INTERNATIONAL MONETARY FUND

Review of the Adequacy of and Options for Supplementing Fund Resources

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I. INTRODUCTION

1. **The global financial crisis and rapidly changing outlook have raised questions about the adequacy of Fund resources, calling for a prompt review.** Fund financing has risen sharply in recent months, albeit from historically low levels. The unprecedented complexity, breadth and scale of this crisis, and the resulting balance of payments pressures on emerging market members, suggest that substantial additional demand can be expected. The broader context remains that the relative size of the Fund has fallen substantially against various metrics for the global economy (e.g., GDP, trade, and capital flows) since the last general increase in quotas in 1998. While views continue to differ, increasing questions are being raised as to whether the Fund has sufficient resources on hand to meet the potential demand for Fund financing associated with the current crisis.[1] These questions can be problematic in and of themselves to the extent they diminish confidence in the Fund's ability to carry out its lending mandate. Thus, in its November 2008 work program discussion, the Executive Board requested an assessment of IMF resource needs and options for supplementing Fund resources. Similarly, G20 leaders, as part of their November 2008 action plan, called for a review of the adequacy of the resources of the IMF and other IFIs by March 31, 2009, and indicated they stood ready to increase these resources where necessary.

2. **This review discusses the potential scale of a possible increase, as well as modalities that would facilitate a prompt increase in the Fund's resources should the need for additional resources be agreed.** While a permanent increase in Fund resources has traditionally been achieved through an increase in quotas, borrowing has often been used to bridge to a general quota increase given the substantial time involved in the latter undertaking. At a time of crisis, the case for such an approach is even stronger. The precise design and scope of any such borrowing would need to be considered in consultation with potential creditors, and with careful attention to the broader implications for the Fund's finances.

3. **The paper is organized as follows:** Section II reviews the adequacy of the Fund's resources, based on an assessment of the size of the Fund compared to relevant benchmarks and potential demand in the current economic environment. It argues that a doubling of the Fund's pre-crisis lending capacity would be justified, at least on a temporary basis. Section III highlights options for increasing the Fund's resources, and

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[1] See, for example, *What the G20 Leaders Must Do to Stabilize our Economy and Fix the Financial System,* edited by Barry Eichengreen and Richard Baldwin, Center for Economic Policy Research 2008 http://www.voxeu.org/index.php?q=node/2543.

Section IV focuses, in particular, on the potential modalities for borrowing and their implications for the Fund's finances. Section V concludes with issues for discussion.[2]

II. ADEQUACY OF FUND RESOURCES

A. Decline in the Size of the Fund Relative to the Global Economy

4. **The last review of the adequacy of Fund resources preceded the current crisis**. In its report to the Board of Governors on the Thirteenth General Review of Quotas, the Executive Board noted the changing nature of the economic and financial risks against which the adequacy of Fund resources must be assessed, the decline in the size of the Fund against a range of economic and financial indicators, and the significant uncertainties surrounding the global economic outlook.[3] However, it also noted that lending had declined steeply against the backdrop of sustained strong global growth and that Fund liquidity was at an all time high. The Board concluded there was not a sufficiently strong case for a general quota increase at that time, while stressing the need to continue to closely monitor the adequacy of Fund resources and stand ready to consider the need for a quota increase in the event the Fund's liquidity were to deteriorate. On this basis, the Board of Governors concluded the Thirteenth Review with no increase in quotas.[4]

5. **Updated analysis confirms the decline in the size of the Fund compared with relevant economic and financial metrics** (Figure 1 and Table 1). As a result of the quota and voice reforms, aggregate quotas will increase by about 11.5 percent.[5] Even with this increase, however, Fund quotas will remain well below their previous levels in relation to global output, trade and capital flows. For example, based on data for 2008, quotas would need to increase by about 55 percent to return to the levels relative to

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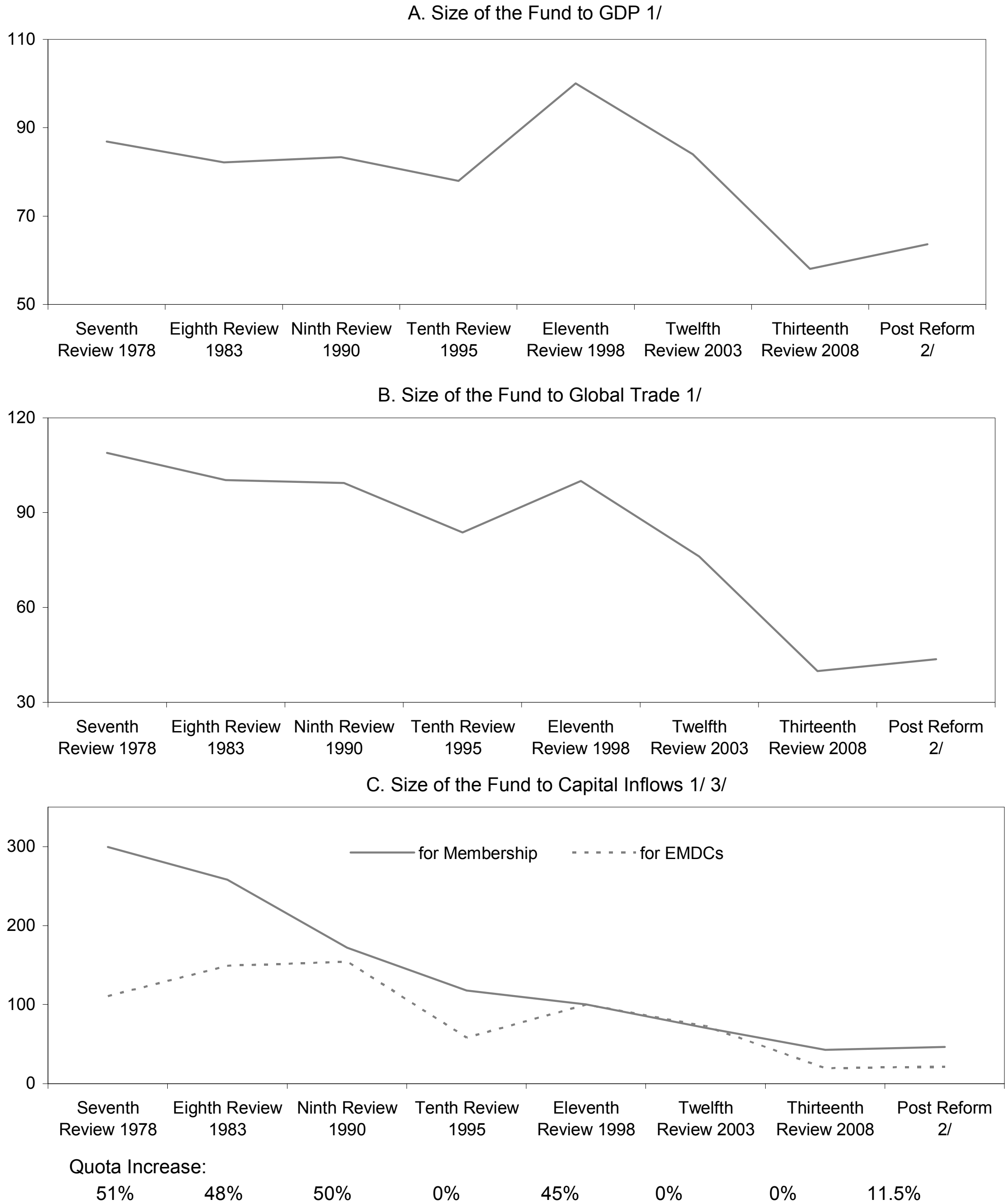
[2] This report focuses on the adequacy of resources within the General Resources Account. The issue of adequacy of concessional resources will be taken up separately in the forthcoming review of the Fund's lending role and facilities for low-income countries.

[3] Thirteenth General Review of Quotas—Assessing the Adequacy of Fund Resources, November 27, 2007 and Press Release No. 08/02, January 4, 2008 at www.imf.org.

[4] Board of Governors Resolution No. 63-1, 1/28/08. Press Release No. 08/13, February 4, 2008

[5] Report of the Managing Director to the International Monetary and Financial Committee on IMF Quota and Voice Reform (April 7, 2008) at www.imf.org. Quotas were increased by 11.5 percent overall under the reform, with a first round of ad hoc quota increases for 4 members approved in September 2006 and a second round for 54 members totaling 9.55 percent approved in April 2008. Effectiveness of the second-round ad-hoc increases depends, inter alia, upon the entry into force of a related Amendment of the Articles of Agreement to enhance the voice and participation of low-income members.

Figure 1. Indicators of the Size of the Fund (Index, 1998=100)



Source: World Economic Outlook Database (October 2008) and Fund Staff.

1/ Quotas approved under each review. Economic data for year quota review was completed, as indicated.
2/ Quotas under Resolution No. 63-2. Economic data for 2008.
3/ Indexes calculated using a three-year centered average for overall capital inflows.

Table 1. Size of the Fund and Economic Indicators

(In billions of SDRs or in percent)

	Seventh Review 1978 1/ (1)	Eighth Review 1983 1/ (2)	Ninth Review 1990 1/ (3)	Tenth Review 1995 1/ (4)	Eleventh Review 1998 1/ (5)	Twelfth Review 2003 1/ (6)	Thirteenth Review 2008 1/ (7)	Post Quota and Voice Reform 2/ (8)
Size of Quota Increase, in Percent	50.9	47.5	50.0	0.0	45.0	0.0	0.0	11.5
1. Size of the Fund	61.1	90.0	135.2	146.1	212.0	213.7	217.6	238.3
Index (1998=100)	28.8	42.4	63.8	68.9	100.0	100.8	102.6	112.4
2. Economic Metrics (Index: 1998 = 100)								
a. GDP	33	52	77	88	100	120	177	177
b. Trade	26	42	64	82	100	132	258	258
c. Capital Inflows 3/	10	16	37	58	100	143	242	242
d. Capital Inflows to EMDCs 3/	26	28	41	119	100	138	527	527
e. Foreign Assets plus Liabilities 4/	9	19	47	65	100	165	311	311
f. Foreign Assets plus Liabilities EMDCs 4/	10	28	45	74	100	139	304	304
3. Ratio of line 1 to line 2 (Index)								
a. GDP	86.8	82.1	83.3	78.0	100.0	84.0	58.0	63.6
b. Trade	108.9	100.3	99.4	83.7	100.0	76.1	39.8	43.6
c. Capital Inflows 3/	299.5	258.4	172.2	118.0	100.0	70.5	42.4	46.5
d. Capital Inflows to EMDCs 3/	110.9	149.2	154.4	58.1	100.0	72.8	19.5	21.3
e. Foreign Assets plus Liabilities 4/	322.0	218.7	136.7	105.7	100.0	61.0	33.0	36.2
f. Foreign Assets plus Liabilities EMDCs 4/	288.0	153.7	143.1	93.4	100.0	72.3	33.7	37.0

Source: Fund Staff.

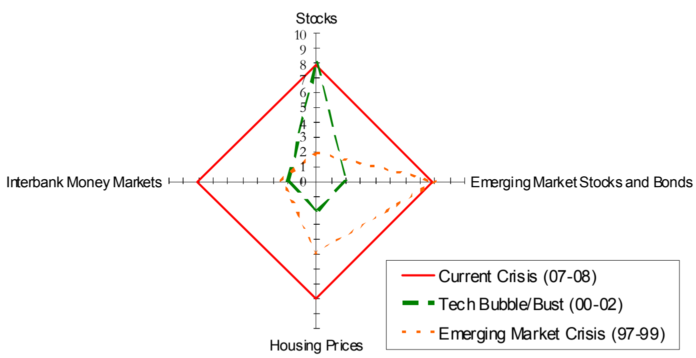
1/ Quotas approved under each review. Economic data based on the year the Board of Governors' Resolution on quota review was approved.
2/ 2008 data is used. Quotas as agreed under the Board of Governors' Resolution No. 63-2.
3/ Based on a three-year moving average for overall capital inflows. Projections based on the World Economic Outlook (October 2008).
4/ Data from Lane and Milesi-Ferretti. Figures for columns 7 and 8 based on latest available data (2007).

global output prevailing in 1998, the time of the last general quota increase.[6] On the same basis, quotas would need to increase by about 130 percent to return to 1998 levels in terms of global trade and 115 percent in terms of capital flows for the membership as a whole.[7]

B. The Worst Global Crisis in 75 Years

6. **Since the adequacy of Fund resources was last reviewed, the global economy has been hit by an unprecedented shock.** The current crisis is much more severe than recent crisis episodes in both its depth and breadth (Figure 2). The financial shock is now reverberating through to the real economy. A contraction in advanced economy output is now projected for the first time in the post-War era (WEO, November update). Notwithstanding substantial policy action, financial conditions remain far from normal, and the feedback to the real economy is becoming increasingly manifest, with sharp declines in employment, production and retail sales in the past few months. A further downward revision in output for both advanced and emerging economies is now expected in the January update of the WEO, although additional policy action, particularly on the fiscal front, could have a mitigating impact.

Figure 2: Increasing Disruption of Financial Crises



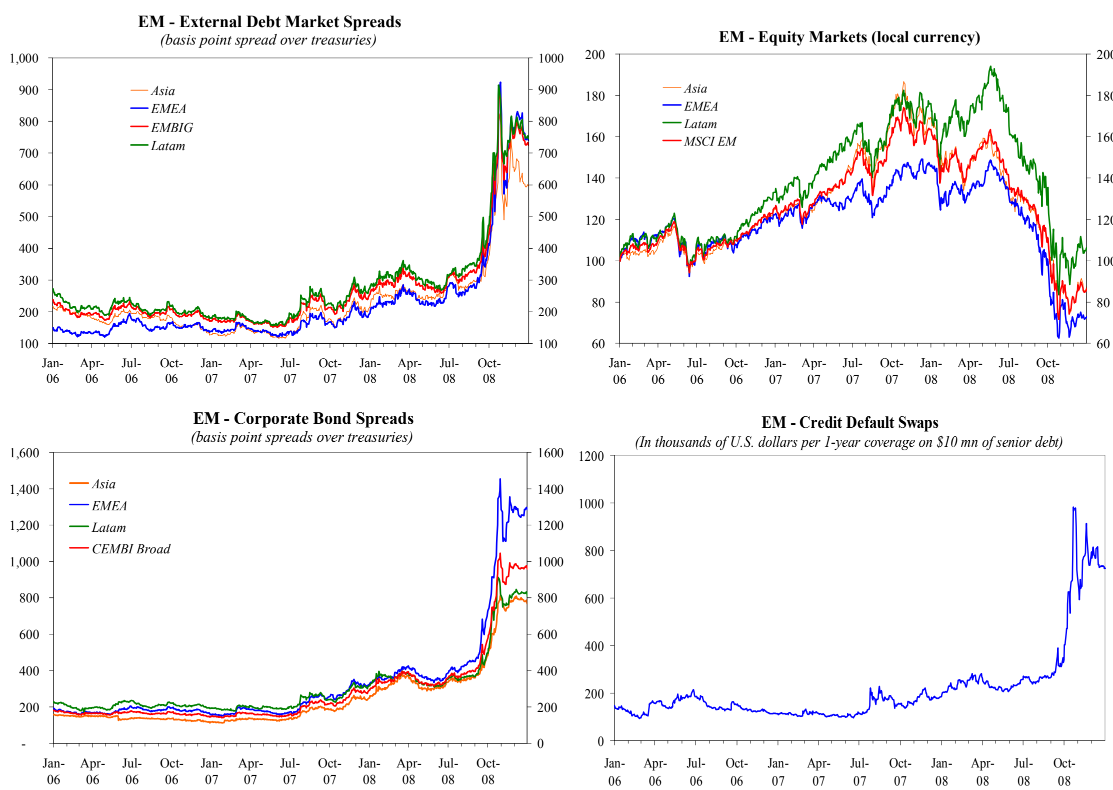
A higher index number indicates a higher level of disruption. Percentage change in Dow Jones Global Total Markets Index; Percentage change in MSCI and JPEMBI Indices; Weighted average housing prices from the United States, UK, Japan, France, Canada, and Ireland; Change in TED Spread (LIBOR – 3 month T-bill rates) for US, Europe. Emerging Market Crisis (12/31/97-1/14/99); Tech Bubble/Bust (3/23/00-9/30/02); Current Crisis (7/20/07-data through 10/10/08)

[6] To allow for a comparison of ratios following the completion of each quota increase (including the proposed increases under the quota and voice reform), economic data are based on October 2008 WEO figures for the year each review was completed. This differs from the methodology used in the regular review of quotas where economic data are drawn from the quota database complied in the context of each review.

[7] Growth in capital flows is difficult to measure in the context of substantial data issues, as well as year-to-year variations (including low base period effects). Table 1 provides two sets of estimates based on a) a three-year centered average of overall capital inflows (October 2008 WEO) and b) changes in assets plus liabilities (Lane and Milesi-Ferretti, Journal of International Economics 73, November 2007). In each case, information is provided for all members and for emerging market and developing countries. It should also be noted that increases for the latter group are, in part, the counterpart to rapid reserve accumulation by some emerging market members.

7. **The fallout from the global financial crisis on emerging economies increased markedly in recent months, also hitting those with strong external positions.** Commodity price declines, lower external demand, binding credit constraints, and capital outflows are taking a significant toll on economic activity in these countries. The effects of global de-leveraging have been increasingly severe with cross-linkages between regional partners exacerbating already difficult conditions, and many emerging economies are now facing sudden stops (Figure 3). Reflecting these disruptions, exchange rates have come under tremendous pressure, complicating macroeconomic management in countries with large currency mismatches or heavily managed exchange rates. As a result, official reserves have fallen sharply in several emerging markets in recent months.

Figure 3. Emerging Market Equity and Debt Markets
(through December 31, 2008)



8. **The effects of the crisis on emerging economies are likely to be sustained.** The growth outlook for advanced economies is deteriorating and additional time may be needed to restore the normal functioning of financial markets, suggesting that the effect on emerging economies' output and capital markets access is likely to be protracted. More broadly, the degree to which capital flows to emerging markets will recover to pre-crisis levels in the medium term is uncertain, suggesting some permanent element to the shock that would need to be accommodated through adjustment. A 2007 study found a median duration of crisis-driven external funding pressures of 7.5 quarters, but also that

this duration increases with the complexity of the crisis.[8] The unprecedented nature of the current shock and its propagation across countries and markets in a highly integrated global economy suggest the possibility of even more sustained stress.

C. A Critical Role For Fund Financing

9. **The Fund has responded flexibly and rapidly to members' needs arising from the crisis.** In the last two months of 2008, it provided exceptional financing to five members, ranging from 500 to 1200 percent of quota (average 940 percent) and total access of SDR 29.6 billion. Moreover, the establishment of the Short-Term Liquidity Facility has provided the Fund new flexibility to support members with strong fundamentals and track records facing short-term capital-account pressures. The Board will also shortly consider further changes to the Fund's lending framework to ensure that it continues to meet the rapidly changing needs of the membership.

10. **The Fund, of course, is not the only source of financing for countries affected by the crisis**. For example, substantial resources have been made available through bilateral arrangements, including $120 billion in swap lines announced by the US Federal Reserve for four emerging market countries in October, and over $40 billion in swap lines for South Korea announced by China and Japan in December. In addition, recent Fund financing arrangements have been accompanied by substantial support from bilateral (Iceland and Latvia), EU (Hungary and Latvia), and multilateral (Pakistan, Latvia, and Hungary) lenders. Regional pooling arrangements also have the potential to play an important role.

11. **Nonetheless, the Fund has a unique mandate to "give confidence to members by making [its resources] temporarily available to them under adequate safeguards"** (...) "to correct maladjustments in their balance of payments without resorting to measures destructive of national or international prosperity." The institution's global membership, as well as its capacity to catalyze broader sources of financing, further reinforce the importance of it maintaining a central role in the provision of balance of payments support. To play this role credibly, however, the Fund must have resources commensurate to the magnitude of the problems at issue.

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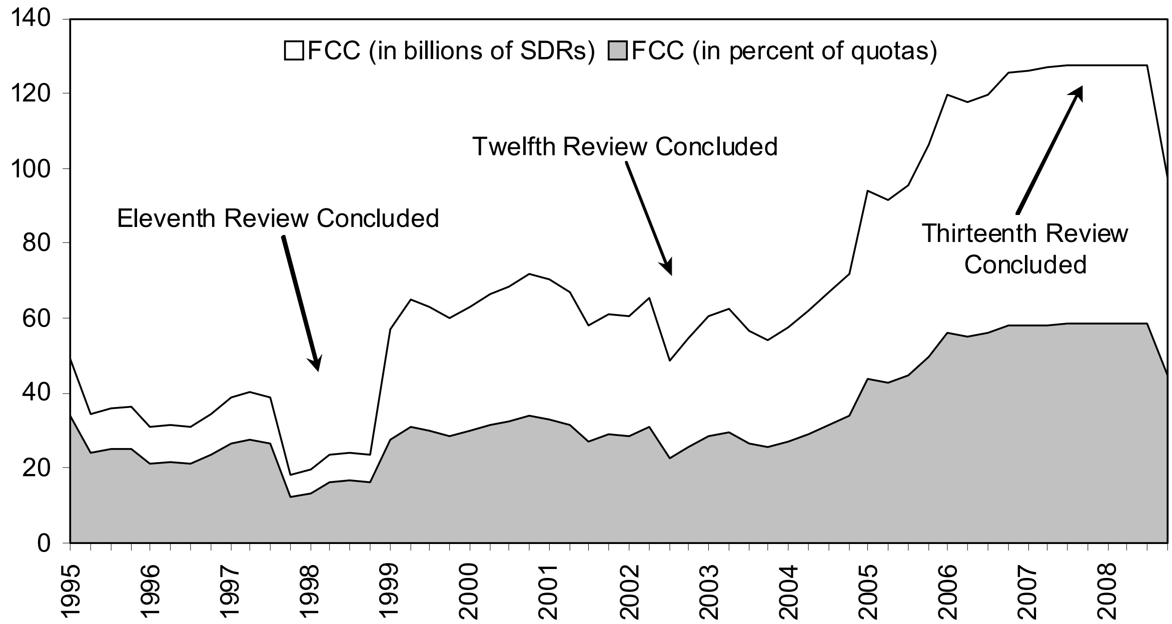
[8] "The Duration of Capital Account Crises—An Empirical Analysis," Mauro Mecagni, Ruben Atoyan, David Hofman, and Dimitri Tzanninis (WP/07/258, November 2007).

D. Prospective Fund Financing and Impact on Liquidity

12. **In the last quarter of 2008, the Fund's available resources have declined by over a fifth from recent historical highs** (Figure 4 and Table 2). Outstanding credit increased from SDR 7.6 billion at end-September to SDR 17.5 billion at end-December. Commitments rose over the same period by SDR 29.7 billion, leading to a reduction in the forward commitment capacity (FCC)[9] from SDR 127.6 billion to SDR 97.6 billion.[10]

Figure 4. Forward Commitment Capacity, 1995–2008



Source: Finance Department.

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[9] The FCC is the principal measure of Fund liquidity, which takes account of the existing commitments of Fund resources, as well as a need to maintain a prudent balance to protect the liquidity of members' reserve tranche positions. The (one-year) FCC indicates the amount of quota-based resources available for new lending under the GRA over the next 12 months. The calculation of the FCC excludes repurchases falling due under the SLF.

[10] As discussed in more detail in the next section, the Fund may also draw on SDR 34 billion in borrowed resources under the NAB/GAB when supplementary resources are needed to forestall or cope with an impairment of the international monetary system or (under the NAB) to deal with an exceptional situation that poses a threat to the stability of that system.

Table 2. The Fund's Liquidity, 1994–2008

(In billions of SDRs)

	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Flows during the period															
Commitments 1/	6.1	23.0	11.7	28.6	33.0	14.8	17.0	31.2	39.2	18.3	1.4	8.9	0.1	0.8	30.7
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	1.0	13.4
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	4.7	1.9
End of period															
1. Usable resources 2/	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	165.4	152.4
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	3.1	20.3
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	162.3	132.1
4. Projected repurchases (one-year)	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	0.3	0.1
5. Prudential minimum uncommitted usable resources 3/	18.0	17.9	18.9	18.8	22.2	28.5	30.2	30.9	32.6	32.8	32.8	34.1	34.8	34.9	34.7
6. One-year forward capacity (3 + 4 - 5)	53.7	36.4	34.6	17.9	23.5	60.1	71.9	61.0	54.7	54.2	71.9	106.4	125.4	127.7	97.6
Memorandum items, end of period															
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	6.0	17.5
8. Amounts activated under GAB/NAB and other borrowing	2.9	1.1	…	…	15.4	…	…	…	…	…	…	…	…	…	…
9. Total Actual Quotas	144.9	145.3	145.3	145.3	145.3	210.2	210.7	212.4	212.7	212.8	213.5	213.5	216.7	217.3	217.4
10. FTP Members' Quota	87.0	88.5	94.7	94.1	95.7	142.6	151.2	154.7	163.1	164.1	164.1	170.5	173.8	174.4	173.4

Source: Finance Department.

1/ Gross amount of new commitments not netted for undrawn balances under expired/cancelled arrangements. Includes disbursements under outright purchases, including emergency assistance.

2/ 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).

3/ 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).

13. **Potential additional demand is difficult to predict and subject to rapid change, but could be significant in many cases.** It is difficult to project use of Fund resources in normal circumstances, and even more so in today's complex and quickly changing environment. However, several factors raise the prospects for sizable demand:

- Discussions are already underway with several countries on possible Fund support, including under the exceptional access policy. It would also be prudent to anticipate further requests in light of continued deterioration in the outlook.

- An update to a recent empirical study on crisis prevention[11] suggests that a number of emerging markets, particularly in Eastern Europe, face substantial risk of crisis, but that these risks can be mitigated with the provision of actual or precautionary Fund support. A complementary update to the aforementioned study on crisis duration found that IMF financing packages can significantly shorten the duration of external funding pressures in the event of crisis. In both studies, initial and external conditions (including the current account and external debt position), as well as policy response, were also found to be important.

- Global de-leveraging is likely to hamper the potential catalytic role of Fund financing relative to private external financing, at least in the early stages of the crisis. Thus, the Fund, working with other official lenders, may need to stand ready to cover a greater portion of near-term financing gaps where such financing is consistent with the Fund's mandate.

14. **Scenario analysis also suggests sizable potential financing needs and associated demand for Fund resources from a range of emerging markets.** Three scenarios for potential financing needs have been developed, using a set of 30 emerging market countries (selected based on the vulnerability exercise plus additional countries identified by the Fund's internal Crisis Response Group). Potential demands on Fund financing have been calculated based on: a) the latest staff estimates for country-specific net borrowing requirements for 2009, b) three sets of severe but plausible assumptions regarding potential liquidity drains and the availability of financing and c) common assumptions regarding the potential contribution of the Fund to meeting the financing gap (Box 1 and Annex 1). The exercise is static and extremely sensitive to the underlying assumptions. As such, it should be viewed only as a rough gauge of the potential orders of magnitude for potential financing needs.[12]

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[11] "The Role of IMF Support in Crisis Prevention," Uma Ramakrishnan and Juan Fernando Zalduendo (WP/06/75, March 1, 2006); Fund Supported Programs and Crisis Prevention, March 23, 2006; and IMF Supported Programs in Capital Account Crises, OP 210, February 6, 2002 at www.imf.org.

[12] To give a rough sense of boundaries to this exercise, 500 percent of quota for the full group in the sample would be equivalent to SDR 184 billion, with 800 percent of quota for the group equivalent to SDR 295 billion.

Box 1. Assumptions for Scenario Analysis

(percent change, unless other indicated)

	Scenario 1	Scenario 2	Scenario 3
Potential Financing Needs:			
Debt/Portfolio:			
Debt Rollover rates	70	60	60
Drain on Non-resident holdings	30	40	40
Other Portfolio Inflows (net)	0	0	0
Buffers:			
Use of reserves (floor of Reserves/ST debt)	100	100	100
Drawdown of private foreign assets			
Banks	50	50	50
Non-financial Corporates	25	25	25
Deposit Outflow:			
Non resident deposits	-	-	20
Resident deposits	-	-	5
Potential Fund Financing			
Adjustment (percent change in current account)	50	50	50
Fund financing (share of total official financing)	60	60	60
First year financing (percent of total)	75	75	75

15. **Under these assumptions, demand for Fund credit could increase by at least SDR 65 to 160 billion, reaching SDR 100 to 200 billion.**[13] This implies possible demand well in excess of FCC and NAB/GAB resources (Table 3).

- Under *Scenario One*, ten members (in addition to members with arrangements under discussion) would face financing gaps not fully covered by available buffers and adjustment measures. Fund assistance would exceed 5 percent of GDP in three cases (in two cases exceeding 1000 percent of quota). Overall commitments (GRA credit outstanding plus undisbursed commitments) increase to SDR 100 billion (increase of SDR 64 billion).

[13] Increase from arrangements under discussion and new borrowing under each scenario. This compares to a historical peak in Fund financing of around SDR 70 billion in 2003.

- Under *Scenario Two*, eleven members would require Fund financial support. Fund assistance would exceed 5 percent of GDP in six cases (exceeding 1000 percent of quota in four cases). Overall commitments would total SDR 150 billion (increase of SDR 115 billion), absorbing the remaining resources under the FCC and requiring use of the NAB/GAB.

- Under *Scenario Three*, sixteen members would require Fund financing. Fund assistance would exceed 5 percent of GDP in ten cases (exceeding 1000 percent of quota in five cases and 2000 percent of quota for one small member). Overall, the implied commitments would total SDR 200 billion (increase of SDR 160 billion), substantially exceeding the resources available under the FCC and the NAB/GAB.

- These projections may well be conservative. For instance, private sector estimates of the potential financing gap in the event of a wider crisis in Central and Eastern Europe alone run up to and beyond SDR 200 billion—this would not all fall on the Fund, but is indicative of potential needs.[14] As highlighted in Annex 1, given sensitivities to underlying assumptions, a more severe drain on non-resident portfolio holdings or potential deposit flight, for example, could lead to potential demand for emerging market members as a whole well above levels projected in Scenario 3.

Table 3. Impact of Illustrative Scenarios on the Fund's Forward Commitment Capacity
(In billions of SDRs)

		Illustrative Additional Demand 1/		
	2008	1	2	3
Flows				
Commitments	30.7	64.1	114.8	161.3
Purchases 2/	13.4	48.1	86.1	121.0
Repurchases	1.9	-	-	-
End of period				
GRA credit outstanding	17.5	65.6	103.6	138.5
Undisbursed Commitments	20.3	36.4	49.0	60.7
One-year FCC from own resources 3/	97.6	33.5	-	-
Liquidity shortfall	-	-	-17.2	-63.7
Memorandum Item:				
Credit Outstanding and Undisbursed Commitments	37.9	102.0	152.7	199.2

Source: Fund Staff

1/ Includes access under each scenario and tentative projections for arrangements under discussion.
Includes the proposed SDR 1.618 billion arrangement for Belarus, scheduled for Board discussion on January 12.
2/ Access in first year. For prospective arrangements, this is assumed to equal 75 percent of total.
3/ Does not take into account the effect of new borrowing on FTP participation.

[14] For example, a recent Deutsche Bank study employing a somewhat wider range of assumptions calculated potential financing gaps (before adjustment) of $50 to $265 billion (SDR 30–SDR 170 billion) for 9 Central and Eastern European members without current programs, assuming full drawdown of reserves. The lower bound of these gaps rises to $220 billion (SDR 145 billion) with the assumption of maintenance of a minimum floor on reserves (100 percent or short-term debt). See *Estimating EMEA Financing Gaps: Will the Fund be Enough*? November 7, 2008.

16. **Several other factors may put additional strains on the Fund's capacity to meet potential needs without additional resources.**

- Countries with relatively strong external positions may seek Fund financing under the SLF or for crisis prevention purposes (e.g., via a high-access precautionary arrangement or financing under a possible new crisis prevention instrument). Committed resources could increase quickly under a range of reasonable scenarios: use by one of seven large emerging markets with quotas in the range of SDR 2-3 billion (assuming 500 percent of quota) would imply an additional SDR 10-15 billion in liquidity use. Use by five average-sized emerging markets or developing countries (again at 500 percent of quota) would imply additional use of about SDR 23 billion.

- The scenario analysis above does not take into account potential demand by advanced countries beyond Iceland. While such a development appears unlikely, the unprecedented nature of the current crisis suggests that it may be imprudent to rule it out. Even a relatively small advanced economy (e.g., the median quota size for advanced economies) would imply an additional need of SDR 11 billion at 500 percent of quota.

- Increases in lending would have a more substantial impact on Fund liquidity if accompanied by a decline in resources available under the Financial Transactions Plan (FTP), e.g., if an FTP participant was to borrow from the Fund due to a substantial deterioration in its balance of payments position.[15]

E. Recommended Increase in Fund Resources

17. **While the scale of an appropriate increase is a matter of judgment, the above factors would support a doubling of the Fund's pre-crisis lending capacity including the GAB/NAB** (SDR 167 billion or approximately $250 billion) particularly in light of rapidly changing circumstances:

- Restoration of the ratio of available Fund resources to the global economy (in terms of GDP, trade and overall capital inflows) to levels at the time of the last general quota increase would imply a quota increase on the order of 55–130 percent. This would be equivalent to an increase of between SDR 130 billion and SDR 310 billion

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[15] Currently 47 members, representing approximately 80 percent of Fund quotas, participate in the FTP. Participation is determined based on a periodic assessment by the Executive Board of members' balance of payments and reserve positions.

from current agreed quotas of SDR 238.3 billion following the pending quota and voice reform.

- The sharper risks associated with the increased vulnerability of emerging market members highlighted in the scenario analysis suggests significant additional needs from pending and prospective demand, of at least SDR 65 billion to SDR 160 billion based on severe but plausible assumptions, with substantial downside risks suggesting possible demand could be much higher. This compares to liquidity under the FCC of SDR 98 billion and available borrowing under the NAB/GAB of SDR 34 billion. Further downside risks discussed in paragraph 16 would imply significantly larger needs still (e.g., SDR 35 billion assuming one large and five average sized emerging markets utilize the SLF).

- Any increase would need to take into account the requirement for some portion of increased resources to be reserved as a liquidity buffer, with the current liquidity buffer set at 20 percent of FTP members' quotas plus amounts activated under the GAB/NAB (see Section V).

- More generally, the Fund's overall liquidity should continue to be large enough to inspire confidence in the institution's capacity to fulfill its mandate. The costs associated with a possible shortfall or excess of Fund resources are asymmetric, with much higher costs associated with an inadequate resource base (or the perception thereof) in terms of the impact of disorderly adjustment on members and on the system if the Fund were unable to fulfill its responsibilities. Given the unprecedented uncertainty associated with the current crisis, maintaining a cushion of resources substantially above projected lending needs remains critical.

III. Options for Supplementing the Fund's Resources

18. **Several options exist for increasing the resources that the Fund has available to help address the current crisis**. In practice, most of these options would take time to put in place, but the Fund does have the capacity to borrow where this is deemed appropriate to replenish its quota resources, and this could be done relatively quickly (see Box 2 for a summary of the relevant voting majorities). As this appears to be the most promising option to address the immediate need to increase Fund resources, it is discussed in more detail in the next section. The main available options are:

A. General Quota Increase

19. **The Fund is a quota-based institution, but a general quota increase is not a practical short-term response to the current crisis**. In the best of circumstances, quota increases take considerable time to agree and become effective. As noted above, the ad hoc quota increases agreed as part of the recent quota and voice reform are not yet in place. Moreover, the Executive Board has agreed that further realignments of quota shares should

be recommended in the context of future general quota reviews, beginning with the Fourteenth Review, and that further work is needed in several areas relating to the quota formula before it is used again. Resolving these issues will take time, and the needed size of the permanent increase in the Fund's resources is also not yet fully clear.

Box 2. Voting Majorities for Options to Supplement Fund Resources

Quota increases: a Board of Governors decision taken by an 85 percent majority of the total voting power (Article III, Section 2(c)).

Borrowing: an Executive Board decision taken by a majority of the votes cast (Article VII, Section 1(i)).

Allocation or cancellation of SDRs: a Board of Governors decision taken by an 85 percent majority of the total voting power (Article XVIII, Section 4(d)), which must be based on a proposal that has been concurred in by the Executive Board by a majority of the votes cast (Article XVIII, Section 4(a)).

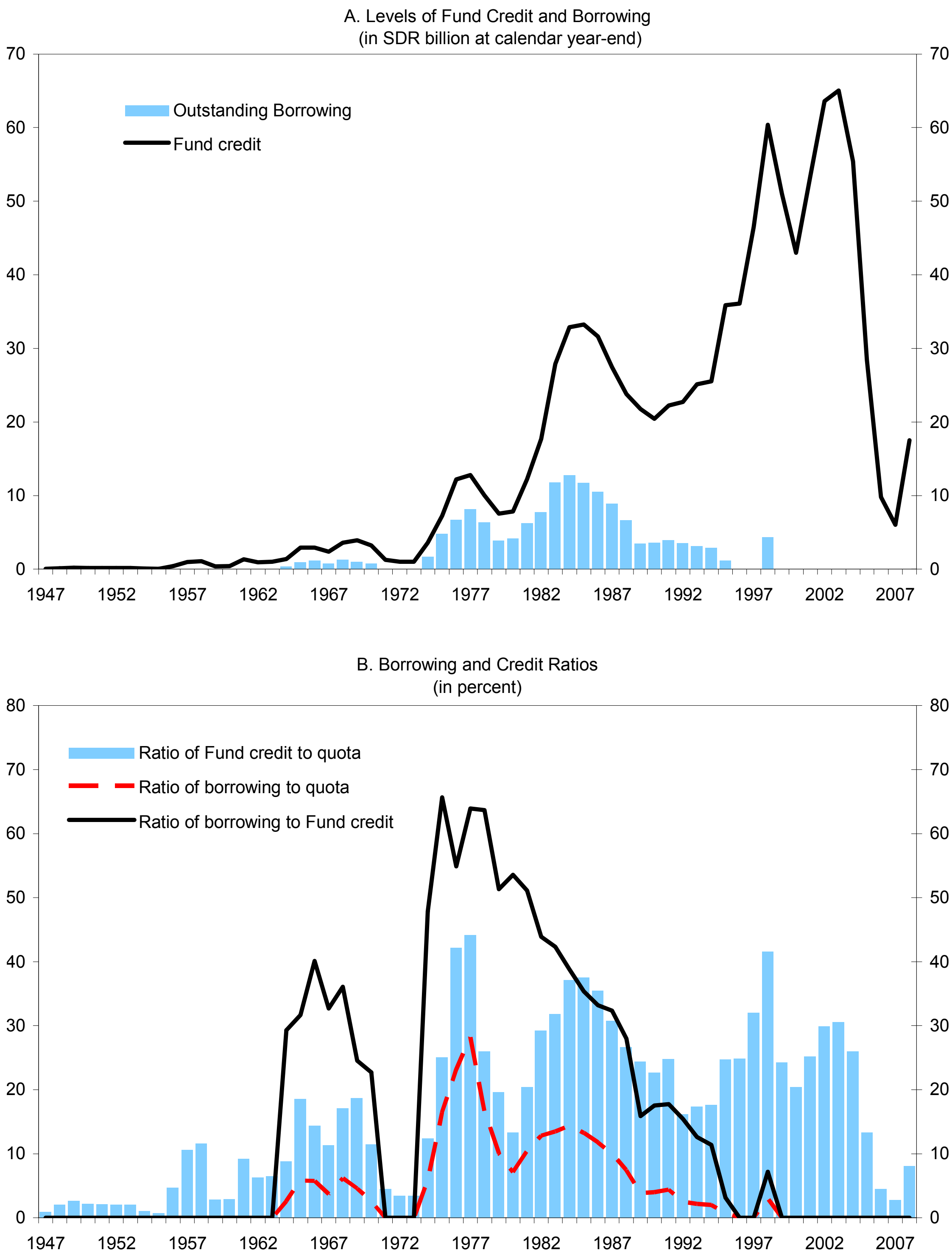
Establishing a trust for parallel financing: an Executive Board decision taken by a majority of the votes cast.

Enlargement of the NAB (i.e., an increase in the size of the current participants' credit arrangements, or an amendment of the NAB to expand the number of participants coupled with an increase in the aggregate size of credit arrangements): An Executive Board decision taken by a majority of the votes cast, and the concurrence of participants representing 85 percent of total credit arrangements (Paragraphs 5 and 15 of Decision No. 11428–*(97/6)*, adopted January 27, 1997, as amended).

B. Borrowing

20. **Borrowing has provided an important temporary supplement to quota resources in the past**. The Fund is authorized to borrow under the Articles in order to replenish its holdings of currencies in the General Resources Account (GRA) that are needed in connection with its lending transactions (Article VII, Section 1(i)). Borrowing has been considered appropriate at times when the Fund's current or prospective liquidity was regarded as inadequate. The Fund has also borrowed when the time and size of a general quota increase was uncertain, and to finance the operations of newly-established facilities. Examples include the Oil Facilities in 1974–75, the Supplementary Financing Facility in 1979–81, and the enlarged access policy of 1981–86. Borrowing peaked in the mid 1980s, but it played its most important role in relation to the size of the Fund in the late 1970s when borrowing financed over 60 percent of Fund credit, and represented almost 30 percent of total quotas (Figure 5).

Figure 5. Borrowing by the Fund, 1947–2008



Source: Finance Department

C. SDR Allocation

21. **An SDR allocation would directly bolster members' owned reserves rather than supplement the Fund's resources available for lending**. This could help address the drying up of international liquidity associated with the global financial crisis. It would require a collective judgment that there is a long-term global need to supplement existing reserve assets, and would need to be done in a manner so as to avoid economic stagnation and deflation as well as excess demand and inflation (Article XVIII, Section 1(a)). An SDR allocation must be made to all SDR Department participants in proportion to their quotas. Accordingly, to be effective in relieving the liquidity constraints faced by emerging market countries, an allocation would need to be either very large in relation to the existing stock of SDRs (SDR 21.4 billion) or accompanied by a voluntary agreement among participants on some form of post-allocation redistribution to countries most in need. A decision on allocation could also include a statement calling for a review and possible cancellation of SDRs at the time of the next general quota increase.

D. Parallel Financing Arrangements

22. **Consistent with its catalytic role, the Fund could seek to mobilize official resources to be disbursed in parallel with Fund lending**. Such operations could, for example, be conducted through a Trust administered by the Fund, whereby loans from the Trust would be disbursed in parallel with Fund lending. This would allow contributors to the Trust to participate in a multilateral effort to address the global financial crisis and benefit from the key safeguards associated with the Fund's lending policies, including program design and conditionality. In contrast to a borrowing arrangement under B above, however, contributors to the Trust would not have a financial claim on the Fund and would bear the credit risks associated with the parallel lending.

IV. Possible Borrowing Modalities

23. **A range of borrowing modalities are permissible under the Fund's authority to borrow and may be complementary rather than mutually exclusive**. The following discussion focuses on borrowing from the official sector, through bilateral borrowing agreements, a note placement program, and enlargement of the multilateral NAB. The Fund could also borrow directly from the private sector. This option has been considered on several occasions in the past but has not been pursued. Private sector borrowing would raise a broader range of policy, financial and legal issues that would take more time to address, which could limit the immediate utility of this option in addressing the current crisis. Accordingly, staff proposes for the time being to focus on borrowing from the official sector, as discussed in more detail below. The choice among vehicles for borrowing from the official community would depend ultimately upon the preferences of potential lenders.

A. Bilateral Loan Agreements

24. **Bilateral loan agreements offer flexibility and could potentially be put in place quickly**. Under such an agreement, the member normally commits to allow the Fund to make drawings up to a specified ceiling during the period for which drawings can be made. The structure of these agreements could be modeled on previous bilateral loan agreements from the 1960s through the 1980s, and also on features of the NAB/GAB. Drawings would be in amounts requested by the Fund, possibly subject to upper limits on drawings during short periods, e.g., weekly or monthly. Japan has already indicated its willingness to enter into a bilateral loan agreement with the Fund for up to $100 billion (approximately SDR 65 billion), and staff has initiated informal discussions with the authorities aimed at bringing such an agreement to the Board for approval as soon as possible.

25. **Past loans to the Fund have included features to enhance their liquidity, allowing them to be included in members' international reserves**. Traditionally, loans have included an encashability provision, allowing the lender to receive early repayment upon representation of a balance of payments need to the Fund. Loans have also been transferable within the official community, potentially enabling lenders to obtain liquidity without representing a balance of payments need to the Fund. The international reserve status of loans can be important to the ability of members to enter into borrowing agreements, but encashability provisions also have implications for the Fund's liquidity, as discussed below.

B. Placement of Fund Paper

26. **Some official creditors may prefer to invest in paper issued by the Fund rather than enter into a loan agreement**. To meet these creditors' needs, the Fund could establish a framework for borrowing through the issuance of promissory notes to such creditors. The Board approved a framework for the placement of notes in the early 1980s, although no notes were actually issued. Two broad approaches to placing notes could be considered:

- **The Fund could enter into note purchase agreements (NPA) with willing creditors under a commitment framework that would have close parallels with a loan agreement**. Under a NPA, the creditor would commit to purchase notes up to a specified ceiling during an agreed period, at the request of the Fund. The note purchase program approved by the Board in the early 1980s relied on a similar NPA framework involving upfront commitments from creditors. There would be the possibility to have a number of bilateral NPAs in parallel, but transfers of notes within the official sector would not be limited to those members/entities with NPAs.

- **Alternatively, the Fund could establish a broad note issuance program that did not involve formal upfront commitments from creditors as under a NPA.** Placements would be made with interested creditors on an ad hoc basis, in line with the Fund's needs for resources. While a formal NPA would not be involved, the Fund could only pursue such an approach based on clear understandings with individual members of their willingness to invest in notes issued by the Fund up to a certain minimum amount. Thus, in practice, the distinction between these two approaches may be limited.

C. Enlargement and Expansion of the NAB

27. **Another approach to expanding the availability of borrowed resources would be to enlarge the NAB**. This could involve either an increase in the size of the current participants' credit arrangements, or an expansion in the number of NAB participants coupled with an increase in the aggregate size of credit arrangements under the NAB.[16] The latter could most effectively be implemented by amending the NAB provisions governing the adherence of new participants to make them more flexible. Both an increase in current arrangements or an amendment to the NAB would require a decision of the Fund and the concurrence of participants representing 85 percent of total credit arrangements.[17] In the event of a significant increase, consideration may need to be given to whether the current broadly quota-based distribution of individual credit arrangements (subject to the minimum of SDR 340 million) remains appropriate. Also, in some cases, legislative approval may be needed before participants can agree to increases in their credit arrangements or other significant changes in the NAB.[18]

[16] The NAB involve credit arrangements with 26 participants for a total of SDR 34 billion. The Fund's other standing borrowing arrangements are the GAB and an associated agreement with Saudi Arabia (although outstanding amounts under the NAB, GAB, and GAB-associated agreements may not exceed SDR 34 billion). The NAB specifies that it is to be the facility of first and principal recourse vis-à-vis the GAB, except in limited circumstances (involving Fund credit to a member that is a participant of both the GAB and NAB, or where a proposal for calls under the NAB is not accepted).

[17] New participants can also be accepted at the time of renewal of the NAB through a decision by the Fund and agreement of participants representing 80 percent of total credit arrangements. The NAB was recently renewed for a 5-year period ending on November 16, 2013.

[18] For example, it is staff's understanding that US Congressional approval would be required for any increase in the current credit arrangement of the United States, as well as for other changes that significantly alter the amount, terms, or conditions of US participation in the NAB.

Table 4. GAB and NAB Participants and Credit Amounts
(in SDR millions)

Participant	GAB	NAB
Australia	--	801
Austria	--	408
Banco Central de Chile	--	340
Belgium	595	957
Canada	893	1,381
Denmark	--	367
Deutsche Bundesbank	2,380	3,519
Finland	--	340
France	1,700	2,549
Hong Kong Monetary Authority	--	340
Italy	1,105	1,753
Japan	2,125	3,519
Korea	--	340
Kuwait	--	341
Luxembourg	--	340
Malaysia	--	340
Netherlands	850	1,302
Norway	--	379
Saudi Arabia	--	1,761
Singapore	--	340
Spain	--	665
Sveriges Riksbank	383	850
Swiss National Bank	1,020	1,540
Thailand	--	340
United Kingdom	1,700	2,549
United States	4,250	6,640
Total 1/	17,000	34,000
Saudi Arabia (associated credit arrangement)	1,500	--

Source: Finance Department

1/ Total may not equal sum of components due to rounding.

D. Potential Implications for the Fund's Finances

28. **The Fund established guidelines for borrowing in 1982, and they were last updated in 1991 (Box 3)**. These guidelines include the presumption that quota resources should remain the basic source of the Fund's finances and that borrowing should be temporary, that borrowing should be subject to continuous review, and that in advance of any new borrowing (except under the GAB), the Board will establish limits for total borrowing in relation to quotas, which should not be viewed as targets. The 1982–83 guidelines established a limit on borrowing in the range of 50 to 60 percent of quotas.

Box 3. Guidelines for Borrowing by the Fund

Quota subscriptions are and should remain the basic source of the Fund's financing. However, on a temporary basis, borrowing by the Fund can provide an important supplement to its resources.

The confidence of present and potential creditors in the Fund will depend not only on the prudence and soundness of its financial policies but also on the effective performance of its various responsibilities, including, in particular, its success in promoting adjustment.

Against this background the Executive Board approves the following guidelines on borrowing by the Fund:

1. Fund borrowing shall remain subject to a process of continuous monitoring by the Executive Board in the light of the above considerations. For this purpose, the Executive Board will regularly review the Fund's liquidity and financial position, taking into account all relevant factors of a quantitative and qualitative nature.

2. In advance of any further borrowing undertaken by the Fund, except in the case of borrowing under the General Arrangements to Borrow, the Executive Board shall establish in the context of circumstances prevailing at that time, limits expressed in terms of the total of Fund quotas above which the total of outstanding borrowing plus unused credit lines would not be permitted to rise.

3. Any limits that may be adopted as a result of a review pursuant to paragraph 2 above are not to be understood, at any time, as targets for borrowing by the Fund.

Decision No. 9862-(91/156)[1]
November 15, 1991

[1] Ed. Note: This decision replaced Decision No. 7040-(82/7), as amended by Decision No. 7589-(83/181).

Source: *Selected Decisions and Selected Documents of the IMF, Thirty-Second Issue, pp. 504–5.*

29. **While the Fund has made substantial recourse to borrowing in the past, the prospective needs discussed in Section III above are large by historical standards**. Borrowing on the order of $250 billion would be equivalent to about 70 percent of quotas (after the agreed ad hoc increases), which would be somewhat above the previous limit in the borrowing guidelines and would also exceed the previous peak in terms of actual borrowing of about 30 percent.[19] Such an increase appears warranted by the extraordinary risks currently facing the global economy. However, it would also imply potential risks for the

[19] It is notable that the share of the FTP members within total quotas has increased substantially since the guidelines were last revised in 1991, from 60 percent of quotas to 80 percent in 2008, which may provide somewhat more scope to borrow relative to quota than at the time the previous limits were agreed.

Fund's finances that would need to be carefully managed, in part through the design of the borrowing arrangements.

30. **The Fund faces a number of potential financial risks from borrowing**. These risks include:

Exchange rate risk—the Fund's outstanding credit is denominated in SDRs, and the Fund does not have express authority under the Articles to engage in transactions in the General Resources Account to hedge exchange risks.[20] As a result, the Fund's consistent practice has been to denominate its borrowings in SDRs (i.e., use the SDR as the unit of account for borrowing).[21] Actual transactions such as drawings and repayments would be conducted in the lender's own currency or in other agreed currencies.[22]

Interest rate risk—the Fund charges a floating rate on outstanding credit, based on the quarterly average of the weekly SDR interest rate.[23] The Fund is not expressly authorized to engage in interest rate swaps or other similar transactions in the General Resources Account to manage interest rate risk.[24] Hence, since 1984, the interest rates paid under borrowing agreements have been generally linked to the SDR interest rate in order to contain risks to the Fund's income, e.g., NAB loans pay the SDR interest rate, with the exception of a higher interest rate if agreed between the Fund and participants representing 80 percent of total credit arrangements.

[20] In the absence of express authority in the Articles, the Fund would have to rely on the doctrine of "implied powers" in order to engage in hedging transactions to protect against exchange rate risk. The Fund has previously relied on implied powers in a few rare circumstances (including in connection with the establishment of Borrowed Resources Suspense Accounts, as mentioned below, where this was necessary for the exercise of the Fund's borrowing authority); however, it has not done so for more than two decades. Staff could prepare a detailed analysis of the complex issues raised in this context if Directors were to wish to explore further the option of having borrowing that is not denominated in SDRs.

[21] Clearly, creditors could themselves choose to hedge their exposure to currency risk associated with SDR denominated claims if they considered this appropriate.

[22] Borrowing of currencies other than the lender's own currency requires the consent of the member issuing the currency.

[23] The total rate of charge also includes a margin over the SDR interest rate (currently 100 basis points), adjustments to share the burden of interest arrears (currently 2 basis points), and surcharges based on the level and/or duration of access. For the credit tranches and the EFF, surcharges are currently 100 basis points for access between 200 and 300 percent of quota, and 200 basis points for access above 300 percent of quota. These surcharges are currently under review.

[24] In the absence of express authority in the Articles, the Fund would have to rely on the doctrine of "implied powers" in order to engage in interest rate swaps or similar transactions to manage interest rate risk. As discussed above in connection with the hedging of exchange rate risk, staff could prepare a detailed analysis of the complex issues raised in this context if Directors were to wish to explore further the option of having interest rates for borrowing that are not linked to the SDR rate.

Credit risk—regardless of whether Fund credit is financed by quota resources or borrowed resources, the Fund bears the full credit risk. In addition to the Fund's broader policies on lending, and its preferred creditor status, an adequate level of precautionary balances is essential to protect the Fund against credit risks and to preserve the value of the reserve assets represented by members' positions in the Fund. Higher reserves would also provide increased assurances to lenders to the Fund under the various borrowing options discussed in this paper. At the 2008 review of precautionary balances, Directors were willing to retain the current target of SDR 10 billion for the time being, but stressed that it should be kept under close review, with a number of Directors observing that it may need to be raised if lending expands significantly and remains high.[25] A significantly higher reserves target would likely be needed if Fund lending were to expand to the point of requiring recourse to borrowing. Accordingly, it would be important that the interest rates agreed under borrowing arrangements allow an adequate differential between the effective rates charged to members using Fund resources (including surcharges), and the interest paid to lenders, so as to allow the Fund to accumulate reserves rapidly in the event of a sharp increase in lending.

Liquidity risks—the Fund faces two potential types of liquidity risks on borrowing: (i) timing mismatches between its lending and its borrowing operations, and (ii) encashment risks from outstanding borrowing.

- **Timing mismatches**: Under previous loan agreements, the Fund generally sought to achieve a match between the timing of borrowings and the use of Fund resources. Under such a "pass through" arrangement, the Fund would draw on currencies when these were required to finance a purchase, and would make repayments with the resources from the corresponding repurchase, as under the NAB. Achieving such a match in the case of placements of Fund paper is likely to be more difficult but could be at least partially achieved through features such as arrangements in the NPA to allow the Fund to place paper on pre-agreed terms but on an "as needed" bases; making the paper callable by the Fund before maturity; and varying the maturity of the paper according to the type of lending being financed, e.g., SLF vs. upper credit tranche lending. These approaches would need to be discussed with potential creditors. To the extent that timing mismatches cannot be fully avoided, one way to manage the resulting liquidity fluctuations would be for the GRA to hold currencies received from lenders or from repurchases, thereby increasing the Fund's holdings of the particular currency and generally reducing the reserve tranche positions of the relevant members. The transactions would be reversed—with Fund's holdings of currencies being reduced and reserve tranche positions increased—when the resources were used either to finance a purchase or to repay lenders. An alternative approach that was adopted in the early 1980s was to manage the liquidity fluctuations

[25] Currently, precautionary balances are less than SDR 7 billion, well below the target.

outside of the GRA through borrowed resource suspense accounts held within the General Department.[26]

- **Encashment**: As noted earlier, most previous Fund borrowing agreements have provided for early repayment upon representation of a balance of payments need by the lending member, with the stipulation that the Fund would give such representations the overwhelming benefit of the doubt. A similar provision is also currently included in the NAB (Paragraph 11(e)). Such encashability provisions facilitate the ability of creditors to treat their loans to the Fund as liquid reserve assets, in the same manner that members include their Fund reserve tranche positions in their international reserves, based on their right to make a reserve tranche purchase if they represent a balance of payments need. However, the Fund needs to maintain an adequate liquidity buffer against this encashment risk, which reduces the effective addition to the Fund's lending capacity provided by borrowing. For example, the FCC, which is the main measure of the Fund's lending capacity, includes a prudential balance (currently 20 percent of the quotas of members included in the FTP plus amounts activated under the GAB/NAB), and that balance would likely need to be increased to take account of new borrowing outside of the NAB/GAB.[27] Encashment risks could be reduced by limiting the scope for early encashment within a certain timeframe, as was done in the case of the borrowing arrangement with the Saudi Arabian Monetary Agency (SAMA) in the early 1980s.[28] Also, it may be possible to avoid the need for an encashment provision in Fund paper that is freely transferable among official holders. Maximizing flexibility in the use of borrowed resources, so that they could be used both for early repayment of other borrowing as well as to finance lending, would also help reduce the need for an additional liquidity buffer in the GRA and maximize the effective increase in the Fund's resources from borrowing.

31. **Consideration would also need to be given to the linkages between different sources of borrowing and their appropriate sequencing**. For example, if the Fund is to borrow on a substantial scale, there is a strong case for drawing on borrowed resources earlier before quota resources are substantially depleted, to ensure that a core liquidity buffer

[26] While the Articles do not expressly authorize the establishment of such separate accounts within the General Department, the power to establish them was deemed to be derived by implication from other provisions of the Articles, inter alia, as this was the only practicable means for the Fund to exercise its borrowing authority in the then prevailing circumstances.

[27] The prudential balance provides a buffer to protect the liquidity of members' reserve tranche positions in the Fund and take account of the potential erosion of the Fund's resource base.

[28] Given the size of the loan, the agreement specified that the Fund's maximum immediate repayment obligation would be limited to SDR 4 billion, with the balance outstanding to be repaid within 12 months.

is maintained in the GRA to protect against encashment risks. This is particularly the case given that the NAB is currently not available to finance early repayment of borrowing to creditors outside of the NAB.[29]

V. Concluding Observations and Issues for Discussion

32. **The global financial crisis has already led to an upswing in Fund lending on a scale that is large by historical standards**. Until the tide of deleveraging and more general pull back by investors from emerging market turns, there appears to be a strong possibility that further demand for Fund credit will put severe strain on the Fund's liquidity. Against this background, staff consider that a substantial increase in the Fund's resources available to support lending operations is warranted in order to ensure confidence in the Fund's capacity to fulfill its mandate. And as the process of securing a general quota increase would likely be protracted, staff consider that it would be appropriate to expand Fund borrowing to provide a temporary supplement to the Fund's resources and a possible bridge to the next general quota increase. Such borrowing should be structured in a manner which provides sufficient operational flexibility to meet members' financing needs and to manage the Fund's financial risks.

33. **Directors may wish to indicate their views on the following issues**:

1) Do Directors agree that there is a need to expand the Fund's resources available to help address the current global crisis? Would Directors support the immediate target proposed in this paper of a doubling of the Fund's pre-crisis lending capacity?

2) Do Directors agree that immediate efforts to mobilize supplementary liquidity should focus on borrowing? What are Directors' views on the main options discussed in this paper, namely bilateral loan agreements, a note placement program within the official sector, and an expansion of the NAB?

3) Do Directors agree that Fund borrowing should continue to be denominated in SDRs to protect the Fund against exchange rate risks, and that the interest rate should be closely linked to the SDR rate to contain income risks and allow the Fund to build reserves, thereby protecting against credit risks?

4) Do Directors support the maximum use of a "pass-through" type mechanism on new borrowing to avoid timing mismatches? To the extent that such mismatches

[29] Under specified circumstances, the Fund may request GAB/NAB participants to fund early repayments to other participants under their respective arrangements (see Paragraph 11(e) of the GAB and NAB, respectively). The Fund may also make similar requests of GAB participants in respect of early repayments to lenders under GAB-associated borrowing arrangements (see Paragraph 23(a) of the GAB).

cannot be fully eliminated, do Directors consider that mismatches should be managed in the GRA through changes in members' reserve tranche positions, or are they of the view that alternative mechanisms should be considered, along the lines of the borrowed resource suspense accounts used in the early 1980s?

5) What are Directors' views on the relative merits of an SDR allocation in the current circumstances?

ANNEX I. SCENARIO ANALYSIS

Country coverage

The 30 members included in this exercise have a projected 2009 GDP of about $9 trillion and represent over 15 percent of total Fund quotas. Members with current Fund arrangements or in advanced discussions of possible arrangement have been excluded from this exercise, and current/projected arrangement size used in the calculation of overall demand. These members have a combined GDP of just under $2 trillion and represent less than 4 percent of total Fund quotas.

Financing gaps

Given substantial variations in the experience of members facing capital account crises related to the scale and specific drivers of financing needs, it is difficult to model a "typical" sudden stop scenario. For purposes of this exercise, three sets of simplifying assumptions, implying increasing degrees of stress, have been considered (Box 1):

- In *Scenario 1*, a relatively severe sudden stop occurs. Specifically, global de-leveraging leads to a substantial reduction in the rollover of external debt. Non-residents draw down their portfolio holdings significantly, while other net portfolio flows remain flat. Reserves are utilized as the first line of defense in meeting financing needs, albeit with a floor on reserves maintained at 100 percent of short term debt on a residual maturity basis.[30] Foreign assets held by banks and corporations are partially drawn down.[31]

- In *Scenario 2*, a more severe episode of stress ensues, leading to more extensive deterioration in rollover rates and a higher drain on non-resident portfolio holdings (both sets of assumptions assume a 10 percentage points deterioration relative to Scenario 1). Assumptions on the use of reserves/foreign-assets remain unchanged.

- Were such a scenario to be accompanied by deposit outflows (e.g., in the context of a crisis affecting the domestic banking system), financing gaps would expand quickly. *Scenario 3* thus takes Scenario 2 as a starting point, and assumes an outflow of both resident and non-resident deposits. The specific assumptions for deposit outflows seek to strike a balance between the relatively low probability that such outflows would hit all

[30] In some cases, this assumption would imply a sizable and rapid decline in reserves that in and of itself may have confidence effects. In such cases, a smaller drawdown of reserves may be prudent. For members with pre-crisis reserves below 100 percent of short-term debt, no net use of reserves is assumed. For members with currency board arrangements, a second floor on reserves is set at 100 percent of M0.

[31] FDI inflows are maintained at baseline levels as a simplifying assumption, notwithstanding the fact that these flows may decline in a crisis scenario.

countries in the sample and the substantial risks associated with such outflows in individual cases.

Impact of potential financing gaps on Fund lending

The scale of Fund financing required to address financing needs stemming from these gaps would depend on a number of factors:[32]

- *Financing versus adjustment:* The appropriate mix between adjustment and financing will depend on the degree to which the balance of payments stress in a specific case arises mainly from short-term liquidity constraints or reflects more fundamental vulnerabilities and permanent shocks. In the former case, Fund financing can help to prevent dislocations associated with the temporary loss of capital, while in the latter case, it can provide the member time to make the needed adjustment. In both circumstances, it can help to prevent overshooting that may lead to more severe balance sheet effects and deeper output losses. As a simplifying assumption for this exercise, a current account adjustment of 50 percent is assumed for members with financing gaps in each scenario.

- *Fund share of official support:* The share of the remaining gap that is covered by the IMF versus other sources can vary substantially: in the most recent cases involving exceptional access, the Fund's share of initial financing packages ranged from 15 to 90 percent, averaging 46 percent. For purposes of this exercise, staff assumes that the Fund provides 60 percent of financing.

- *Total program scale:* The duration of the crisis and of the phasing of any Fund support, would need to be considered. In past exceptional access cases, financing in the first year accounted for an average 75 percent of total program financing. The same share is assumed in this exercise, notwithstanding the fact that the current crises in emerging markets may be more sustained.

[32] Given the blunt nature of this exercise, a notional cap on Fund assistance was applied at 10 percent of GDP, recognizing that the scale of individual programs would need to be determined based on a case specific basis, including in the context of the member's capacity to repay. This assumption affects only the third scenario. This cap is not applied in the sensitivity analysis to demonstrate relative effects of changes in each assumption.

Potential Demand

As demonstrated in Table 3 in the main text, the exercise, while providing only a rough gauge of potential demand, demonstrates that the scale of potential demand for Fund resources may be substantial under reasonable assumptions. Sensitivity analysis, while subject to substantial non-linearities, demonstrates the particularly significant downside risks that may be associated with a more substantial drain on non-resident holdings and on resident deposits (Table A).

Table A. Sensitivity of demand for Fund financing to change in key assumptions

Five percentage point deterioration
(in billions of SDR)

	Scenario One	Scenario Two	Scenario Three
ST debt rollover rate	9.2	9.2	10.6
MLT debt rollover rate	4.4	4.4	4.9
Drain of non-resident holdings	23.1	23.5	25.8
Drawdown of banks foreign assets	5.8	6.0	6.5
Drawdown of non-financial corp. foreign assets	2.0	2.0	2.4
Outflows of non-resident deposits	…	…	4.0
Outflows of resident deposits	…	…	46.3
Current account adjustment	3.0	3.3	3.6
Fund share of total official financing	3.5	7.7	12.7