INTERNATIONAL MONETARY FUND

# Thirteenth General Review of Quotas—Assessing the Adequacy of Fund Resources

Prepared by the Finance Department

(In consultation with other departments)

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## I. INTRODUCTION

1. **The Articles of Agreement provide for general reviews of quotas by the Board of Governors at intervals of no more than five years.** The Twelfth Review was completed on January 28, 2003 and, accordingly, the Thirteenth General Review of Quotas must be completed no later than January 28, 2008.[1] The Thirteenth Review would be concluded by a Resolution approved by the Board of Governors, based on a report by the Executive Board.

2. **The Thirteenth Review provides an opportunity to take stock of the overall adequacy of Fund resources in light of developments in the world economy and the international monetary system.** The Resolution concluding the Twelfth Review indicated that the Executive Board intended, during the period of the Thirteenth Review, to monitor closely and assess the adequacy of Fund resources and to consider measures to achieve a distribution of quotas that reflects developments in the world economy and to strengthen the governance of the Fund. The latter two issues have since been taken up under the work program on quota and voice reform.[2] Accordingly, the focus of this paper is on the adequacy of Fund resources.

3. **The paper is organized as follows.** Section II considers developments since the Twelfth Review. Section III assesses the adequacy of Fund resources by considering quantitative indicators of the size of the Fund relative to measures of the world economy, trade, and financing needs, and also relative to the Fund's current and prospective liquidity position and the potential demand for Fund credit. Section IV concludes and proposes some issues for discussion.

## II. DEVELOPMENTS SINCE THE TWELFTH REVIEW

4. **The Twelfth General Review took place against a different economic backdrop to that prevailing today.** At that time, the global economy was only recently emerging from recession, and downside risks predominated. In addition, financial markets had weakened markedly and financing conditions for emerging market economies had deteriorated. The Fund had responded to a series of capital account-related crises in the 1990s, including several large access cases, and as a result, Fund credit outstanding was near an all-time high, though Fund liquidity also remained at relatively comfortable levels by historical standards. Views differed on the need for a quota increase in the context of the Twelfth Review. A number of Directors considered that the Fund's resources remained adequate and were concerned about creating incentives for excessive financing and undermining the Fund's efforts to expand private sector involvement in crisis resolution; others considered that any

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[1] As prescribed by the Fund's rules and regulations (Rule D-3), a Committee of the Whole was established by a decision of the Executive Board.

[2] See Press Release No. 06/205 IMF Board of Governors Approves Quota and Related Governance Reforms and also the IMF's Governance www.imf.org/external/np/exr/key/quotav.htm.

such concerns should be weighed against the risk of disorderly adjustments in the absence of adequate Fund resources. Consideration was given to continuing the review to allow more time to clarify global economic trends and assess the impact of new policies, including possible changes to the contingent credit line facility. However, the necessary broad support for a continuation was not forthcoming and the review was concluded with no increase in quotas.

5. **The global economic environment has changed substantially since 2002**. The world economy has experienced a sustained period of strong growth, while inflation has remained subdued despite a surge in fuel and other commodity prices (Figure 1). This growth has been widely shared across countries, while output volatility in most countries and regions has declined significantly.[3] Globalization has intensified as reflected in an expanded volume of flows of goods, services, and capital, and significant institutional changes: global trade is expected to account for almost one third of global output by end-2007, compared with less than a quarter in 2002. And, while global imbalances have increased, many emerging market economies are now posting large current account surpluses rather than deficits as was the case before the financial crises in the late 1990s.

6. **Financial globalization has progressed at an even faster pace than trade globalization**. Emerging market economies received over US$500 billion in private capital in 2006, a more-than-four-fold increase since 2002 (Figure 2).[4] This has partly reflected global economic developments, including sustained strong global growth, ample liquidity, and a recovery in commodity prices that has benefited many emerging market economies. Strengthened policies in recipient countries have also played an important role, as have institutional developments, including a broadening of the investor base, a reduction in home bias, and financial and technological innovations such as more sophisticated risk management tools, back office support, and transactions processing. With informational, technological, and regulatory barriers declining, the globalization of asset allocation has gained traction and these changes, in turn, have contributed to a rise in institutional globalization; in particular cross-border financial industry mergers and acquisitions have increased significantly.[5] Inflows to emerging markets have increasingly been directed to the private sector, in part reflecting strengthened fiscal positions in many countries. Simultaneously, public capital outflows from emerging market and oil producing economies have also expanded rapidly, amid successive large current account surpluses.

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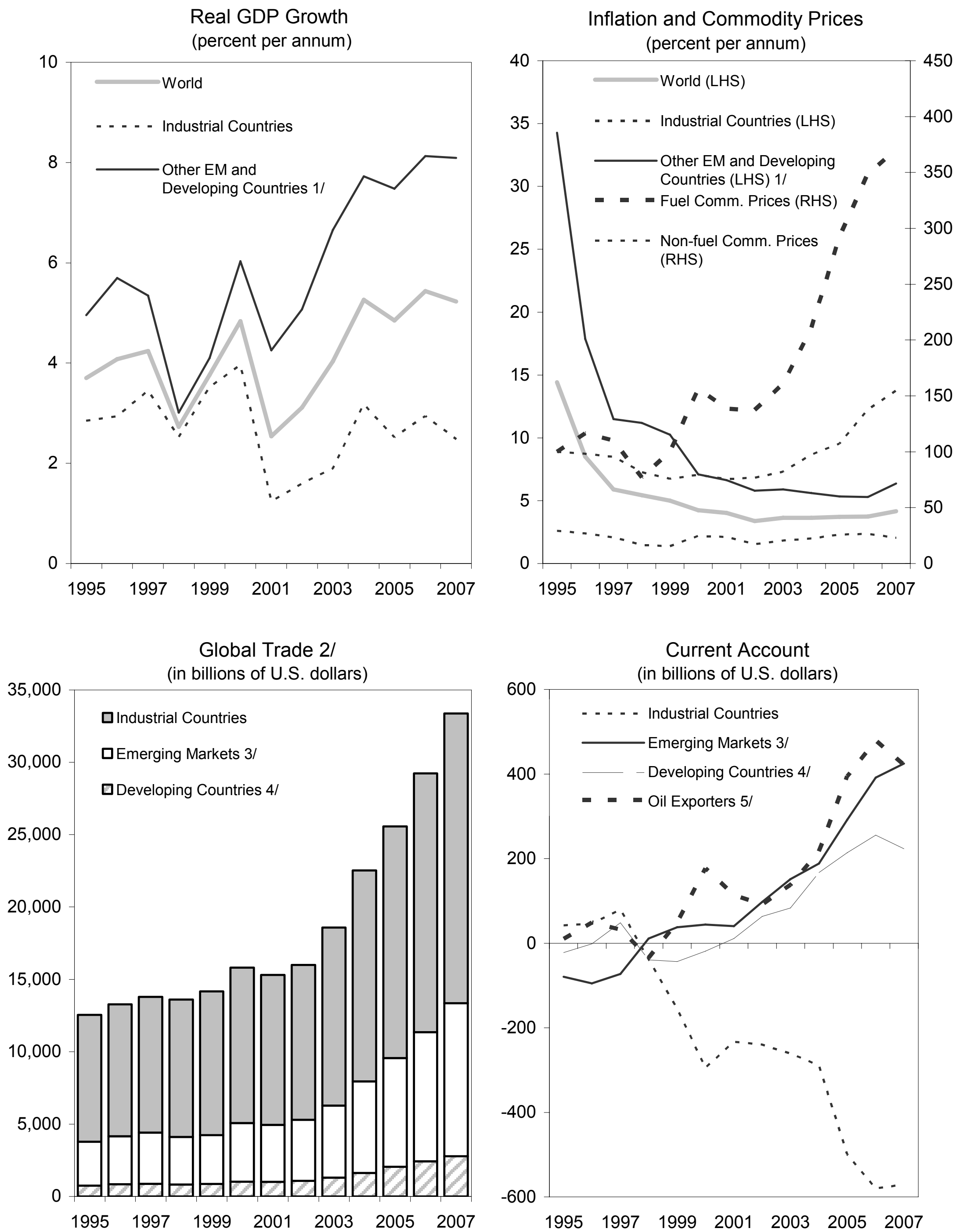
[3] *World Economic Outlook*, October 2007, Chapter 5.

[4] *Global Financial Stability Report*, September 2007.

[5] *Global Financial Stability Report*, April 2007.

**Figure 1. Global Macroeconomic Developments, 1995–2007**

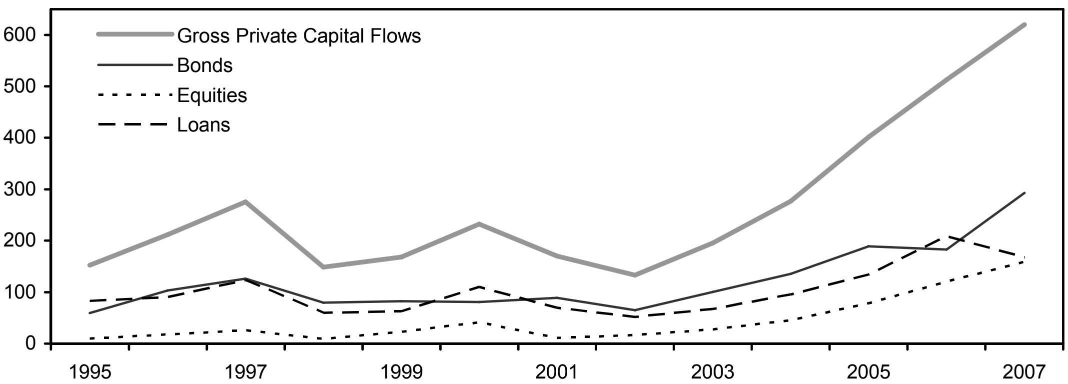



Source: Data and definitions from World Economic Outlook Database.

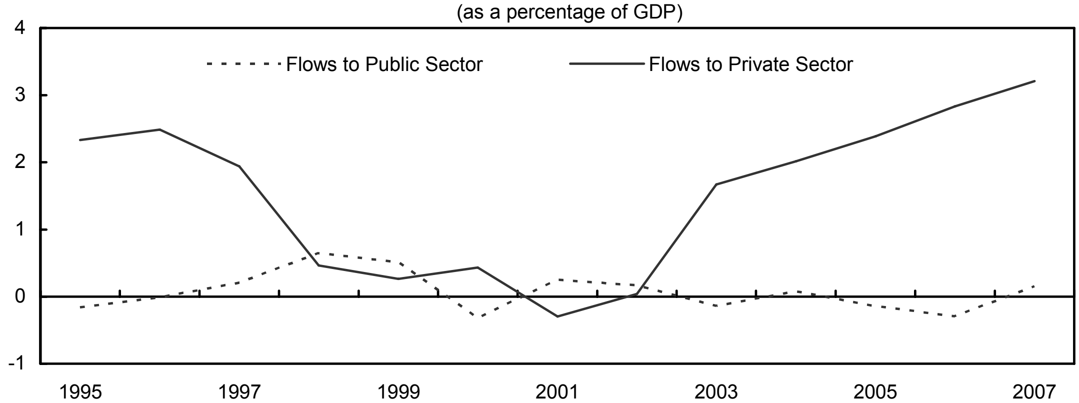
1/ As defined in the World Economic Outlook.
2/ Global trade defined as the sum of the value of imports and exports of goods and services.
3/ Emerging Markets as defined in the World Economic Outlook, October 2007, Figure 1.9, p. 10.
4/ Countries that are neither Industrial nor Emerging Markets as defined in Footnote 3.
5/ Oil Exporters as defined in the World Economic Outllook, October 2007, Figure 1.13, p. 23.

## Figure 2. Capital Flows, Flow Beneficiaries, and Cross-Border Mergers

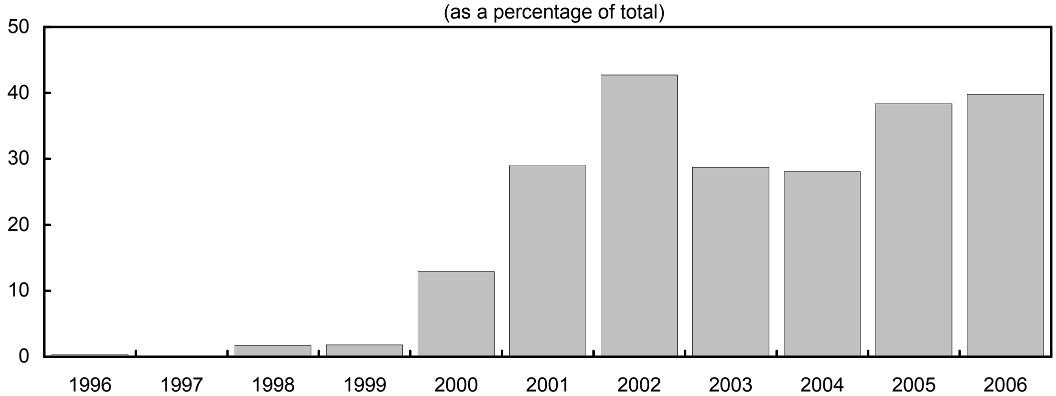
Gross External Financing to Emerging Markets, 1995 - 2007 1/
(in billions of U.S. dollars)




Gross Capital Flows to Emerging Markets, 1995 - 2007 2/
(as a percentage of GDP)



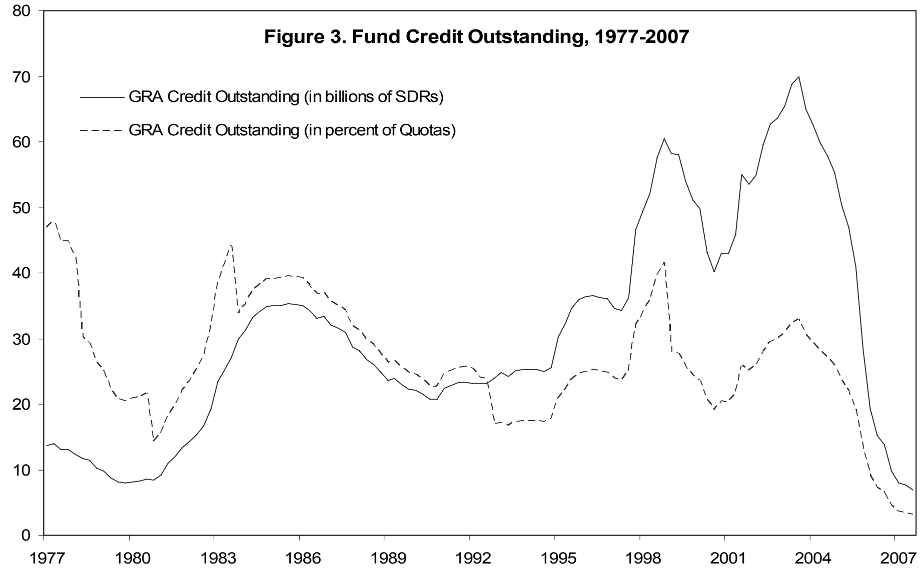

Cross-Border Financial Industry Mergers and Acquisitions, 1996 - 2006 3/ 4/
(as a percentage of total)




Source: World Economic Outlook Database, Finance Department, and Monetary and Capital Markets Department.

1/ Emerging Markets as defined in the Global Financial Stability Report, April 2007, Table 14, p. 176.
2/ World Economic Outlook, April 2007, Box 4.2, p. 133.
3/ Cross-border financial industry mergers and acquisitions to total global financial industry mergers and acquisitions per annum.
4/ Data from Global Financial Stability Report, April 2007, Table 3.1, p. 99.

7. **Against this background, Fund lending has contracted sharply** (Figures 3 and 4).[6] Several years of favorable global economic and financial conditions have coincided with the implementation of broadly sound monetary and fiscal policies and continued structural reforms in many emerging market economies, improving their resilience to shocks. Moreover, many emerging market countries have built up very large stocks of international reserves, accounting in aggregate for most of the growth in global reserves in recent years and providing substantial self insurance against future balance of payments crises (Figure 5). Interest in regional reserve pooling arrangements has also intensified. In this environment, new Fund lending has declined sharply, from more than one-third of private capital flows to emerging market and developing countries in 2002 to negligible levels in 2006 and 2007. Concurrently, several countries have repaid their obligations ahead of schedule.



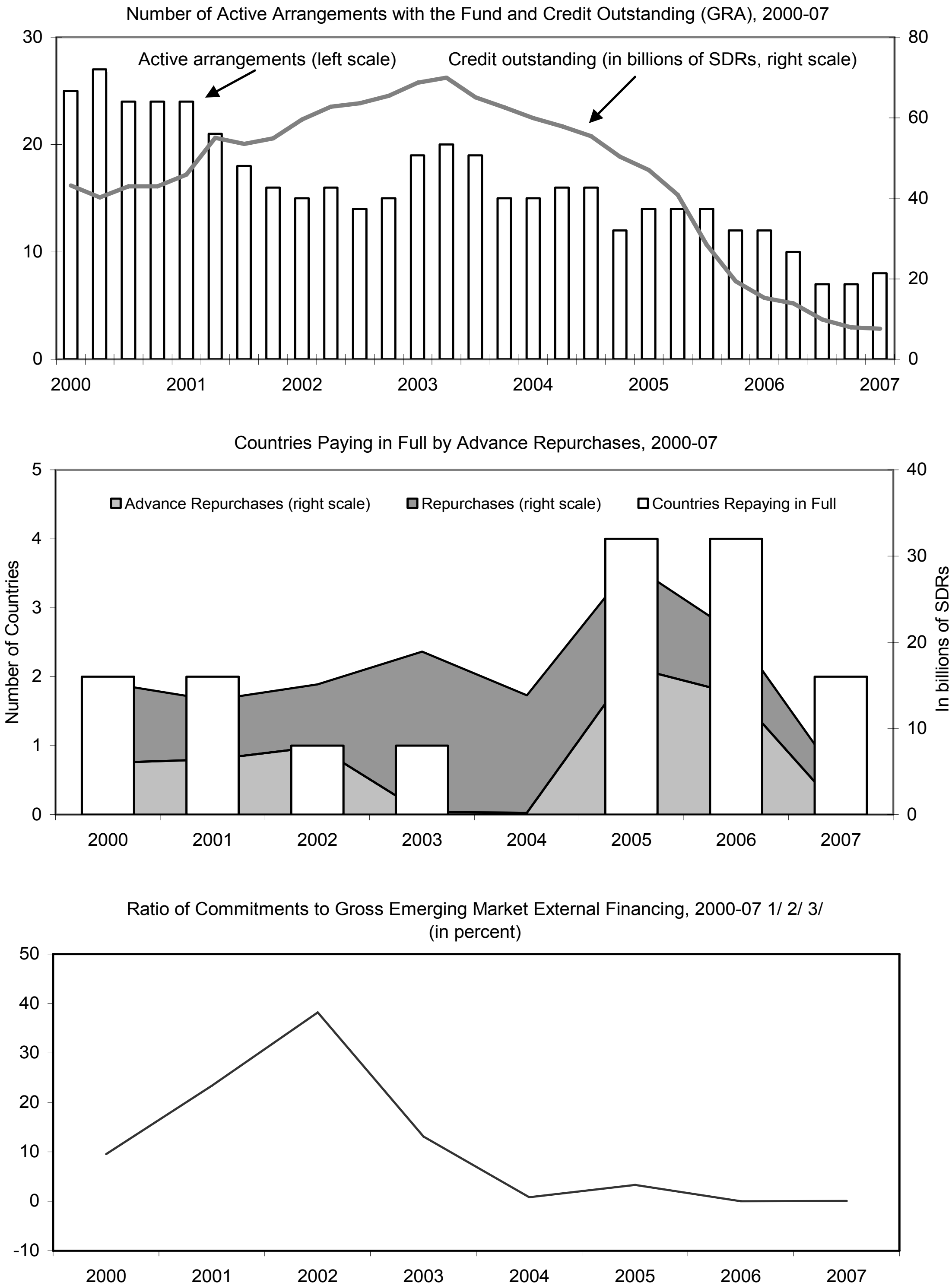
Source: Finance Department.

8. **The decline in lending has resulted in a sharp improvement in the Fund's liquidity position**. This is best captured in the one-year Forward Commitment Capacity (FCC), which measures the Fund's ability to make new loans available from the General Resources Account (GRA) over the next 12 months (Table 1 and Figure 6).[7] The FCC has recently increased to an all-time high of over SDR 125 billion, roughly double its level at the conclusion of the Twelfth Review. In addition to the decline in new loan commitments and repayments of previous lending by several major borrowers, this improvement also reflects a strengthening in external positions that has allowed eight countries to be added to the

[6] Transactions of the Fund with its members take the form of exchanges of currency, rather than loans. However, in this paper, we use the term lending rather than financing.

[7] The FCC is defined as the Fund's stock of usable resources less undrawn balances under existing arrangements, plus projected repurchases during the coming 12 months, less a prudential balance intended to safeguard the liquidity of creditors' claims and to take account of any erosion of the Fund's resource base. It covers lending from the GRA and therefore excludes concessional lending from the PRGF-ESF Trust.

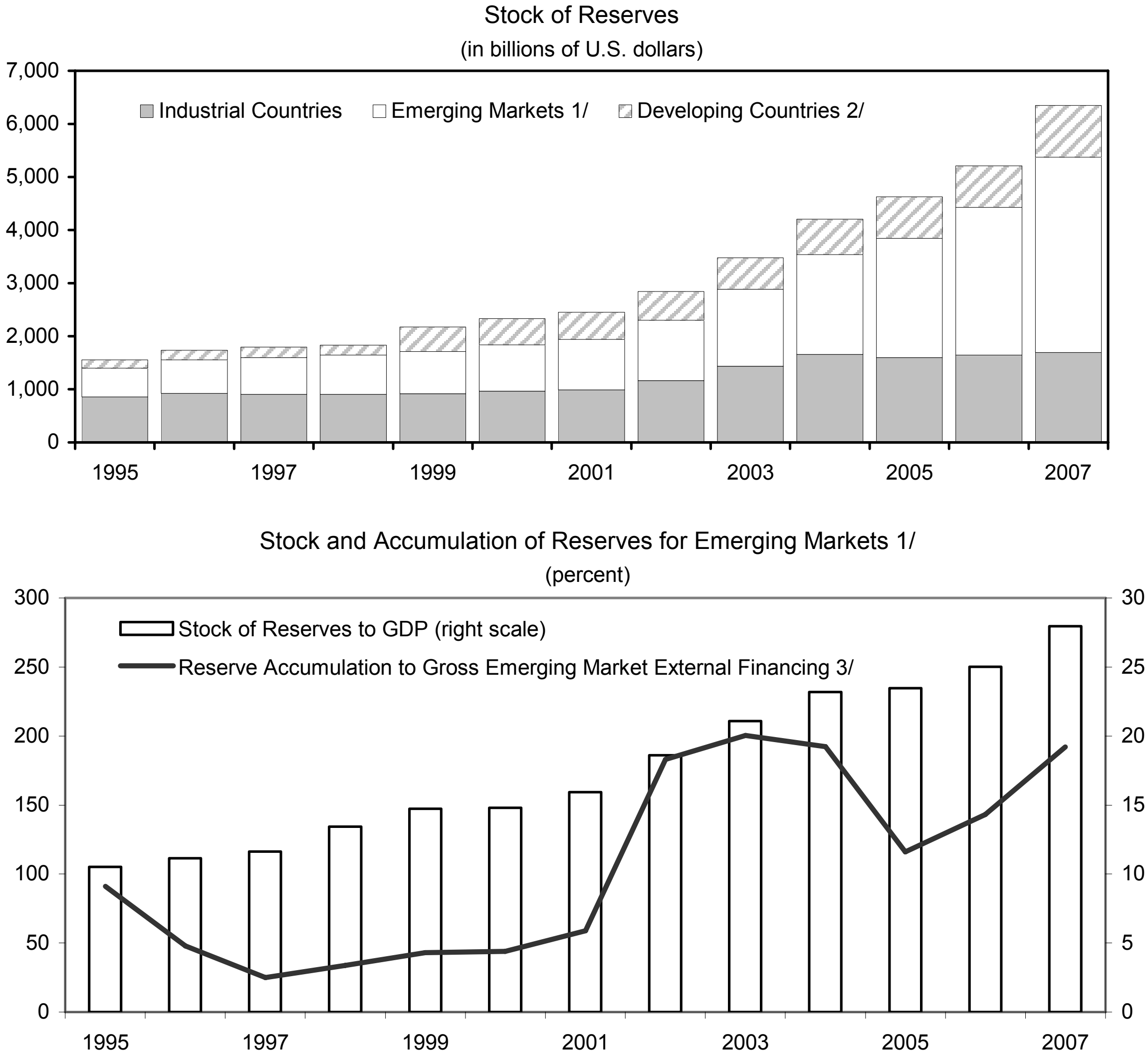
**Figure 4. Active Arrangements, Advance Repurchases, and Commitments, 2000–07**




Source: Finance Department and Monetary and Capital Markets Department.

1/ Gross amount of new commitments not netted for undrawn balances under expired/cancelled arrangements. Includes disbursements under Emergency Assistance.
2/ Emerging Markets as defined in the Global Financial Stability Report, April 2007, Table 14, p. 176.
3/ Total bonds, equities, and loans.

**Figure 5. Reserves, 1995–2007**




Source: World Economic Outlook Database, Finance Department, and Monetary and Capital Markets Department.

1/ Emerging Markets as defined in the World Economic Outlook, October 2007, Figure 1.9, p. 10.
2/ Countries that are neither Industrial nor Emerging Markets.
3/ Reserve accumulation is calculated as the end-period difference in the stock of reserves.

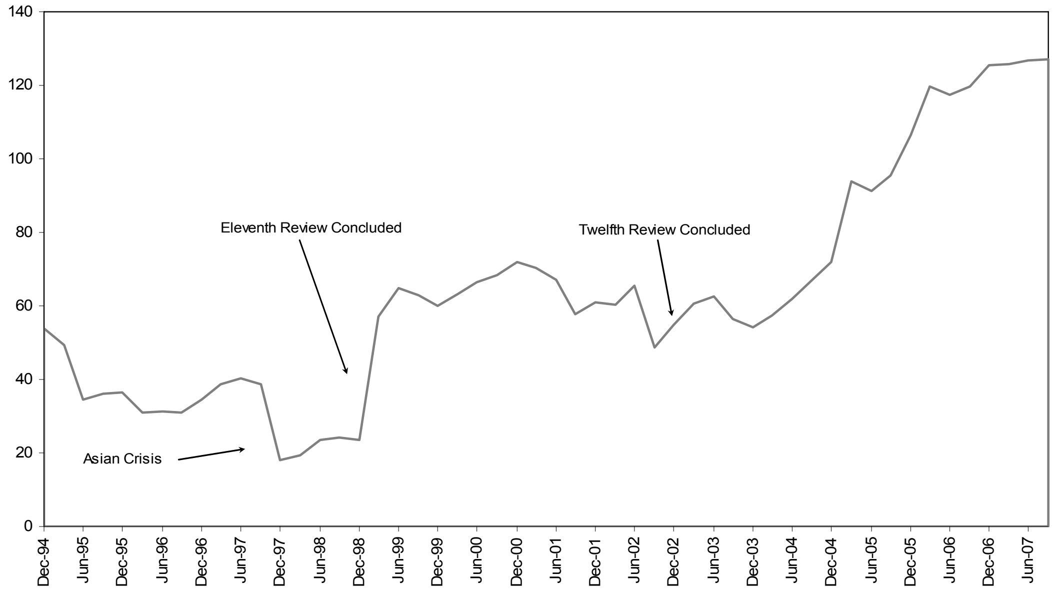
## Table 1. The Fund's Liquidity, 1994–2007
## (In billions of SDRs)

| | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 1/ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flows during the preceding 12 months | | | | | | | | | | | | | | |
| Commitments 2/ | 3.8 | 22.1 | 11.6 | 28.5 | 30.6 | 13.7 | 16.8 | 31.2 | 39.4 | 18.3 | 1.5 | 9.0 | 0.1 | 0.3 |
| Purchases | 5.0 | 17.0 | 5.3 | 16.1 | 20.6 | 10.0 | 7.2 | 23.8 | 25.2 | 20.3 | 4.2 | 2.3 | 2.4 | 0.9 |
| Repurchases | 4.6 | 6.7 | 5.1 | 5.7 | 6.7 | 19.4 | 15.2 | 13.3 | 15.1 | 18.9 | 13.8 | 29.2 | 21.0 | 3.7 |
| End of period | | | | | | | | | | | | | | |
| 1. Usable resources 3/ | 68.4 | 58.0 | 61.1 | 50.7 | 53.6 | 94.9 | 109.7 | 102.5 | 100.2 | 100.7 | 111.3 | 145.2 | 161.2 | 164.6 |
| 2. Undrawn balances under GRA arrangements | 3.4 | 8.8 | 13.2 | 20.7 | 27.3 | 21.5 | 20.9 | 25.8 | 31.9 | 22.8 | 19.4 | 12.7 | 3.9 | 3.2 |
| 3. Uncommitted usable resources (1 - 2) | 65.0 | 49.2 | 47.8 | 30.1 | 26.3 | 73.4 | 88.8 | 76.7 | 68.3 | 77.9 | 91.9 | 132.5 | 157.3 | 161.3 |
| 4. Projected repurchases | 6.7 | 5.1 | 5.7 | 6.7 | 19.4 | 15.2 | 13.3 | 15.2 | 19.0 | 9.2 | 12.9 | 8.0 | 2.8 | 0.7 |
| 5. One-year forward capacity (3 + 4 - 6) | 54.1 | 36.6 | 34.6 | 17.9 | 23.5 | 58.5 | 71.9 | 61.0 | 54.7 | 54.2 | 71.9 | 106.4 | 125.4 | 127.1 |
| Memorandum items, end of period | | | | | | | | | | | | | | |
| 6. Prudential minimum uncommitted usable resources 4/ | 17.6 | 17.7 | 18.9 | 18.8 | 22.2 | 30.2 | 30.2 | 30.9 | 32.6 | 32.8 | 32.8 | 34.1 | 34.8 | 34.9 |
| 7. GRA credit outstanding | 25.6 | 35.9 | 36.1 | 46.6 | 60.5 | 51.1 | 43.0 | 53.5 | 63.6 | 65.0 | 55.4 | 28.4 | 9.8 | 7.0 |
| 8. Amounts activated under GAB/NAB | … | … | … | … | 15.4 | … | … | … | … | … | … | … | … | … |
| 9. Uncommited usable resources/GFN of past users 5/ | 0.43 | 0.25 | 0.22 | 0.14 | 0.13 | 0.29 | 0.32 | 0.29 | 0.23 | 0.21 | 0.22 | 0.33 | 0.35 | 0.41 |

Source: Finance Department.

1/ From January 1, 2007 through August 31, 2007. Columns may not add up due to rounding.
2/ Gross amount of new commitments not netted for undrawn balances under expired/cancelled arrangements. Includes disbursements under Emergency Assistance.
3/ Usable resources consist of: (i) the Fund's holdings of the currencies of FTP members, (ii) holdings of SDRs, and (iii) unused amounts, if any, under credit lines already activated, such as under the General Arrangements to Borrow and New Arrangements to Borrow (GAB/NAB).
4/ Corresponding to 20 percent of the quotas of members that issue the currencies that are used in the financing of IMF transactions and any amounts activated under borrowing arrangements (year-end figures).
5/ GFN is defined as the sum of the current account balance excluding grants, amortizations of maturities exceeding one year, repurchases due to the Fund, repayments of arrears, and gross reserves accumulation.

**Figure 6. One-Year Forward Commitment Capacity**
**(In billions of SDRs)**




Source: Finance Department.

Financial Transactions Plan since the Twelfth Review, increasing the total number of participants to 48 (representing 75 percent of total quotas), also an all-time high.

9. **The latest staff projections indicate that global economic growth is expected to continue at a solid pace**.[8] Projected growth in 2008 has been marked down moderately in the face of the recent turmoil in major financial markets. However, strong domestic demand growth in emerging market economies and a gradual restoration of normal global financial market conditions are expected to underpin robust global growth going forward.

10. **However, the risks to the baseline forecast have shifted more strongly to the downside.** The recent financial market disturbances and the possibility that these might be prolonged, triggering a broader credit retrenchment, heighten the downside risks. In addition, prospects for domestic demand in the United States and Europe are uncertain amid potential corrections in previously buoyant housing markets. Also, some emerging market countries with large current account deficits and reliance on bank-related inflows for financing could be vulnerable in the event of a tightening in international credit markets. Tight global oil markets, rising inflationary pressures in a number of emerging market and developing countries, and the potential for disorderly unwinding of global imbalances, also remain important risk factors.

[8] *World Economic Outlook*, October 2007.

## III. Assessing the Adequacy of Fund Resources

11. **Recent developments highlight the changing nature of the economic and financial risks against which the adequacy of Fund resources must be assessed**. As global financial markets become increasingly interconnected, more complex financial instruments are developed, and investors continue to move into new areas in search of higher returns, overall access to private market financing has increased, but shocks can also spread more quickly across markets and asset classes in ways that are difficult to anticipate in advance. The recent experience where a shock originating in the U.S. sub-prime mortgage market led to sustained and far-reaching disruption across core markets in major financial centers serves as a timely reminder of this potential risk. Traditional indicators of member country vulnerabilities and potential financial needs must be continuously adapted and updated in light of these developments as financial globalization intensifies. To date, the crisis in core markets has not had major adverse spillovers on financial conditions facing emerging market economies or led to new demands for Fund financing. However, global growth and liquidity conditions remain favorable (not least because of growth from emerging markets themselves), and this resilience has not yet been tested in an environment of weak global growth.

12. **In past discussions on the size of the Fund, there has been recognition of the importance of ensuring that the Fund has adequate resources to fulfill its responsibilities**. It has also been noted that the costs associated with a possible shortfall or excess of Fund resources are asymmetric, in that the direct financial costs to creditor members of an increase in quotas are negligible, whereas the potential costs of an inadequate resource base are much larger in terms of the impact of disorderly adjustment on members and on the system if the Fund were unable to fulfill its responsibilities. As noted above, however, concerns were raised during the discussions on the Twelfth Review that an increase in the size of the Fund could aggravate moral hazard by creating incentives for excessive financing and undercutting the Fund's efforts to expand private sector involvement in crisis resolution. At that time, the Fund was actively engaged in providing financial support to several major emerging market borrowers. Since then, the Fund's financing role has greatly diminished, amid a dramatic and broad-based improvement in the financing conditions facing emerging market countries more generally.

13. **It appears too soon to draw firm conclusions about the Fund's future financing role from recent developments**. As some observers have argued, the decline in Fund lending could well involve a significant structural element associated with the increased availability of private market financing, improved macroeconomic policies and institutional strengthening among a number of countries that have been major borrowers from the Fund in the past.[9] On the other hand, the decline in lending has also taken place during a period of unusually robust global growth and easy liquidity conditions. Indeed, some observers have argued that the Fund may need more resources to remain relevant in the face of future crises,

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[9] Adam Lerrick (2007) *What's Left for the IMF?*, Wall Street Journal, April, and Kapur and Webb (2006) *Beyond the IMF,* Center for Global Development, Working Paper No. 99.

given that countries could face larger financing needs associated with capital reversals as the scale of private market flows continues to expand.[10]

14. **Against this background, the remainder of this section updates previous quantitative approaches to assessing the adequacy of Fund resources**. These include comparing the size of the Fund with various measures of the world economy, financial flows, and alternative illustrative scenarios of the possible demand for Fund resources. All comparisons in this paper are based on the current size of the Fund and do not take into account the increase that would result from the second round of ad hoc quota increases envisaged as part of the quota and voice reforms currently under discussion. In this connection, the International Monetary and Financial Committee (IMFC) agreed at the 2007 Annual Meetings that the overall size of the quota increases under the reform (first and second rounds combined) should be of the order of 10 percent.[11]

15. **The traditional indicators used in past quota reviews considered aggregate quotas relative to measures of global output, trade, payments, and reserves**. In this connection:

- **Directors have generally agreed that the size of the Fund relative to global GDP is the most comprehensive measure for assessing the adequacy of Fund resources**. The quota reviews since the mid-1970s (i.e., following the collapse of the Bretton Woods system and the second amendment of the Articles of Agreement) have resulted in quota increases that have generally maintained the size of the Fund relative to GDP around 1¼ percent (see Table 2 and Figure 7). The exceptions were the Tenth General Review, when no quota increase took place although the subsequent review was accelerated and the relative size of the Fund restored, and the Twelfth Review when there was also no increase. Based on the data being used for the current work on quota and voice reform, the size of the Fund has declined to about 0.8 percent of global GDP and would fall further to about one half of historical levels by 2009 in the absence of a quota increase.

- **Other traditional indicators point to an even steeper decline in the relative size of the Fund**. Reflecting the rapid expansion in global trade, the size of the Fund has fallen to less than one half of historical norms, based on current data. Moreover, aggregate Fund quotas now represent less than 10 percent of global reserves, down from previous levels in the range of one quarter to one third, although higher aggregate reserves probably signify less need for being complemented by Fund quotas. Similar trends are evident in a comparison of actual quotas with calculated quotas (which represent a weighted average of all the quota variables) based on the

[10] For example Kenen (2007) *Reform of the International Monetary Fund, Council of Foreign Relations,* CSR No. 29, May 2007; The Latin-American Shadow Financial Regulatory Committee (2007) *Does Latin America Need the International Monetary Fund?*, Statement No. 16, April 12; and *Is the IMF Obsolete?*, The International Economy, Spring 2007.

[11] *Communiqué of the International Monetary and Financial Committee of the Board of Governors of the International Monetary Fund* (Press Release No. 07/236, 10/20/07).

**Table 2. Size of the Fund and Economic Indicators**
**(In billions of SDRs or in percent)**

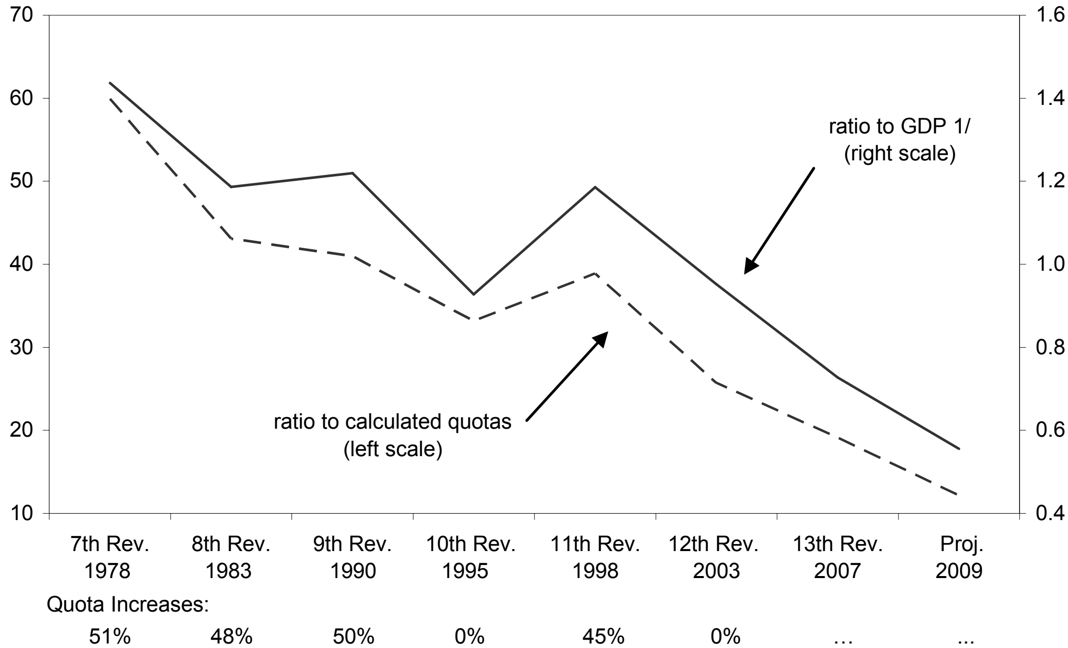
| | Eighth Review 1983 1/ (1) | Ninth Review 1990 1/ (2) | Tenth Review 1995 1/ (3) | Eleventh Review 1998 1/ (4) | Twelfth Review 2003 1/ (5) | Thirteenth Review 2007 (6) | Projection 2009 2/ (7) |
|---|---|---|---|---|---|---|---|
| Size of Quota Increase, in Percent | 47.5 | 50.0 | 0.0 | 45.0 | 0.0 | … | |
| 1. Agreed size of the Fund 3/ 4/ 5/ | 90.0 | 135.2 | 146.1 | 212.0 | 213.7 | 217.6 | 217.6 |
| 2. Traditional variables and applicable data periods | 1976-80 | 1981-85 | 1986-90 | 1990-94 | 1995-99 | 2001-05 | 2006-09 |
| a. GDP 6/ | 7,588 | 11,083 | 15,744 | 17,884 | 22,442 | 29,912 | 39,162 |
| b. Current payments 7/ | 1,341 | 2,168 | 2,852 | 3,700 | 5,785 | 8,026 | 12,900 |
| c. Reserves 8/ | 333 | 391 | 594 | 768 | 1,150 | 2,539 | 4,839 |
| d. Variability of current receipts 9/ | 67 | 112 | 159 | 173 | 264 | 345 | 401 |
| 3. Modernized variables | | | | | | | |
| a. GDP 10/ | 7,421 | 11,114 | 14,559 | 17,654 | 21,953 | 27,884 | 37,037 |
| b. Variability of current receipts and net capital flows 11/ | n.a. | n.a. | n.a. | n.a. | n.a. | 325 | 381 |
| 4. Ratio of line 1 to line 2, in percent | | | | | | | |
| a. GDP | 1.19 | 1.22 | 0.93 | 1.19 | 0.95 | 0.73 | 0.56 |
| b. Current payments | 6.71 | 6.24 | 5.12 | 5.73 | 3.69 | 2.71 | 1.69 |
| c. Reserves | 27.03 | 34.58 | 24.60 | 27.59 | 18.58 | 8.57 | 4.50 |
| d. Variability of current receipts | 134.33 | 120.71 | 91.89 | 122.40 | 80.99 | 63.09 | 54.23 |
| 5. Ratio of line 1 to line 3, in percent | | | | | | | |
| a. GDP | 1.21 | 1.22 | 1.00 | 1.20 | 0.97 | 0.78 | 0.59 |
| b. Variability of current receipts and net capital flows | n.a. | n.a. | n.a. | n.a. | n.a. | 67.02 | 57.07 |
| *Memorandum items:* | | | | | | | |
| Calculated quotas (on the basis of existing formulas) | 209 | 330 | 441 | 545 | 832 | 1,140 | 1,790 |
| Ratio of line 1 to calculated quotas | 43.06 | 40.97 | 33.13 | 38.87 | 25.70 | 19.09 | 12.15 |

Source: Finance Department

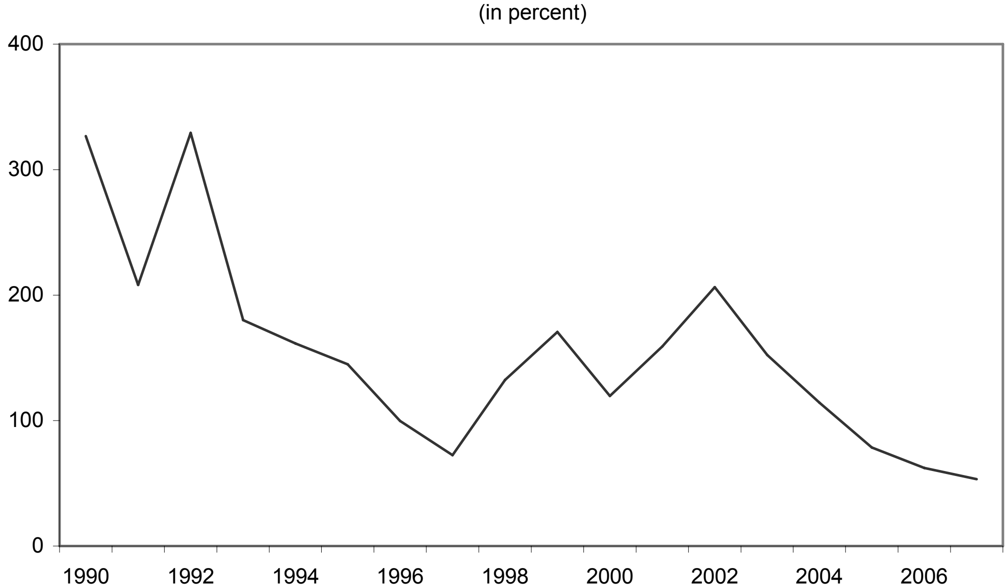
1/ Year in which the quota review was completed, i.e., when the Board of Governors' Resolution on quota increases was approved. The Tenth Review did not provide for an increase in quotas, and the increase in actual quotas relative to the Ninth Review is due to the increase in the number of members.
2/ Projections based on the World Economic Outlook (October 2007), assuming the current agreed size of the Fund.
3/ For column (5) includes China's ad hoc quota increase of SDR 1.682 billion in 2002.
4/ For column (6) includes ad hoc quota increases for China, Mexico, Korea, and Turkey of SDR 3.809 billion in 2006.
5/ For column (7) includes China, Mexico, Korea, and Turkey but assumes no increase in quotas otherwise.
6/ GDP at current market prices for the latest year of the review period.
7/ Annual average of current payments (goods, services, income, and private transfers) for the latest five years of the review period.
8/ Average over twelve months of the last year of each five-year review period.
9/ Defined as one standard deviation from the centered five-year moving average for the latest thirteen-year period.
10/ GDP at current market prices, average for the latest three years of the review period.
11/ Defined as one standard deviation from the centered three-year moving average for the latest thirteen-year period.

## Figure 7. Indicators of the Size of the Fund

Ratios of Agreed Size of the Fund to GDP and to Calculated Quotas
(in percent)




Ratio of Actual Quotas to Gross Emerging Market External Financing, 1990 - 2007 1/ 2/
(in percent)




Source: International Financial Statistics, World Economic Outlook Database, Finance Department, and Monetary and Capital Markets Department.

1/ Emerging Markets as defined in the Global Financial Stability Report, April 2007, Table 14, p. 176.
2/ Total bonds, equities, and loans.

existing formulas (see Figure 7). Thus, relative to most measures, the size of the Fund is likely to fall to its lowest level in the Fund's recent history in the absence of a significant quota increase.

16. **The size of the Fund has also been assessed in relation to aggregate capital flows and potential financing needs**. While private market financing flows to emerging market countries have fluctuated significantly over the past two decades, Fund quotas have generally not kept pace with the growth in capital flows, and this trend has accelerated in recent years as gross capital flows have expanded rapidly (see Figure 7, bottom panel). As a result, the potential scale of calls on the Fund that could arise in the event of a broad-based downturn in availability of private market financing to emerging markets has increased relative to the size of quotas. For example, one measure that has been considered in the past is the level of Fund commitments relative to projected gross financing needs (GFN)[12] of members that have used Fund resources in the past. Based on the recent WEO projections, total GFN could reach well over SDR 2000 billion in 2005–09, up from SDR 1600 billion in 2000–04 (Table 3). If Fund commitments as a share of GFN were to return to the same level as in 2000–04, this would imply total commitments of about SDR 160 billion, which would exhaust the Fund's currently available lending capacity from own resources.[13] The traditional measure of GFN includes projected reserve accumulation and may therefore overstate possible financing needs given that some countries have built up substantial reserve cushions in recent years. Accordingly, staff has also prepared an adjusted measure of estimated financing needs that excludes projected reserve accumulation for countries that already have a reserve/short-term debt ratio greater than one, and also excludes countries with a negative projected GFN on the same basis. Using this lower estimate, a return of Fund commitments to the average share of financing needs in the first half of the decade could still imply total commitments of about SDR 100 billion, which would substantially reduce the Fund's remaining lending capacity.

17. **The demand for Fund credit needs to be considered against an outlook which, although relatively favorable, is nevertheless uncertain**. As noted previously, reserve adequacy ratios have generally improved across emerging market and developing countries in recent years though there remains significant variation across countries and regions (Figure 8, top panel). The improvement has been generally less dramatic in relation to broad money, reflecting a rapid expansion in money and credit growth in many countries (Figure 8, bottom panel), and reserves vary significantly across countries in relation to estimated external financing needs (Figure 9). Also, the rapid growth in credit derivatives and the shift toward non-bank financial intermediation of the past several years—which have both occurred in a context of strong credit growth and ample international liquidity—have heightened uncertainties about how markets will react to less favorable economic and

[12] GFN is defined as the sum of the current account balance excluding grants, amortizations of maturities exceeding one year, repurchases due to the Fund, repayments of arrears, and gross reserve accumulation. In a world of deepening financial market integration, GFN provides a more limited picture of the potential financing needs during a crisis than previously.

[13] Based on the reference periods 1990–94 and 1995–99, Fund commitments would be about SDR 60 billion and SDR 200 billion, respectively.

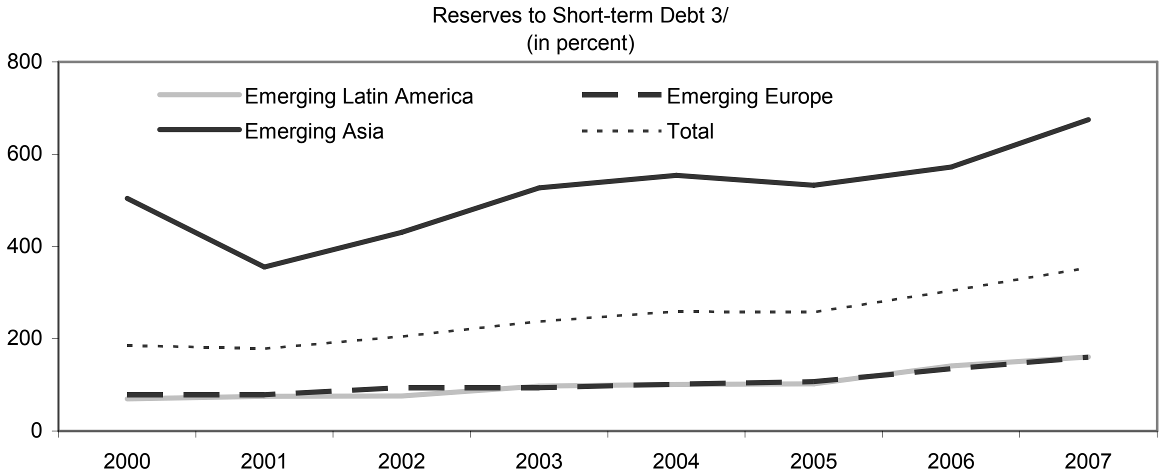
**Table 3. Financing Needs for Past Users of Fund Resources 1990–2009 1/**
**(In billion of SDRs)**

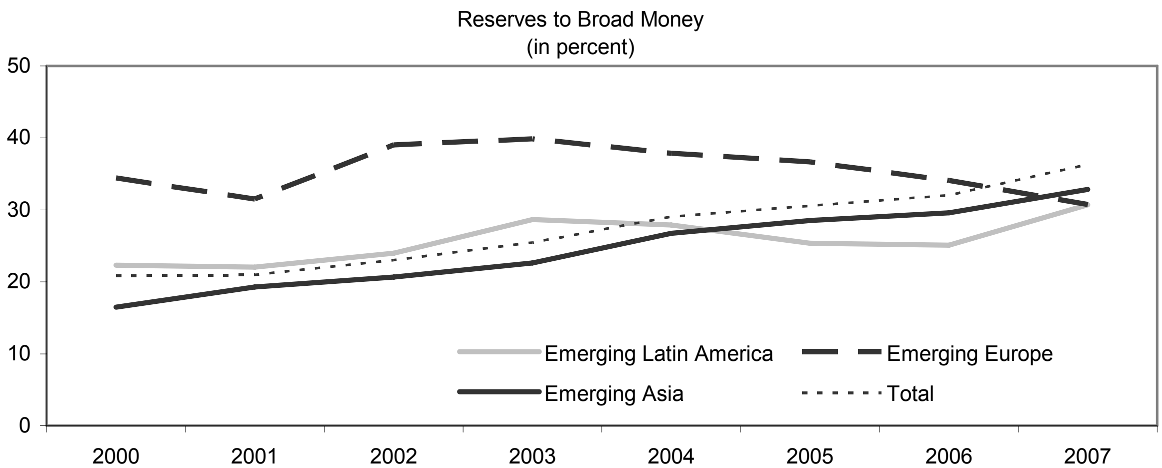
| | 1990-94 | 1995-99 | 2000-04 | 2005-09 |
|---|---|---|---|---|
| All countries | | | | |
| GFN 2/ | 751 | 1,229 | 1,619 | 2,458 |
| AGFN 3/ | 1,416 | 2,366 | 2,914 | 4,900 |
| Estimated financing needs 4/ | n.a. | n.a. | n.a. | 1,637 |
| Fund commitments (percent of GFN) | 2.6 | 8.5 | 6.6 | … |
| All countries excluding exceptional access cases | | | | |
| GFN | 329 | 513 | 802 | 1,162 |
| AGFN | 593 | 915 | 1,575 | 2,928 |
| Estimated financing needs | n.a. | n.a. | n.a. | 881 |
| Fund commitments (percent of GFN) | 3.9 | 3.0 | 1.1 | … |
| Exceptional access cases 5/ | | | | |
| GFN | 423 | 717 | 816 | 1,296 |
| AGFN | 823 | 1,451 | 1,339 | 1,973 |
| Estimated financing needs | n.a. | n.a. | n.a. | 757 |
| Fund commitments (percent of GFN) | 1.6 | 12.3 | 12.0 | … |

Source: World Economic Outlook Database and Fund staff calculations.

1/ Data for the 1990-94 and 1995-99 periods are based on *Twelfth General Review of Quotas--Further Considerations* . Past users are defined as members with outstanding credit over the period 1980-2005, excluding PRGF countries.
2/ GFN is defined as the sum of the current account balance excluding grants, amortizations of maturities exceeding one year, repurchases due to the Fund, repayments of arrears, and gross reserves accumulation.
3/ AGFN, or augmented GFN, is GFN including short-term debt.
4/ Gross financing needs adjusted for reserve accumulation. Specifically, countries with ratios of stock of international reserves to short-term debt (on a residual maturity basis) greater than 100 percent have their reserve flows dropped from the GFN calculation. Countries with negative GFN are then dropped from the sample.
5/ Exceptional access cases: Argentina, Brazil, Indonesia, Korea, Mexico, Russia, Thailand, Turkey, and Uruguay.

**Figure 8. Reserves in Emerging Markets, 2000–07 1/ 2/**

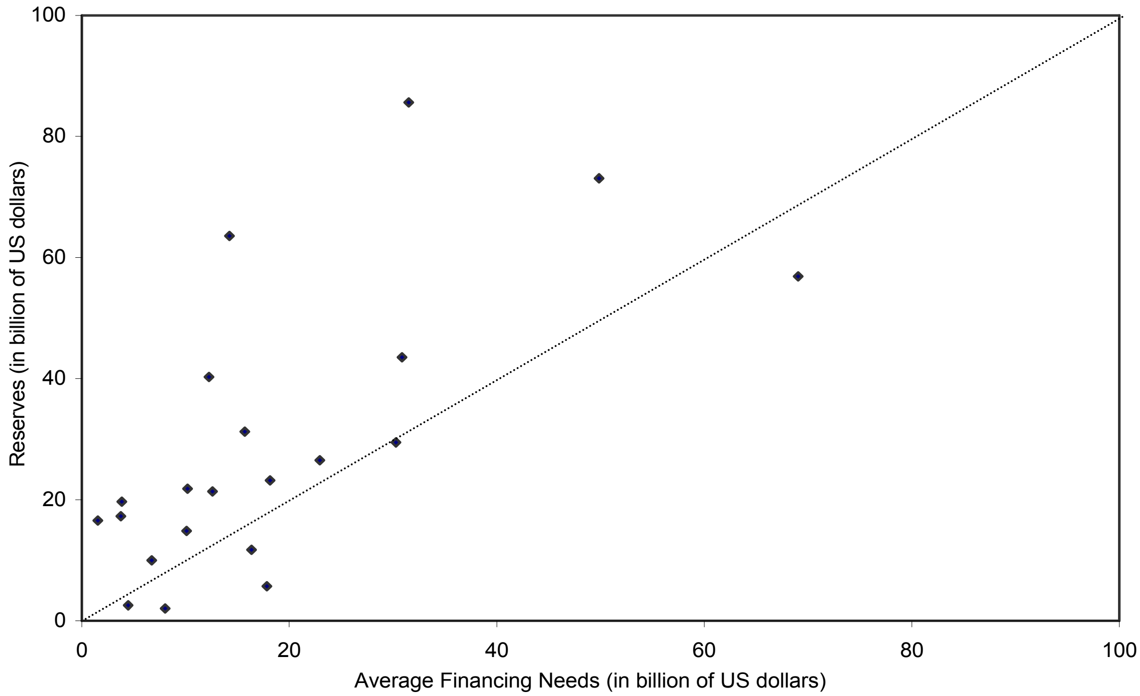


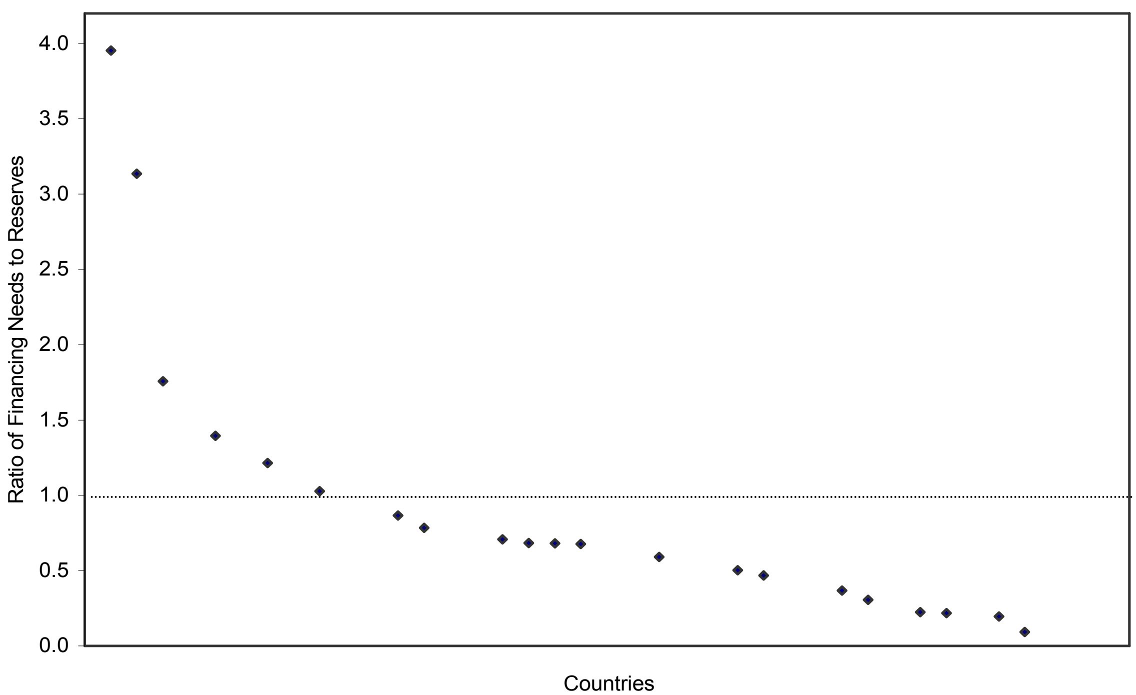




Source: World Economic Outlook Database.

1/ Emerging Markets as defined in the World Economic Outlook, October 2007, Figure 1.9, p. 10.
2/ Countries with ratios on or above the 95th percentile are defined as outliers and their data were dropped from the sample for statistical reasons. For the calculation of the ratio of reserves to short-term debt, Pakistan and Ukraine were excluded. For the calculation of the ratio of reserves to broad money, Russia and Singapore were excluded.
3/ Short-term debt outstanding on a remaining maturity basis.

**Figure 9. Projected Financing Needs and Reserves in Emerging Markets for 2007–09 1/ 2/**




Sources: World Economic Outlook Database.

1/ See Table 3 for definition of financing needs.
2/ Emerging Markets as defined in the World Economic Outlook, October 2007, Figure 1.9, p. 10, excluding PRGF-eligible countries and countries also listed by the WEO as "Other Advanced Economies".

financial circumstances. The recent marked increase in the volatility of Fund credit outstanding is partly related to the growing role of, and volatility in, private market financing, adding to the difficulties in projecting future demand for Fund credit.[14] Similarly, in light of the large stock of reserves accumulated by some member countries and renewed interest in pooling reserves and in regional arrangements, it has become harder to gauge the Fund's financial contribution in coping with financial crises. The recently established staff Working Group on Financial Crises of the Future will help shed some light on the likely nature of future crises and the potential implications for the use of Fund resources.[15]

18. **The economic literature can only provide broad indications of the potential demand for Fund resources**. Recent work underscores the difficulty of estimating the demand for Fund credit. These studies include a time series analysis of the Fund's credit outstanding, a quantification of the relationship between global economic factors and number of stand-by arrangements, a two-stage program selection and access model that estimates the level of credit outstanding at about the current level, and analysis of the participation in Fund drawing programs.[16] These studies suggest that, given the uncertainty about future financing needs and recent lending cycles, and the high concentration in Fund exposure, it is difficult to quantify the demand for Fund credit over the medium term.

19. **Against this backdrop, as in past quota reviews, scenario analysis is used to help assess the adequacy of Fund resources** (Table 4). The scenarios should not be viewed in any way as projections but rather are intended more as stress tests to illustrate the potential impact on Fund liquidity and the Fund's ability to respond to shocks of different magnitudes. The first scenario illustrates the potential impact on the FCC of a situation where the Fund was called upon to provide support for the group of countries currently identified as facing a medium to high probability of an external crisis under the staff's vulnerability exercise. For simplicity, average access has been assumed at 500 percent of quota, which would imply application of the exceptional access framework but is well below the average for exceptional access cases over the period 1994–2007 (about 625 percent of quota). In practice, access for individual countries would likely vary significantly but such an approach could be seen as capturing a fairly broad-based shock transmitted through financial markets and involving a substantial reversal of capital flows for some countries. The impact on Fund commitments in these circumstances would be about SDR 45 billion, which could be handled

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[14] Volatility is measured as the three-year centered standard deviation of total credit outstanding in 1980–2006 and has increased since end-2005.

[15] *Report of the Managing Director to the International Monetary and Financial Committee on the IMF's Policy Agenda*.

[16] See respectively: Elekdag, Selim, *How Does the Global Economic environment Influence the Demand for IMF Resources?*, IMF Working Paper 06/239; Ghosh, Atish, Manuela Goretti, Bikas Joshi, Alun Thomas, and Juan Zalduendo, *Modeling Aggregate Use of Fund Resources—Analytical Approaches and Medium-Term Projections*, IMF Working Paper 07/70; and Eugenio Cerutti, *IMF Drawing Programs: Participation Determinants and Forecasting*, IMF Working paper 07/152.

comfortably given the Fund's current liquidity situation. While this would represent a substantial increase in new commitments over recent low levels, this would still be significantly smaller in aggregate than the combined size of the three largest arrangements approved since end-1999 (SDR 59.3 billion for Argentina, Brazil, and Turkey) and would also imply a number of active arrangements that is well below recent peak levels.

**Table 4. Impact of Illustrative Scenarios on the Fund's Forward Commitment Capacity (FCC)** 1/
**(In billions of SDRs)**

| | Last 12 months September 2006-August 2007 | Scenarios 2/ | | |
|---|---|---|---|---|
| | | I 3/ | II 4/ | III 5/ |
| | | (SDR billions) | | |
| Flows | | | | |
| Commitments 6/ | 0.3 | 44.8 | 140.7 | 157.3 |
| Purchases 7/ | 1.6 | 32.7 | 96.1 | 107.0 |
| Repurchases 8/ | 9.0 | 2.0 | 1.1 | 1.1 |
| End of period | | | | |
| GRA credit outstanding | 7.0 | 37.7 | 102.0 | 112.9 |
| One-year FCC from own resources | 127.1 | 89.1 | -8.5 | -25.0 |

Source: Finance Department
1/ Includes all past users of Fund resources, except for PRGF countries and countries that are now classified as advanced in the WEO database. All scenarios relate to the same initial level of FCC, GRA credit outstanding, and undrawn balances under existing commitments, as of end-August 2007.
2/ Access is set at 500 percent of quota, below the average for exceptional access cases over the period 1994-2007.
3/ Scenario I includes countries currently identified as facing a medium and high probability of an external crisis.
4/ Scenario II includes countries in Scenario I plus past users with some level of insurance as defined by a ratio of reserves to short-term debt by residual maturity up to two.
5/ Scenario III includes countries in Scenario II plus past users with a higher level of insurance as defined by a ratio of reserves to short-term debt by residual maturity between two and three.
6/ Commitments are the sum of commitments to each individual country included in each scenario calculated as quota times access.
7/ Purchases include projected purchases under current arrangements as of August 2007 plus purchases under commitments for each scenario. These latter are calculated as a share of commitments, using the average share over the most recent crisis periods, i.e. 1997-98 and 2001-2002.
8/ Repurchases include only those projected under current arrangments as of August 2007.

20. **The second and third scenarios would require a broader-based shock that extends to countries that are currently considered to have more comfortable reserve levels**. This would likely require a large and fairly prolonged global economic downturn involving a substantial reversal of capital flows to emerging markets.[17] Specifically, Scenario II includes a second group of past users of Fund credit that currently have reserve to short-term debt ratios of up to 200 percent. Again, for simplicity, average access of 500 percent of quota has been assumed. In the specific scenario presented here, this would involve a number of new active arrangements that is slightly above the peak in recent years. Scenario III adds an additional group of countries with ratios of reserves to short-term debt between 200–300 percent. In both Scenarios II and III, existing Fund liquidity would be substantially exhausted (particularly as a shock of this magnitude could affect some countries

[17] Alternatively, it could also be seen as capturing the possible effects of a new liquidity instrument that could be used by a broad range of emerging market countries.

whose external positions are presently considered strong enough for inclusion in the FTP), and the Fund could require recourse to borrowed resources.

21. **The adequacy of Fund resources also needs to be considered in light of the ongoing work on crisis prevention**. In particular, if the Fund were to agree on a new liquidity instrument, it would be necessary to take full account of the commitments made under such an instrument when assessing Fund liquidity. Thus, the Fund's resource base would need to be adequate to meet its commitments in full in order to preserve the credibility of the "insurance" provided through such an instrument.[18] In this context, it was proposed in the discussions on a possible new liquidity instrument that the instrument would be reviewed if commitments reached some pre-specified amount, and that the adequacy of the Fund's liquidity position should also be considered in that context.

22. **The Fund has considered quotas as the basic source of its financing while acknowledging that borrowing on a limited basis can provide an important supplement.** The Fund maintains two standing borrowing arrangements—the New Arrangements to Borrow (NAB) and the General Arrangements to Borrow (GAB)—with a total borrowing capacity of SDR 34 billion. These borrowing arrangements provide the Fund with a useful degree of flexibility especially at times when the Fund's liquidity position is under strain. Both the NAB and GAB have recently been renewed for further five-year periods from November and December 2008, respectively. While these arrangements provide an important buttress to the Fund's liquidity, their use is limited to specific purposes involving threats to the international monetary system, and they should not be viewed as a substitute for adequate own resources.

[18] See *Twelfth General Review of Quotas—Further Considerations*.

## IV. Conclusions, Issues for Discussion, and Next Steps

23. **This paper has reviewed the adequacy of Fund resources in light of recent and prospective global economic developments and the Fund's liquidity situation**. A few broad conclusions can be drawn from this analysis:

- The size of the Fund has declined further against a range of indicators of global economic activity that have been considered relevant when assessing the adequacy of Fund resources. Relative to most such indicators, including global GDP, Fund quotas have fallen below the range maintained since the mid-1970s.

- On the other hand, Fund liquidity is at an all-time high. This reflects the steep drop in Fund lending in recent years against the backdrop of sustained strong global economic growth and ample access to external market financing for most countries. It also reflects an increase in the number of countries whose external positions are considered sufficiently strong for inclusion in the Fund's operational budget.

- While projected growth in 2008 has been marked down moderately, latest staff projections are for solid global growth to continue. However, the downside risks to these forecasts have clearly increased and the global economic outlook appears particularly uncertain, with the recent financial market turmoil highlighting the potential for shocks to be transmitted quickly and in ways that are difficult to anticipate.

- It appears too soon to draw firm conclusions about the Fund's future financing role. While the recent decline in Fund lending may have a structural element, the Fund needs to maintain adequate resources to meet the potential needs of its members. These assessments also need to be made on a forward looking basis. Based on the analysis presented in this paper, and notwithstanding the considerable uncertainties involved, the Fund's liquidity position appears sufficiently strong to respond to a range of foreseeable shocks, though a large shock affecting a broad range of countries could exhaust the Fund's current lending capacity and require recourse to borrowed resources.

24. **Against this background, the staff does not on balance see a sufficiently strong case for a general quota increase at this time.**[19] While the Fund's liquidity position appears satisfactory at present, past experience suggests that this can change quickly. Accordingly, it would be important to continue to closely monitor the adequacy of Fund resources and stand ready to consider the need for a quota increase in the event that the Fund's liquidity position were to deteriorate. In this context, the Articles provide flexibility for the Board of Governors

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[19] An 85 percent majority of the total voting power is required for any increase in quotas.

to conduct a general review and propose an adjustment at any time within the normal five-year intervals for general quota reviews. Also, as was the case with the Twelfth Review, the Board of Governors Resolution concluding the Thirteenth Review could note the intention of the Executive Board to monitor closely and assess the adequacy of Fund resources during the period of the Fourteenth Review, which would commence upon the completion of the Thirteenth Review.

25. **On the next steps**, if Directors were to concur with the above assessment, the staff would prepare for Board consideration a short paper for decision including a draft report of the Executive Board to the Board of Governors. The report would recommend that the Board of Governors adopt a resolution concluding the Thirteenth General Review by January 28, 2008 with no proposal to increase quotas. The report could also take note of the ongoing discussions on quota and voice reform, and the need for close monitoring of Fund liquidity as discussed above.

26. **Directors may wish to comment on the following:**

- How do Directors assess the implications of global economic and financial developments since the Twelfth Review and their implications for the demand for Fund resources?

- How do Directors view the decline in the relative size of the Fund’s financial resources and its implications for the Fund’s ability to meet the needs of its members?

- How do Directors view the impact of recent changes in international capital markets for the Fund’s financing role and the adequacy of its resource base?

- Do Directors share the staff’s view that a general quota increase is not warranted at this time, but that the adequacy of Fund resources needs to be monitored closely during the period of the Fourteenth Review?