising 182 member countries to accumulate more reserves.

The experience of Brazil, in particular, was that about $50 billion in reserves were lost in 1998 and 1999 trying to defend a fixed exchange rate regime at a time when the country's gross financing requirements—which could be seen as a proxy for short-term external debt—were about $60 billion, suggesting some correlation between these two variables. However, when crisis hit again in 2002, after Brazil had moved to a floating exchange rate regime, $10 billion dollars in reserves were lost, compared to a gross external financing requirement of $40 billion. Even in the absence of any econometric estimation, these figures seem to suggest that reserve coverage would be different under a fixed and a floating exchange rate regime. Other country-specific conditions also need to be taken into account, including the current account position, as suggested by Mr. Meissner, and non-debt creating capital flows, such as foreign direct investment or portfolio investment. The staff should find a way of incorporating all these variables in its analysis if country specific circumstances are to be taken into account.

The second topic that I would like to address is the augmented ratio of reserve adequacy that would include foreign exchange indexed debt. The staff has indicated that there is no empirical evidence to suggest rules of thumb for the value of this augmented ratio. If that is the case, I wonder if there is any empirical evidence to support that there should be an augmented ratio in the first place. If there is no empirical evidence to suggest what its value should be, how can there be empirical evidence to suggest that this should be an indicator? The representative from PDR has argued that the staff proposes this ratio because there is some empirical evidence that this kind of debt has played an important role in several recent crises. There could be a case for including in the augmented ratio debt denominated in foreign currency to be paid to residents, as banking systems with higher deposits in foreign currency than assets in foreign currency can run into problems given the impossibility of printing foreign currency. However, the situation is totally different with respect to domestic debt denominated in local currency, paid in local currency, and only indexed to the exchange rate. While this type of debt could create pressures on the fiscal accounts, I cannot see how it could create pressures on reserves in a different way than any other type of public debt. The staff has not addressed this point in its responses to questions from Directors. In fact, the experience in Brazil is exactly the opposite, with domestic debt indexed to the exchange rate reducing pressures on reserves. Therefore if anything, this kind of debt should be deducted from a ratio of short-term external debt to reserves, rather than added. Augmenting the ratio with this type of debt would imply double counting, as I explained in my preliminary written statement.

There is no question that in an ideal world, countries should issue long-term debt in their own currency at a fixed interest rate. However, this is sometimes not possible in a number of countries, not because debt managers do not know how to manage their own debt or because they do not want to pay a high price, but because there is no one to buy certain types of debt. In these cases,

domestic debt indexed to the exchange rate is certainly better than other alternatives, such as monetary financing, issuing domestic debt denominated in foreign currency, or issuing external debt of short-term maturity. I really do not see what is the point in trying to stigmatize this type of instrument, as would be the case if it were to be included in any augmented ratio of reserve adequacy, as proposed by the staff.

Finally, regarding next steps for the staff and the Fund in the area of liquidity management I think that perhaps the approach that we are taking is not the most enlightened one. We should not be focusing on devising ever more encompassing and demanding vulnerability indicators, as we already have some good sense of the vulnerabilities we face. Instead, the Fund should try to help countries focus on implementing sounder economic policies, and should come up with creative ideas to help in concrete ways to mitigate these vulnerabilities. Developing crisis indexes is not the best way forward. The Fund should look for ways to solve the problem, instead of trying to devise ever more refined vulnerability indicators, which could lead to what Mr. Callaghan has referred to as false science. The paper itself provides a good example of the search for solutions to the problem, which is an interesting suggestion of gradually increasing the interest rate resetting periods on floating-rate debt. These are the kinds of things that the Fund should be thinking about. An innovative suggestion could be considered with respect to debt indexed to the foreign exchange. It would be more important for the Fund to try to understand why local private markets do not develop hedge to this type of debt, and to suggest to countries measures to help develop such markets, rather than trying to focus, somewhat naively in my view, on developing augmented ratios that countries will not be able to meet. If certain countries need to issue debt indexed to the exchange rate, the reason is because they cannot accumulate sufficient reserves. In this context, what is the point of asking them to meet another reserves ratio?

Since we are in a seminar discussion, I offer these comments and thoughts on what could be the way forward. The key is to focus on the real problem, instead of trying to devise ever more supposedly precise instruments to measure a well-known problem.

Mr. Brooke made the following additional statement:

One issue that has not been touched upon in the staff's response to questions from Directors is whether the agreed international best practices for banking supervision and regulation adequately address the risks associated with currency and maturity mismatches, and whether there is a need for the Fund to raise that issue with the Basle committee and other similar bodies. I would be interested not necessarily in a detailed answer, but just an overall sense of whether staff is concerned about this and is intending to take any actions in this regard.

I would also like some clarification on the implications of the current discussion for the Fund's work. The Deputy Director from PDR rightly indicated that many issues under discussion are a work in progress and that the analysis needs to be refined before deriving any guidance note to the staff. Having said that, there seemed to be a number of more routine suggestions that would be relatively small but quite useful additions to the regular toolbox used by the staff for Article IV surveillance. I wonder whether the staff is suggesting that none of these elements will be taken forward at this stage, or whether some of them would be readily adoptable into the staff's toolbox.

Ms. Jacklin made the following additional statement:

I agree with Mr. Portugal that we are already aware of where a lot of the vulnerabilities lie and what some of the ultimate solutions are, in addition to sound policies. It is useful, as suggested in our statement, to start addressing these issues in conjunction with member countries, market practitioners, and academics to try to come up with new practical ideas to deepen and broaden debt markets and to improve public debt management. There is also a need to do a better job in measuring sources and uses of funds to get a better sense of where potential vulnerabilities lie. This is the most important job for the Fund going forward.

I favor continuing to do work on reserve ratios, and I agree with the representative from the European Central Bank that research should probably be broadened to better assess what may be relevant ratios for countries in varying circumstances. This would include, as Mr. Prader suggested, looking at what rating agencies are doing and asking ourselves whether that is enough. In fact, if we find that their analysis is not particularly compelling, it would be useful to make that analysis public.

I also was not particularly comforted by the staff's answer on coordination with the World Bank. What we were referring to in our statement was not coordination on technical assistance or holding joint conferences, but, more generally, whether the institutions are learning from each other, and whether research is being coordinated in the areas of liquidity management and the balance sheet approach. My sense is that there is no real coordination of our knowledge base and in terms of prioritizing tasks in this area.

Similarly, we are glad that there is an interdepartmental committee looking at vulnerabilities, but we do not have a sense that management considers balance sheet vulnerabilities as a key task, as this would require looking at the work being done across all the departments of the Fund and the World Bank to try to coordinate and prioritize efforts so that maximum results start to be achieved from all of these efforts. In that respect, I am somewhat disappointed with the staff's answers, and I hope that Fund staff and management can put their heads together on how we can be even more successful going forward in producing increasingly valuable and practical work for our membership.

Mr. Torres made the following statement:

> I would like to make a couple of remarks on what we would like to see in the future work on this topic. I strongly support Mr. Portugal's comments regarding the staff paper's focus on developing countries. The staff justifies this focus by saying that these are the countries that rely on risky forms of debt. However, some developed countries also rely on risky forms of debt. Indeed, some of these countries rely on the assumption that current willingness of the market to lend will be maintained without limit. If this assumptions fails to hold at some point, the consequences for developing and emerging market countries will be great. We would like these issues to be assessed in the staff's analysis.
>
> We also agree with Messrs. Portugal and Tombini on the need to assess the consequences of monetary policies in some advanced countries in determining the appropriate level of reserves in emerging markets.
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> Finally, I would also like to see an assessment of the consequences of some policy failures in advanced economies, namely subsidies that enhance vulnerabilities of developing and emerging market countries that rely on certain export commodities. While the specialization of these countries may make them vulnerable, their vulnerabilities are compounded by policy failures in advanced countries, with implications for determining the adequate level of reserves.

Mr. Daïri agreed with Mr. Portugal's concern that it would not be appropriate for the staff to attempt to micromanage liability management practices of member countries. Focusing on short-term debt over reserves as a crisis indicator may be stating the obvious, as countries entering a crisis would by definition face a shortening of their debt structure. Therefore, it appeared difficult to draw any particular conclusions from the staff's use of that ratio as a crisis indicator. As indicated by Mr. Portugal, it would be more important to assess the specific areas of vulnerability and strength of each national economy, rather than relying on specific benchmarks to guide the staff's advice on reserve adequacy—the staff's analysis of worker remittances in Morocco was a case in point. More generally, the focus should not only be on risks of borrowing by emerging markets, as there may also be opportunities of higher return than in advanced economies if borrowed money could be used efficiently. If that were the case, the possibility of higher returns may justify taking such risks, with the necessary safeguards in some cases.

Mr. Moser recalled that the staff paper on sovereign debt structures recently discussed at the Board concluded that there were clear differences in the debt structures of advanced and emerging market economies. In that context, it would not be efficient for the Fund to use the same analysis in different groups of member countries just for the sake of so-called equal treatment. The reference made by Mr. Torres to the need to also take into account the willingness of markets to lend actually provided good justification to adopt a straightforward ratio of one for short-term debt over reserves as a general benchmark, irrelevant of the exchange rate regime of each country. There was empirical evidence that emerging market countries tended to lose access to credit markets for periods of up to six months. Meeting the benchmark of one for the referred

ratio would guarantee that short-term debt could be paid during those periods of loss of market access. In addition, Directors should bear in mind that the staff's proposal was not to use the proposed value of one for the ratio as part of Fund conditionality, but only as a benchmark in Fund surveillance.

Mr. Portugal clarified that his request to extend the analysis to also cover advanced countries was not related only to equality of treatment but to the efficiency of the staff's analysis. The idea implicit in the staff's analysis was that countries underwent financial crises because of the low level of reserves held. A more diverse group of countries should be included in the sample in order to better test the explanatory power of low reserves in creating crises. It was likely that other factors correlated with the low level of reserves would be at the root of financial crises. If that were the case, the staff's analysis and advice should focus on those other factors, rather than on reserve adequacy.

Mr. Daïri considered that focusing only on emerging markets would not be appropriate, as large countries should also be accountable for their reserve management in terms of currency composition and other aspects. Widening the scope of the analysis would send a signal of evenhandedness of treatment, in addition to helping prevent mismanagement in all member countries.

Mr. Torres clarified that his earlier reference to willingness to lend referred to deeply indebted advanced economies that may need to raise interest rates if willingness to lend fell. Such a development would have an effect on the debt service of emerging market countries and on the level of reserves that they would need to hold. That was the reason why advanced economies should be covered in the analysis, rather than any political concerns about equality of treatment of developed and developing member countries.

The Deputy Director from the Policy Development and Review Department (Mr. Kincaid), in response to questions from Directors, made the following additional statement:

> Let me start by saying that the staff does not consider low level of gross international reserves as generating crises. Bad macroeconomic policies and external and domestic shocks generate crises. The question is whether having a higher level of gross international reserves when a shock hits or when markets change their perceptions would help the country buy time to put in place suitable policies or for those effects of those policies to be felt. For emerging market and developing countries, where the opportunity cost of accumulating reserves tend to be larger than in many industrial countries—particularly countries which have key currencies—that question is much more acute. That is one reason to focus on this group of countries to try to improve our understanding of reserve adequacy. It is not that a low level of gross international reserves generates crises, but it is a question of having an adequate buffer or cushion to deal with crises when they appear.
>
> Mr. Portugal laid out how having $50 billion in gross international reserves was quite useful against a gross financing requirement of $60 billion in

the case of Brazil, how that helped avoid a bigger crisis, and how the shift to a floating regime reduced the needed reserve cover. The staff's empirical work on reserve holdings by emerging economies presented in the September WEO report shows a similar correlation. A variable for exchange rate flexibility or volatility is contained in the regression, and a more flexible exchange rate does reduce the level of reserves that countries hold. What is interesting about these regression results and other empirical work undertaken by the staff is how small the coefficient of exchange rate flexibility is. A floating or more flexible exchange rate does not produce a large change in a country's level of international reserves. As indicated by the other staff representative from PDR, the major explanatory variable in these regressions were fixed effects for individual countries. While country specific factors are important, the analysis does not identify those factors. Staff has therefore found it difficult to isolate country-specific factors and to utilize them as the basis for staff advice in individual countries. Going forward, the staff needs to improve its understanding of those fixed effects to improve our ability to assess the adequacy of reserves.

Concerning in particular the inclusion of other kinds of debt in the augmented reserve adequacy ratio, there is agreement that domestic foreign exchange denominated deposits should be counted as a possible reserve drain, because that obligation has to be repaid in dollars if the population decides to shift from a domestic dollar-denominated instrument to actual dollars. A genuine question arises about the treatment of domestic debt that is indexed to a foreign exchange but payable in domestic currency. The key difference with debt payable in a foreign currency is that the central bank can be a lender of last resort. As we have seen in other crisis cases, even debt payable in local currency can lead to excess liquidity creation as the central bank provides liquidity support to the banking system or the government because of rollover difficulties. Such excess liquidity creation can then spill over into the exchange rate or the balance of payments. While the mechanisms leading to a crisis are not the same for foreign currency denominated and foreign-currency linked debt, there is a need to closely monitor both kinds of debt. It is also important to note that the data template for international reserves includes as a memorandum item short-term domestic currency debt indexed to the exchange rate. The staff will explore different analytical approaches to these issues.

Several Directors have also referred to the need for creative ideas to overcome problems leading to over-reliance on foreign exchange debt and to help build sound domestic institutions. We will go back and discuss ideas on how the staff can best help countries' efforts to develop deeper and broader domestic currency markets. In addition to the idea of gradually lengthening periods of resetting interest rates, developing GDP- and inflation-linked bonds, other instruments and modalities are possible.

Turning to Mr. Brooke's question on the staff's views on foreign exchange exposures and the broader implications of dollarization for supervisory ratios, it

should be noted that the staff has presented a Board paper on these questions, as cited in the paper under discussion. In addition, the staff emphasized in its comments on Basle II sent to the BIS last year the need for differentiated supervisory ratios and indicators in dollarized economies, both from a liquidity and maturity mismatch perspective. The Monetary and Financial Systems Department (MFD), which has the primary responsibility for interfacing with the BIS on these issues, has been in contact with the BIS secretariat on elaborating the staff's experience and views in this area.

As indicated in my opening remarks, insufficient empirical basis exists to suggest rules of thumb or quantitative benchmarks for reserve adequacy indicators. The staff uses these indicators flexibly when trying to assess country vulnerabilities. If an economy has significant dollar deposits, we focus more on the augmented ratio to take account of additional risks. In such cases, this assessment is somewhat independent from the foreign exchange regime, because international reserves underpin the capacity of the central bank to act as a lender of last resort in foreign exchange. If an indicator moves abruptly and significantly in a worrying direction, it receives the staff's attention and it prompts questions on the reasons for that movement. Is access to markets being negatively affected? Is something happening with the conduct of monetary or fiscal policy? Monitoring of augmented ratios does not result in any specific actions by the staff, other than raising additional questions on developments in the economy. More empirical and theoretical work is needed before moving to the next step, which would involve discussing with the authorities a desirable level of reserves that takes into account various country specific factors.

The staff representative from the Policy Development and Review Department (Mr. Desruelle), in response to questions from Directors on the work of rating agencies, explained that the staff followed the work of those agencies to the extent allowed by available information. Rating agencies appeared to be paying increasing attention to the risks arising from dollarization, as well as to the desirable reserve cushion in those circumstances. One of the main rating agencies had recently declared that looking at foreign currency deposits and assets of the banking system would be part of its standard methodology to assess the appropriate level of such reserve cushions.

Mr. Moser asked the staff whether the expected result from including advanced countries in the regression on short-term debt over reserves would be a strengthening of the result obtained with the narrower sample used in the staff's analysis. It would appear that that should be the result of adding a group of countries with low incidence of crises and low levels of short-term external debt over reserves.

The staff representative from the Policy Development and Review Department (Mr. Desruelle) preferred not to anticipate the results of additional analysis based on a wider sample. In any case, the analysis would need to be carefully designed to take account of the quality of institutions and their role as a firewall against crises.

Mr. Portugal considered that the terminology and coverage of the paper appeared at odds with the comments by the Deputy Director from PDR indicating that the focus of the staff's analysis was to improve policy responses to crises, rather than better predicting crises. The use of terms such as "crisis index" and "vulnerability indicators" suggested otherwise. If the focus were on methods to deal with crises, a fundamental gap in the paper would be the discussion of alternative methods to reserve accumulation, including international mechanisms for sharing reserves with other countries. Regarding foreign exchange indexed debt, the solution to potential problems generated by that type of debt—excess liquidity, higher inflation, deterioration of fiscal accounts and debt sustainability—would have nothing to do with reserve accumulation and should perhaps be addressed under a different seminar.

Mr. Schwartz made the following additional statement:

> I am glad that the staff is considering the use of augmented ratios as additional indicators to guide the staff's work in monitoring evolving vulnerabilities. However, I would question any attempts to make an additional step to try to formalize this analysis into specific quantitative figures, given the need to take into account country-specific institutional arrangements and the complexity of data. The universe of variables that would need to be captured in the analysis—including corporate debt, household debt, government foreign exchange debt, government debt indexed to the exchange rate, and bank deposits in foreign currency held by residents and non-residents—would result in a large probability of error. It would not be as simple as using a benchmark of three months of imports over reserves.
>
> Institutional arrangements are certainly key and it would be preferable to look at those factors first and then use any quantitative analysis only as indicators to identify specific problems and areas for further research, in line with the staff's current use of such analysis, as indicated by the Deputy Director of PDR. For example, reserve accumulation would be more important in an economy with a fixed exchange rate than in an economy with a flexible exchange rate regime. Other country-specific factors to be taken into account in determining reserve adequacy include the extent of mismatches, the type of banking regulations, and the openness of the economy. Trying to come up with specific quantitative benchmarks while also addressing all these country-specific considerations seems an endeavor that might not be worth pursuing. In fact, there are even questions on the usefulness of the currently used simple benchmark of three months of imports in reserves, as institutional arrangements also have a bearing on the adequacy of reserves in this context. The ratio should just be used as a starting point and the Fund should look at many other elements before coming to a decision on a country's reserve adequacy. For example, it would not make sense to use that ratio in a closed economy.
>
> The point to be stressed is that each economy is different and each crisis has different roots. While it is useful to know where vulnerabilities lie and to develop tools to protect countries from every possible crisis, I would warn against

launching an overly ambitious strategy of uncertain value. It would be preferable to maintain the approach of looking at specific developments in each country during staff missions and raising concerns whenever a large amount of debt is linked to a given variable—be it the exchange rate, inflation, or any other variable—and that variable is expected to move drastically.

Mr. Daïri supported Mr. Schwartz's comments. In addition, the argument that a firm rule of reserve adequacy should not be applied to advanced economies because they had firewalls and institutional strength that protected them against crises could also be used for certain emerging market countries, as there were significant differences in terms of institutional arrangements among emerging markets. In that context, the preferred general approach should be to assess country circumstances on a case-by-case basis, rather than to develop new benchmarks of general applicability.

The Deputy Director from the Policy Development and Review Department (Mr. Kincaid) made the following additional statement:

I agree with Mr. Portugal that there are other aspects of reserve holdings to be considered, including reserve-pulling arrangements, contingency lines, and stabilization funds that can be drawn upon.

The Fund also provides support under appropriate safeguards to help countries in periods of adjustment. In the context of its surveillance operations, the Fund provides advice to country authorities on macroeconomic and structural policies that would help their economies grow at their highest potential. At the same time, the Fund should give some advice as to what would be an appropriate reserve cushion, given the specific factors of each country. Reserves owned by a country are a form of self-insurance that countries are expected to provide. While collective insurance might also be available by pulling the reserves of Fund member countries, there is a need to decide the desirable balance between self-insurance and collective insurance when designing a general framework. The assessment of reserve adequacy is a multidimensional variable, and that is how I would interpret Mr. Schwartz's remarks on the need to take a look at all these elements. The staff is trying to introduce greater rigor in taking into account all these elements in a systematic manner so that it can be held to a higher standard when concluding that reserve levels of member countries are either excessive or insufficient. Undertaking empirical work to support those judgments will undoubtedly improve the quality of Fund surveillance.

The Acting Chair made the following concluding remarks:

Our seminar discussion on the interactions between international reserves, public debt management, and private liability management in limiting liquidity risks has provided most useful guidance to staff on how to pursue the various strands of ongoing work in this area. Liquidity management is, of course, important for crisis prevention more generally, and complements our other work

such as on debt sustainability analysis and financial sector surveillance. Most Directors have supported the approaches to liquidity management outlined in the staff paper; however, a number of Directors underlined that it would be premature to prepare an operational guidance note to staff at this stage. Directors have encouraged staff to undertake further analytical and empirical work, to keep developing their diagnostic "toolkit," and to continue integrating liquidity management analysis in country work. They looked forward to formal discussion of this work at an appropriate point in the future. During today's discussion, Directors have made many helpful suggestions for taking forward this work, and the staff will give careful consideration to these suggestions.

Directors noted that foreign exchange reserves, along with the exchange rate, have a key role to play in helping countries cope with external shocks, as they provide a temporary buffer to limit immediate disruptions and give time to put in place appropriate policy responses. By extension, reserves can add to market confidence when they complement sound policies, thereby strengthening economic and financial stability. At the same time, Directors have rightly stressed that international reserves can neither substitute for sound macroeconomic policies and prudent debt management nor make up for fundamental external imbalances.

Most Directors recognized that pressures on foreign exchange reserves can arise from both external obligations and foreign-currency-denominated claims held by residents. Directors have also stressed that the cost of reserve accumulation must be considered when assessing reserve and exchange rate management. In particular, rapid reserve accumulation may reflect exchange rate rigidity and/or exchange rate misalignment, which can generate significant macroeconomic risks.

Reserve indicators are of course only a guide and a starting point in the analysis of reserve adequacy, and Directors have cautioned against a "one-size-fits-all" or mechanistic approach. Reserve indicators will need to be carefully interpreted, based on a complete analysis of, and careful judgments about, a country's macroeconomic circumstances, including its exchange rate regime, current and capital account flows, and structural and institutional characteristics.

Directors have had a broad-ranging discussion on how the Fund can strengthen its assessments of reserve adequacy. Most Directors have supported enhancements to the Fund's current approach to assessing reserve adequacy, which includes as a benchmark that reserves should be at least as large as the economy's short-term external debt (on a remaining maturity basis), although in this context also careful judgment on a case-by-case basis will be necessary. In this connection, there is broad support for the use of augmented reserve adequacy ratios that reflect risks associated with foreign-currency-linked public domestic debt to residents and foreign currency deposits held by residents in domestic banks. However, Directors have cautioned that the public sector should not be perceived as taking responsibility for private sector mismatches. Furthermore, a

few Directors did not consider foreign currency-indexed public debt held by residents to be a source of pressure on reserves, as in their view the demand for such instruments is mainly related to the hedging of private sector external liabilities. These Directors also considered that this proposed augmented reserve adequacy ratio would involve double counting and that it was highly correlated to other indicators adding little informational value. Directors generally supported the use of rolling liquidity analyses, which project reserve coverage ratios under alternative medium-term scenarios. However, some Directors stressed the need for caution in the public dissemination of such projections to avoid generating adverse market reactions. It was emphasized that liquidity management analysis should pay particular attention to factors that can have a substantial impact on the strength of domestic balance sheets and the transmission of shocks across sectors. These include exposure to international capital markets, local financial market development, public debt management, financial sector supervision and regulation, the insolvency regime, and corporate governance.

An important lesson from recent capital account crises is that the structure as well as the level of public debt can create major vulnerabilities in a country's balance sheets. More broadly, sound liability management by both the public and private sectors can play a major role in containing exposure to interest rate, currency, and rollover risks embedded in the structure of national balance sheets. Against this background, Directors saw merit in enhancing the Fund's policy advice on public debt management, building on the recently-issued Guidelines for Public Debt Management. Directors emphasized the role of short-term foreign-currency-linked debt in generating crisis vulnerabilities, and thus the need to monitor and address the combination of currency and maturity risks in debt structures. They noted the importance of integrating the analysis of public debt structures with that of macroeconomic developments and policies such as exchange rate issues and the currency composition of debt. Directors also pointed to key trade-offs and options involved in improving public debt structures that deserve particular attention, such as the different impact on liquidity and solvency of lengthening debt maturities or buying back debt, and the relative merits of inflation- and exchange rate-linked debt. In this connection, the development of deep and broad domestic capital markets can be crucial for improving the structure of public debt and reducing government dependence on foreign or short-term borrowing, and Directors have underscored the contribution that well-coordinated research and technical assistance from the Fund and the World Bank can make in this area.

Directors have also discussed how analysis of public sector balance sheets can be complemented by analysis of macroeconomic risks from private liability management and of the benefits of promoting appropriate buffers and hedges in private balance sheets. In this context, Directors agreed that the combination of maturity and currency mismatches in the banking system, as well as currency risk indirectly borne by banks as the result of credit risk in their loan portfolios should be subject to disclosure requirements and regulation. Directors also noted that interest rate risk is often a key source of vulnerability of the corporate sector that

warrants close monitoring. Noting the paucity of corporate sector data, a number of Directors considered that monitoring balance sheet exposures in the corporate sector is likely to be most efficiently done through the supervision of financial institutions. Directors have stressed the importance for countries to put in place the appropriate regulatory, legal, and institutional arrangements to ensure that the private sector optimally manages its liquidity risks and has no expectation of a bailout in the event of a crisis.

Directors noted that the increased focus on liquidity management confirms the importance of key balance sheet statistics in countries with access to international capital markets. In particular, it highlights the need for sufficiently detailed data on the structure of public debt and on assets and liabilities of the banking sectors. A number of Directors also stressed the need to improve availability of corporate sector data. It was noted that progress in this area will form part of the implementation of the pragmatic action plan agreed at the conclusion of the recent review of data provision to the Fund.

On the basis of today's discussion, staff is encouraged to pursue work in a number of analytical and operational areas related to liquidity management. These include, in addition to the work on public debt issues mentioned above, the reconciliation of data on public debt stocks, fiscal flows, and valuation changes; fiscal concepts that may better capture the potential consequences of poor debt structures; further analysis of debt-related reserve indicators; more complete cost-benefit analysis of reserve accumulation; funding of reserves; and the role of current and capital account flows in assessing reserve adequacy. Some Directors suggested extending the empirical work presented in the staff paper to cover advanced countries, including their public debt management policies and their policies that have a bearing on the appropriate level of reserves in developing and emerging market countries. The forthcoming biennial review of surveillance will provide a further opportunity to reflect on coverage of balance sheet issues in staff reports for Article IV consultations.

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