FOR AGENDA

SM/07/330

September 19, 2007

To: Members of the Executive Board

From: The Secretary

Subject: **Developing a New Income Model for the Fund—Further Considerations**

Attached for consideration by the Executive Directors is a paper on developing a new income model for the Fund—further considerations, which will be brought to the agenda for discussion on **a date to be announced**. Issues for discussion appear on pages 24 and 25. The staff does not propose the publication of this paper.

Questions may be referred to Mr. Beaumont, FIN (ext. 37411) and Ms. Weeks-Brown, LEG (ext. 36896).

This document will shortly be posted on the extranet, a secure website for Executive Directors and member country authorities.

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INTERNATIONAL MONETARY FUND

Developing a New Income Model for the Fund—Further Considerations

Prepared by the Finance and Legal Departments

In consultation with other departments

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September 19, 2007

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I. Introduction

1. **The Executive Board discussed a staff paper on developing a new income model for the Fund on July 23, 2007**.[1] The paper reviewed the merits of the key recommendations made by the Committee of Eminent Persons (the "Committee"), and analyzed the various issues that would need to be addressed in operationalizing these recommendations.[2] The Board discussion confirmed that the Fund needs to develop a new income model that can finance in a sustainable manner the diverse activities it undertakes to fulfill its mandate, and, in particular, acknowledged that the Fund should no longer rely primarily on income from lending to cover all of its administrative expenses. Most Directors supported the preliminary staff proposals on how some of the issues raised in the Committee's Report could be resolved, and nearly all Directors shared the Committee's view that its key recommendations should be treated as a comprehensive package.

2. **This follow-up paper provides additional analysis and more specific proposals for the key investment-related issues examined in July. It also includes illustrative and very preliminary text of possible amendments of the Articles that could be adopted to give effect to the proposals (Annex I).** Its starting point is the analysis in the first paper and the views expressed by Directors regarding the Committee's key recommendations: namely, that the Fund should:

- expand the range of instruments in which it invests resources;
- invest a portion of its quota resources;
- sell gold acquired by it since the Second Amendment and invest the profits in an endowment; and
- resume reimbursement of the GRA for the administrative expenses of the PRGF-ESF Trust.

Section II of the paper considers an integrated framework for investing the Fund's resources that takes into account transfers to and from the Investment Account (IA) of resources from both the General Resources Account (GRA) and the Special Disbursement Account (SDA). Section III considers the expansion of the Fund's investment authority and issues related to the implementation of this expanded authority. It also proposes a similar expansion of the

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[1] *Developing a New Income Model for the Fund*, SM/07/235, 7/2/07; and *The Chair's Summing Up, Developing a New Income Model for the Fund*, BUFF/07/115, 8/3/07.

[2] The Report to the Managing Director by the Committee of Eminent Persons on the Sustainable Long-Term Financing of the Fund (FO/DIS/07/8, Rev. 1, 1/31/07). The report can also be downloaded from the Fund's external website: http://www.imf.org/external/np/oth/2007/013107.pdf

investment authority for resources retained in the SDA, and considers the potential benefits to the PRGF-ESF Trust from such a broadened investment mandate. This analysis is relevant to the Committee's proposal to resume reimbursement of the GRA for the administrative expenses of the PRGF-ESF Trust. During the July discussion, this proposal was supported by most Directors, though they considered it crucial that alternative sources of funding be found in the event that the capacity for subsidized lending proves insufficient following a resumption of reimbursement. Section IV concludes with issues for discussion.

3. **The analysis and proposals set forth below continue to be guided by the broad principles endorsed by Directors for the development of a new income model.** These principles include:

- ensuring continuity with respect to the Fund's existing mandate, core functions, and effective operation;
- avoiding excessive complexity in design and operation and promoting transparency; and
- establishing a framework that balances the need for flexibility with the necessity of ensuring adequate controls and oversight. To that end, for example, the proposed amendment would expand the Fund's current investment authority by giving the Executive Board broad discretion regarding the design of the Fund's investment strategies, but would require any decision made with respect to such strategies to be taken by a qualified majority.

4. **Certain additional issues related to the design of a new income model would need to be addressed in subsequent papers.** These include the detailed modalities for possible sales of a limited part of the Fund's gold holdings; a more thorough consideration of the appropriate investment objectives and risk tolerance of different investment tranches; an analysis of approaches towards setting the rate of charge in a more stable and predictable manner; and considerations in the design and implementation of a formal "dividend" policy for the Fund.[3] Moreover, this paper is not intended to address the expenditure-related issues emphasized by many Directors during the July discussion. Management expects that issues related to increasing expenditure efficiencies will be discussed in the coming months.

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[3] Various issues that are ancillary to the income model (e.g., appropriate approaches towards burden sharing and assessing precautionary balances under the new model) would be best discussed when there is greater clarity regarding the design of the new income model.

II. FRAMEWORK FOR INVESTING THE FUND'S RESOURCES

5. **Building on the discussions that took place in July, this section of the paper makes specific proposals for the framework pursuant to which the Fund would invest both its quota resources and other resources in the Investment Account**. To that end, subsection A sets forth proposals regarding the transfer of currencies to the Investment Account and the selection of currencies to be invested, drawing on the preliminary proposals in the first staff paper (SM/07/235) that received broad support from the Executive Board during the July discussion. Subsection B sets forth proposals regarding the transfer of currencies *from* the IA and, unlike subsection A, covers a number of issues that were not addressed in SM/07/235. The text of illustrative amendments of the Articles that could be used to give effect to these proposals is set forth in Annex I.

A. Selection and Transfer of Currencies to the Investment Account

6. **As discussed in SM/07/235, the Articles currently impose a limit on transfers to the IA of both:** (i) currencies held in the GRA, and (ii) profits from the sale of gold held by the Fund prior to the Second Amendment ("pre-Second Amendment gold") that otherwise would be held in the Special Disbursement Account.[4] Specifically, the combined transfers from these sources may not exceed the amount of the Fund's general and special reserves at the time of the transfer, taking into account previous transfers.[5] This provision is generally understood as allowing the Fund to invest only that portion of its currency holdings that are derived from reserves (i.e., retained earnings). Thus, currency holdings derived from quota subscriptions may generally not be invested under the current provisions of the Articles.[6]

7. **Under the proposal, this limit would be removed. Specifically, the proposed investment framework would consist of the following key elements.**

- With respect to the transfer of currencies from the GRA to the IA, the Executive Board would be given the authority to transfer to the IA the currencies of all members in an amount equivalent to a percentage of the quota of each member to be specified

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[4] Box 6 of SM/07/235 discusses differences, under the Articles, between the treatment of pre-Second Amendment gold and gold acquired by the Fund after the Second Amendment.

[5] Article XII, Section 6(f)(ii).

[6] It should be noted, however, that if reserves decline after the transfer from the GRA to the IA, there is no obligation to transfer back to the GRA amounts that have already been transferred to the IA. Hence, the amount of currencies invested in the IA could subsequently exceed the level of the Fund's reserves. The Fund could decide at any time (by a 70 percent majority of the total voting power), to reduce the volume of investment in the IA and transfer the relevant proceeds to the GRA for immediate use in Fund operations and transactions (Article XII, Section 6(f)(vi)).

by the Executive Board, which shall be the same for all members. These transfer decisions would be taken by a 70 percent majority of the total voting power.

- As an exception to the above equal participation rule, the Fund would also have the power to decide, by an 85 percent majority of the total voting power, to limit the currencies to be transferred, based on policies to be adopted by it for the selection of currencies that take into account the principles applicable to the selection of currencies for use in the Financial Transactions Plan (FTP). These principles include the balance of payments and reserve position of members and developments in the exchange markets, as well as the desirability of promoting over time balanced positions in the Fund.[7]

- If requested by the Fund, a member whose currency is not a freely usable currency would have an obligation to convert balances of its currency that have been transferred to the IA into a freely usable currency specified by the Fund.

- For all currencies in the IA (including those resulting from the conversion obligation described above), the Fund would no longer be required to seek the concurrence of a member before it invests the member's currency.

- The transfer of a member's currency from the GRA to the IA would in all cases—and regardless of whether the member has credit outstanding in the GRA—result in the creation or enlargement of the member's reserve tranche position.

8. **With respect to both the considerations motivating the design of the above proposal and its implications, the following merits emphasis**.

A Unified Framework

9. **With respect to the rules governing all aspects of the expanded investment framework, the amendment itself would not make any distinction based on the sources to which the GRA currencies being transferred are attributed.** Specifically, the rules regarding the selection and transfer of currencies from the GRA to the IA, the proposed elimination of the concurrence requirement, the treatment of reserve tranche positions, and the selection and transfer of currencies from the IA to the GRA (discussed below) would not distinguish between currencies that are attributable to the Fund's retained earnings (reserves) and those that are attributable to quota subscriptions. The alternative to such a unified investment framework would be a segmented approach, whereby different rules would apply depending on whether the currencies being transferred are attributable to reserves, quotas or gold profits.

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[7] See Article V, Section 3(d).

10. **Taking into account Directors' endorsement of the underlying principles that should guide the design of the amendment (discussed above), the unified framework is preferable for a number of reasons.** First, it would reflect the Fund's existing financial structure, which recognizes the fungibility of GRA currency holdings and under which the transfer of currencies from the GRA to the IA does not change the amount of either the Fund's reserves or quota subscriptions (Box 1). Second, a unified approach would also be less complicated to implement. Third, a unified approach would provide for greater flexibility. For example, in circumstances where the profits from sale of gold acquired by the Fund after the Second Amendment ("post-Second Amendment gold") would not cause an equivalent increase in reserves (because the profits had been absorbed in whole or in part by income shortfalls in the GRA), the Fund would still be able – under the proposed unified approach – to transfer to the IA an additional amount of currencies equal to the full amount of these profits.[8]

11. **Notwithstanding the above, in determining the amount of currencies to be transferred to the IA, the Fund would be expected to take into account both the amount of its existing reserves and the amount of quota resources that it believes is appropriate to invest**. Moreover, and as will be discussed in detail in the next section, when designing the policies that will guide the investment of resources held in the Investment Account, the Fund would be expected to take into account the amounts of transferred currency that may be attributed to reserves, gold sales and quota subscriptions, respectively, and to establish investment policies appropriate to these separate sources of funds.

[8] In circumstances where the Fund sells post-Second amendment gold and does not have an operating loss, these profits would form part of net income and by extension reserves. If there is a current loss, however, these profits would be "absorbed" into the loss and would thus not increase reserves to the full amount of the profits. Moreover, even where the full amount of gold profits enter into reserves, under the current Articles, the Fund would be able to transfer the full increase to the IA only if the Fund's reserves in the aggregate had not fallen from their level at the time the IA was last funded (assuming the full amount of then existing reserves were transferred at that time). The proposed approach would provide flexibility for the Fund to transfer to the IA a portion of currencies corresponding to the full amount of profits from sales of post-Second Amendment gold, which in turn could be invested in the "gold endowment tranche" described in Section III below.

Box 1. Fungibility of GRA Currencies and the Effects of Investment Losses

Currency flows between the GRA and IA

A decision to increase the volume of the Fund's investments would result in transfers of currencies from the GRA to the IA. For example, the initial investment of the Fund's reserves in the IA in June 2006 was implemented through a transfer of currencies from the GRA to the IA of almost SDR 6 billion, equal to the level of GRA reserves at that time. These currencies were not specifically identified as being derived from reserves since the Fund does not distinguish currency by reference to source, reflecting the fungible nature of the Fund's currency holdings.

On the Fund's consolidated balance sheet for the General Department, the transfer of currencies from the GRA to the IA is a redeployment of assets that has no impact on the amount of quotas and total reserves. As illustrated below, a transfer of currencies from the GRA to the IA results in lower Fund holdings of currency equally offset by a higher investment balance. Correspondingly, there is an increase in members' reserve tranche positions that is offset by lower available quota subscriptions.

General Department (movements)

Assets		Liabilities and Reserves	
Currency holdings	-100	Total Quotas	0
		Reserve tranche positions	+100
Investments	+100	Quota subscriptions	-100
		GRA reserves	0
		IA resources	0

Income and losses of the Investment Account

Income earned by the IA may be invested, held in the IA, or used to meet the expenses of conducting the business of the Fund. If the Board decides to transfer IA income to the GRA to meet the Fund's expenses, assets in the IA would remain unchanged. If instead, the Board decides that IA income is to be invested or held in the IA, this would increase the assets and also the accumulated resources of the IA, while leaving GRA currency holdings and reserves unaffected.

The return performance of the IA does not directly affect members' position in the GRA or GRA reserves, because the GRA and IA are separate accounts within the General Department. If the IA experiences a loss, this would decrease accumulated earnings in the IA. GRA reserves would remain unchanged. As illustrated below, a loss in the IA would be accounted for as a decrease in its investment balance, matched by a reduction in its resources.

General Department (movements)

Assets		Liabilities and Reserves	
Currency holdings	0	Total Quotas	0
		Reserve tranche positions	0
Investments	-10	Quota subscriptions	0
		GRA reserves	0
		IA resources	-10

If the IA were terminated, its accumulated earnings or losses would be reflected fully in the reserves of the GRA.

Periodic Reviews

12. **The Executive Board would exercise its new authority to transfer currencies from the GRA to the IA in the context of periodic reviews of the Fund's income needs, but it is not proposed to specify in the amendment the periodicity of these reviews**. Rather, as a means of enhancing flexibility, it is expected that the Executive Board would adopt policies that would set forth the periodicity of these reviews and the specific factors that would guide the Fund in determining the amount of currencies to transfer to the IA.

Selection of Currencies

13. **Requiring that transfers be made of the currencies of all members—rather than a select group—reflects the recommendations of the Committee, which emphasized the importance of ensuring equitable participation of all members in the new framework for the investment of quota resources**. However, during the July discussion, some Directors expressed concerns regarding the application of this approach, and called for further assessment of alternative options that would involve more limited participation by members. As noted in SM/07/235, and discussed in more detail in Annex II, there is not a strong basis for excluding a group of members outright from providing resources for investment, particularly considering that members with a balance of payments need would have the unqualified right to make a reserve tranche purchase following the provision of resources for investment.

14. **Nonetheless, to allow operational flexibility, staff would propose that the amendment give the Executive Board the authority to transfer a more limited range of currencies to the IA**. The specific proposal is that, pursuant to a decision adopted by an 85 percent majority of the total voting power, the Fund could deviate from the general equal participation requirement set forth in the Articles, by adopting policies that would limit the currencies to be transferred based on the currency selection principles that are relied upon for FTP purposes (as noted, these principles being the balance of payments and reserve position of members and developments in the exchange markets, as well as the desirability of maintaining over time balanced positions in the Fund).[9] Such flexibility may, for example, be useful in the context of gold sales, where the proceeds would be expected to be in the form of freely usable currencies that the Fund may wish simply to transfer directly to the IA without requiring the participation of all members.

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[9] While a lower majority could be relied upon to establish such an alternative currency selection policy, doing so would effectively eliminate the strong presumption of equal participation that was recommended by the Committee. For example, if the majority for such a policy was lowered to 70 percent, this would effectively place the alternative framework on par with the equal participation framework, given that transfer decisions under the equal participation approach require a 70 percent majority of the total voting power (which is the majority currently required for transfers to the IA).

Reserve Tranche Positions

15. **It is proposed that all members would have their reserve tranche positions established or increased as a result of a transfer of their currency to the IA**. As discussed in SM/07/235, under current arrangements, the transfer of members' currencies from the GRA to the IA would automatically create or enlarge a reserve tranche position for those members that have no Fund credit outstanding in the GRA.[10] For a member with GRA credit outstanding, however, the transfer of currency from the GRA would reduce the Fund's holdings of its currency that is subject to charges (in the same manner as a repurchase), rather than create or enlarge its reserve tranche position.[11] To ensure that, for a member with GRA credit outstanding, the transfer of its currency to the IA would create or enlarge a reserve tranche position, it is proposed that the Board adopt a decision, upon effectiveness of the amendment, that would ensure that result.[12]

Other Issues

16. **No change is proposed or contemplated with respect to the Committee's recommendation—which was supported by the staff in SM/07/235 and endorsed by the Board—that the gold to be sold under the new income model be limited to post-Second Amendment gold.** Nonetheless, in designing the new amendment, it is necessary to address issues related to the treatment of pre-Second Amendment gold, as the current reserves-related limit in the Articles—whose modification is necessary to allow the investment of quota resources—applies to both GRA currencies and pre-Second Amendment gold profits.[13] The first staff paper identified the need to address this issue, but it set forth no specific

[10] This is because such a transfer would reduce (or reduce further, for members already having reserve tranche positions) the Fund's holdings of such members' currencies to an amount that is less than their quotas.

[11] This result was confirmed during the Second Amendment discussions leading to the adoption of the current provisions on transfers of currency from the GRA. See, e.g., EBM/75/164, 10/8/75, pp. 20–21; EBM/75/194, 12/12/75, p. 9–10; and EBM/76/7, 1/26/76, p. 19–20.

[12] The Board's authority to authorize members to attribute to their reserve tranche a reduction in the Fund's holdings of their currency was discussed in the context of the 1981 decision giving members the option to make such an attribution in cases involving a reduction in their currency due to the Fund's sale of the currency. Decision No. 6831-(81/65), April 22, 1981, effective May 1, 1981, as amended. See also *Review of Policy on Sales of SDRs and Currencies Through the Fund's Operational Budgets*, SM/81/37, 2/13/81; and *Treatment of Reserve Tranche*, SM/81/71, 3/30/81. The attribution decision was subsequently expanded to include reductions in currency resulting from operational payments by the Fund.

[13] Whereas, as noted above, profits from sales of *post*-Second Amendment gold are placed in the GRA in the year of sale (and thus become part of the GRA's currency holdings), profits from sales of pre-Second Amendment gold are required to be placed in the first instance in the SDA unless they are transferred to the IA. See Article V, Sections 12(f) and (g). The *book value* of pre-Second Amendment gold (which under the Articles is the historical official price of SDR 35 per ounce) must in any case be placed in the GRA, because it forms part of members' quota subscriptions.

proposals in this respect. Consistent with the approach for the transfer of currencies from the GRA, it is not proposed that the amendment provide for a specific limit on transfers to the IA of profits from pre-Second Amendment gold. However, reflecting the existing provisions of the Articles, any decision to transfer pre-Second Amendment gold profits to the IA would continue to require an 85 percent majority of the total voting power.[14] This overall approach would be consistent with the simplicity and flexibility principles endorsed by the Board and would also ensure symmetrical treatment with the transfer of other resources to the IA. Separately, and for similar reasons, it is also proposed that the Articles' concurrence requirement be eliminated for the investment of currencies from pre-Second Amendment gold profits.[15]

B. Selection and Transfer of Currencies from the Investment Account

17. **While SM/07/235 identified the need to take into account the implications of the Fund's expanded investment base on the existing rules governing transfers of currencies *from* the IA, it did not discuss these implications in any detail.** This section provides an analysis of the key issues in this area and makes specific proposals as to how these issues could be resolved.

The Current Framework

18. **The Articles contain specific provisions regulating the transfers of currency from the IA.** First, income from investment may be invested, held in the IA, or used for meeting the expenses of conducting the business of the Fund.[16] Second, in the event that the Fund decides to reduce the amount of the investment in the IA, a portion of the reduction must be transferred to the SDA in proportion to the amount that transfers of pre-Second Amendment gold profits (if any) bear to total amounts invested in the IA; the remainder of the reduction must then be transferred to the GRA "for immediate use" in the Fund's operations and transactions.[17] Similar apportionment rules apply to transfers from the IA upon a termination of the IA, including in the context of the liquidation of the Fund.[18]

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[14] See Article V, Section 12(g).

[15] The separate concurrence requirement applicable to the investment of resources held in the SDA would also be eliminated, in light of the related proposal (discussed below) that the SDA's investment authority be amended to be consistent with the IA's investment authority.

[16] Article XII, Section 6(f)(iv).

[17] Article XII, Section 6(f) (ix).

[18] Article XII, Section 6(f)(vii) and (viii).

Allocation between the GRA and the SDA

19. **It is proposed that the current requirements for the proportional allocation of investment reductions between the GRA and SDA would continue to apply.** Given the segregation of the assets contained in the GRA and SDA—which is an important component in the Fund's financial structure—there is a strong argument for not changing the existing rules in this area. Maintaining this mandatory allocation will necessitate some flexibility in the design of the Fund's investment policies, in order to ensure that this allocation does not undermine the Fund's investment strategy and, in particular, the investment of resources in the proposed gold endowment tranche.

Transfers to the GRA for "Immediate Use"

20. **It is proposed that the current provisions on "immediate use" be eliminated under the amended Articles.** By requiring that transfers from the IA to the GRA be made for "immediate use" in the Fund's operations and transactions, this provision ensures that such transfers do not have any effect on members' positions in the GRA.[19] However, in circumstances where the currencies transferred from the GRA may exceed the level of the Fund's reserves, it is appropriate for these amounts to be retransferred to the GRA without a requirement of "immediate use," as some of these resources would have to be attributed to the quota subscriptions of members. Accordingly, and taking into account the benefits of a unified framework as discussed earlier, it is reasonable to give the Fund the authority to reduce the amount of investment and transfer any such amounts to the GRA even if there is no immediate use of the transferred resources in Fund operations and transactions. To the extent that there is a concern that a transfer of currencies to the GRA may adversely affect the position of a member, the amended Articles would provide protection by specifying that no transfer of a particular currency will be made to the GRA where such a transfer would increase the Fund's holdings of the member's currency to a level at which they would be subject to charges. Similar provisions are included elsewhere in the Articles to avoid an adverse impact on an individual member's Fund positions.[20]

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[19] The concept of "immediate use" does not appear to have been expressly discussed in the IA context in the Second Amendment's legislative history, but the same term also appears in connection with the transfer of resources to the GRA from the SDA (see Article V, Section 12(f)(i)), and its rationale in that context was explained as follows: "[t]he idea...was that those assets must be used immediately, with the intention of avoiding the funneling of assets into the general holdings of the General Account and affecting the position of countries in the Fund. Therefore, any transfer of assets from the [SDA] to the [GRA] would oblige the Treasurer to use them immediately, unless the reference to immediacy were deleted." See EBM/75/66, at p. 22.

[20] See, e.g., Article III, Section 3(a) and Article V, Section 12(c).

Selection of Currencies for Transfer from the IA

21. **A final question relates to the design of the rules governing the selection of currencies to be transferred to the GRA from the IA.** Under the existing framework, no currency selection provisions are included in the Articles, but selection of currencies following a reduction in investment would normally be guided by what the Fund could use for "immediate use," e.g., currencies that could be immediately sold under the FTP, or that could be used (or converted into currencies needed for use) in meeting the Fund's expenses. With the possibility that currencies could be transferred to the GRA without being used immediately in operations and transactions, the question arises as to what criteria should be used for selecting currencies to transfer to the GRA.

22. **It is proposed that the selection of currencies for transfers from the IA to the GRA be guided by the same principles applicable to the selection of currencies for repurchase on the "receipt" side of the FTP, in particular, the desirability of promoting over time balanced positions in the Fund**.[21] In the regular operations of the FTP, receipts are allocated to those FTP members with higher than average reserve tranche positions in the Fund (as a share of quota), in proportion to the deviation of their positions from the average.[22] In the case of reductions in investment, this approach could be applied to the membership as a whole, as a matter of symmetry with the source of currencies transferred to the IA. Members that made a reserve tranche purchase after providing resources for investment would likely have a relatively low reserve tranche position (if any), so their currency would likely not be selected for transfer from the IA to the GRA. Moreover, in circumstances where Fund credit outstanding had increased, it would be expected that the majority of resources transferred from the IA would be allocated to members whose currencies had been sold under the FTP.

23. **Transfers of currency from the IA to the GRA could occur in two steps (similar to the structure for transfers from the GRA to the IA)**. Specifically—and given the nature of the investments in the IA—the resources to be transferred from that account will generally be freely usable currencies, and not necessarily the currencies that the Fund has selected for transfer to the GRA. Accordingly, the amendment would provide that each member whose currency is selected for transfer to the GRA would have an obligation, upon request of the Fund, to provide the Fund with equivalent balances of its own currency, in exchange for freely usable currency provided by the Fund, which the Fund would then transfer to the GRA. These currency exchanges would generally constitute an unwinding of the earlier transfer, in connection with which a member whose currency is not freely usable would have

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[21] See Article V, Section 7(i).

[22] See Box 1 of SM/07/235 for background on the operation of the FTP.

provided the Fund with a freely usable currency in exchange for balances of its currency transferred from the GRA to the IA.

III. Expanding the Fund's Investment Authority

24. **At the previous Board discussion, there was broad agreement that expanding the range of instruments in which the Fund may invest is an integral component of the new income model.** This section contains specific proposals for an amendment of the Articles providing the Fund with broad investment powers, and outlines the nature of investment policies that it is contemplated the Executive Board would adopt pursuant to this expanded authority (with an illustration of the analysis of the risk-return trade-offs that could guide the Board in determining appropriate strategic asset allocations and benchmarks). This section also examines the internal governance arrangements for the Fund's investments, including arrangements to address any perception of a conflicts of interest; discusses the creation of an endowment using the profits from limited gold sales; and notes the potential implications for the PRGF-ESF Trust of an expanded investment authority for resources held in the SDA.

A. Design of the Expanded Investment Authority

25. **As discussed in SM/07/235, the Articles of Agreement currently contain very restrictive provisions governing the Fund's investment authority.** The relevant provisions were adopted at the time of the Second Amendment and include separate but identical clauses for the investment of resources held in the IA and SDA, respectively.[23] In practice, and consistent with this restrictive regime, the Fund has normally invested the resources of both of these accounts in the domestic government bonds of member countries, and in instruments issued by a few national agencies and international financial organizations, including BIS deposits and medium-term instruments. The restrictiveness of the Articles' current provisions on investment stands in contrast to the flexibility of most other key IFIs to invest in instruments that their Boards determine to be appropriate (see Box 9 of SM/07/235).

26. **Consistent with the approach endorsed by Directors, it is proposed that the investment authority for IA resources be expanded.** In particular (and as illustrated in Annex I), Article XII, Section 6(f)(iii) would be replaced with a new provision that gives the Fund broad powers to invest resources held in the IA as the Executive Board may determine – but in accordance with rules and regulations to be adopted by the Executive Board by a 70 percent majority of the total voting power.

27. **It would be expected that the investment polices adopted by the Board would provide for diverse investment strategies and objectives reflecting the various sources**

[23] See Article XII, Section 6(f)(iii) (IA), and Article V, Section 12(h) (SDA).

to which funds in the IA may be attributed. It could be noted that it is common practice for institutional investors, including other IFIs, to separate their investable resources into a number of different pools or tranches (see Annex III for the case of the World Bank). More specifically—and as discussed in SM/07/235—it is contemplated that the investment policies adopted pursuant to the expanded investment authority would provide for three tranches of investments in the IA:

- **Gold endowment tranche**: the Board could decide to adopt a diversified benchmark, typical of an endowment fund, for amounts in the IA representing proceeds of the profits from gold sales, which—consistent with the Committee's recommendation—would aim to preserve the real value of these resources in the long-term while generating a sustainable flow of income (as further discussed in subsection C).

- **Quotas tranche**: the benchmark under this tranche could be designed to reflect the fact that remuneration at the 3-month SDR rate is generally payable on currencies transferred from the GRA, as well as the potential need to liquidate GRA currencies if demand for use of Fund resources were to rise sharply.

- **Reserves investment tranche**: in addition to taking into account the fact that reserves could be invested in GRA holdings of currency, thereby reducing remuneration expenses, the benchmark under this tranche could also reflect the relatively more limited liquidity requirements—and thus the longer investment horizon—appropriate for currencies representing the Fund's retained earnings.

28. **It would be intended that the amounts invested in each of these three tranches would broadly reflect the volume of resources in the IA that may be attributed to each of the corresponding sources.** Thus, for example, it would be expected that (a) the principal amount placed in the gold endowment tranche would correspond to the profits realized from sales of both pre-and post-Second amendment gold, (b) the amount invested in the reserves investment tranche would correspond to the level of the Fund's reserves, less any amounts associated with the sale of post-Second Amendment gold that are invested according in the gold endowment tranche, and (c) the remaining resources in the IA would be invested in the "quotas" tranche. The Fund would also be expected to adjust over time the amounts invested under each of the three strategies, taking into account, inter alia, developments related to these three broad sources of IA resources and the Fund's overall financial position, as well as any decisions that may be taken by the Board regarding the volume of investment. Decisions on the amount, if any, of investment earnings to retain in the IA would be one means to adjust the amounts in each tranche, particularly in the case of the gold endowment tranche.

29. **While changes in investment strategy would generally be infrequent, the policies would be sufficiently flexible to allow the Executive Board to adjust the amounts invested in each tranche, and to adjust the overall investment strategy by adjusting the benchmark for each of the tranches**. The Board would conduct periodic reviews of the

continued suitability of the strategic asset allocation for each investment tranche, whose timing could be linked to the proposed periodic reviews of the level of investment. Adjustments to the investment strategy, for example, could be warranted to take into account changes in the Fund's financial position, investment objectives, risk appetite, investment management practices, or structural changes in capital markets and relative return expectations.

30. **Reviews of the investment strategy would be based on an analysis of returns and risks from both historical and forward-looking perspectives**. Annex IV briefly illustrates the nature of such investment analysis drawing on portfolio modeling tools developed by the World Bank.

B. Governance Under the Expanded Investment Authority

31. **This subsection provides a broad outline of governance arrangements for investment by the Fund under an expanded investment authority**. [24]

32. **The objective of the Fund's governance structure for investment management is to establish a sound and transparent framework of accountability.** The design, implementation, and review of the strategic asset allocation of the Fund's investments are the core elements of the investment management process that are carried out within the framework provided by the governance structure. This structure establishes a hierarchy of responsibility for different types of investment decisions.

33. **Consistent with the approach that is currently used for both IA and SDA investments, it is proposed that the Executive Board would continue to approve investment policies and oversee their implementation, albeit under the expanded powers provided by the amended Articles**. Most fundamentally, the Board would define the strategic tradeoff between return and risk, and approve the strategic asset allocation and benchmarks designed to operationalize this tradeoff. In particular, the Executive Board would adopt investment policies that specify the range of eligible investments, currency composition, risk tolerance and controls, and administrative arrangements for the Fund's investments in each of the relevant tranches. It would also have the responsibility to adapt the investment policies governing the Fund's investments in response to changing investment objectives and financial needs, risk appetite, and structural changes in financial markets and

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[24] For an overview of sound practices in reserve management and examples of the practices of different central banks see *Guidelines for Foreign Exchange Reserve Management*, IMF, 2004. Recent developments in reserve asset management practices are summarized in Box 8 of SM/07/235, 7/2/07. Recent surveys of reserve management include Riguady, Jean-François. 2005, "Ten Years of Reserve Management," *BIS Banking Papers*, Issue 14 (March); RBS Reserve Management Trends 2007, Robert Pringle and Nick Carver, eds., Central Banking Publications, London 2007; and Sovereign Wealth Management, Jennifer Johnson-Calari and Malan Rietveld, eds., Central Banking Publications, London 2007.

asset management techniques. The Board would also review investment performance and compliance with applicable guidelines and risk controls.

34. **The Managing Director would continue to have the responsibility to design and propose to the Executive Board investment policies, strategies and guidelines**. Management would also continue to be responsible for the implementation of the investment policies and guidelines adopted by the Executive Board. Management would, of course, have the ability to draw on expertise both internal and external to the Fund to aid the execution of this responsibility, such as through the establishment of investment and advisory committees. The role and composition of any such committees would need to be carefully designed to ensure the appropriate mix of skills and experience, maintain a culture of accountability and efficient decision-making, and avoid perceptions of conflicts of interest.

35. **In that context, Management would continue to be responsible for the administration of investment activities**. These responsibilities include: ensuring that investments and related operations conform to relevant rules and regulations, investment guidelines, and risk controls; establishing investment mandates for asset managers; monitoring the structure and evaluating the performance of investment portfolios; supervising the management of investments, including hiring and firing external investment managers and assessing their performance; supervising custodial arrangements; maintaining the official records of various investment portfolios; and providing regular reports to the Executive Board on investment activities.

36. **The Fund currently relies on external third parties for key investment operations, and would be expected to increase its reliance on these service providers in implementing the expanded investment authority.** This external management structure—consisting of third-party asset managers and a custodian bank—embodies the horizontal separation of operational functions that is an essential element of current best practice. More specifically:

- **It is the role of the external managers to buy and sell securities to structure portfolios consistent with their investment mandate**. The Fund assigns external asset managers a precise investment mandate, performance benchmark, risk limits setting the latitude for active management around the benchmark, and a set of eligible securities and investment techniques. The mandate currently given to investment managers is in line with the Fund's current investment authority and the investment benchmark endorsed by the Board for the IA and Trusts (see Box 2). As discussed below, the use of outside managers to make investment decisions regarding specific securities is a key mechanism pursuant to which the Fund avoids even the appearance of a conflict of interest; e.g., the perception that confidential information in its possession may be used when making investment decisions.

Box 2. Strategic Asset Allocation and the Role of an Investment Benchmark

Strategic asset allocation is a process that integrates an investor's investment objectives, risk tolerance, and investment constraints with long-run capital market expectations. The result of this process is typically summarized in a benchmark that guides investment managers. The strategic asset allocation is intended to remain stable over time, and not respond to short-term market fluctuations. It is, however, subject to adjustment to address significant changes in an institution's investment objectives, risk tolerance, and investment constraints, or a fundamental shift in capital market expectations. The strategic asset allocation is typically the main factor determining portfolio returns, far exceeding such other influences as tactical deviations from the strategic asset allocation and active investment management.

The strategic asset allocation process involves the modeling of expected returns for a range of eligible asset classes, and assessing how well different combinations of assets meet the institution's return objectives and risk tolerance. Modeling methods involve a variety of techniques, including the analysis of historical returns and volatility of different asset classes and the correlation of returns across the range of eligible assets to form the basis for the construction of portfolios that provide an efficient tradeoff between risk and return. Historical analyses can be complemented by an assessment of forward-looking expected returns based on current asset valuations and spreads.

The benchmark that results from the strategic asset allocation process embodies the desired risk and return characteristics of investments, guides the strategies of investment managers, and serves as a basis for assessing portfolio performance. To be effective, a benchmark must have clearly defined risk and return characteristics, comprise tradable securities that are eligible for investment, and generate returns that can be regularly calculated.

The 1–3 year government bond benchmark currently guiding the Fund's external asset managers exemplifies the main elements of a sound benchmark. It embodies the currently desired exposure to interest-rate, credit, and currency risk; comprises securities that are available for trade in the market and consistent with the range of eligible securities permitted by the IA's investment authority; the return of the index is calculable on a regular basis; the weights used in constructing the index are clearly defined; and its individual elements are broad market indices constructed using accepted conventions and widely used by investment managers.

- **The Fund has engaged a separate custodian bank to serve as a check on the investment manager by providing an independent valuation of securities, and systems to monitor compliance with investment guidelines, restrictions, and risk controls**. The Fund's custodian holds assets in safekeeping, settles trades, collects income on securities, values assets and reconciles the valuation of assets with managers, helps monitor compliance with investment guidelines, and maintains records. The custodian also provides cash management and securities lending facilities, performance measurement reports, portfolio monitoring tools, and tax reclamation assistance.

37. **The Fund's audits serve to underpin the risk controls built into the governance structure**. The Fund's investment operations and procedures are regularly subject to internal audits by the Office of Internal Audit, and also to audits by the external audit firm under the supervision of the External Audit Committee.

38. **Given the Fund's surveillance role and ongoing dialogue with members on exchange rate and other potentially market sensitive policy issues, it will be important to ensure that adequate safeguards are in place to avoid actual conflicts of interest or any appearance of conflicts of interest.** The overall approach contemplated for the expanded investment authority (which reflects the Fund's current arrangements) has a number of elements that reduce the scope for actual or any appearance of conflicts of interest.

- First, the strategic asset allocation of investments would be the main—and virtually only—investment decision made by the Fund. The Fund's strategic asset allocation would be determined based on long-term expectations for the relative performance of a range of asset classes, and these expectations will be informed by performance over long historical periods, as well as financial theory. Given its long-term horizon and the considerations underlying its selection, the strategic asset allocation decision is far removed from any possible attempt to exploit confidential information to benefit from short-term market movements.

- Second, the implementation of the Fund's strategic asset allocation would continue to be entrusted to external managers, in accordance with specific guidelines and an investment benchmark. The external manger would be responsible for the day-to-day decisions needed to implement its mandate, including the purchase and sale of individual securities, and would have flexibility to determine the extent to which to exploit the latitude specified in its mandate for active management. Besides delineating the acceptable scope for the investment managers' activities, the Fund would have no role in any aspect of security selection or other active investment management decisions taken by the external managers. The short-term considerations that influence security selection and active management decisions will thus be shielded from any confidential information that the Fund may possess.

- Finally, Fund staff responsible for investments would continue to be guided by a set of policies and procedures that specify standards of professional conduct in the investment process, and measures to restrict access to and avoid discussion of material non-public information.

39. **Notwithstanding the above, and as part of the analysis leading to the adoption of an expanded investment authority, it is proposed that a review be conducted to examine the adequacy of the Fund's existing and proposed conflict of interest arrangements in light of the proposed expanded authority.** The purposes of this review would be to confirm that these arrangements adequately address issues of actual and appearance of conflicts of interest in a manner consistent with best practices in this area, and to make recommendations for any modifications or enhancements that appear to be warranted. Such a review could be conducted with inputs from external experts.

C. Creating an Endowment from Limited Gold Sales

40. **At the previous discussion, most Directors viewed the sale of a limited part of the Fund's gold holdings as essential to achieving sustainability in the Fund's income.** Gold sales would convert non-income generating assets into a source of income. Unlike quota resources, this source of funding for investment would be interest-free, requiring a smaller overall volume of investment to generate sufficient income over time. Moreover, the limited liquidity requirement for resources representing profits of gold sales would justify investments with a long-term horizon, thereby offering some diversification of the Fund's income while also protecting the real value of these resources.

41. **Directors also re-affirmed the Fund's long-recognized systemic responsibility to avoid causing disruptions to the gold market.** They also emphasized the Fund's duty under the Articles, when entering into operations or transactions in gold, to seek to follow—and not to set—a direction for prices in the gold market. In this context, Directors agreed with the Committee's recommendation calling for the coordination of Fund gold sales with the Central Bank Gold Agreement (CBGA), given the CBGA's important role in facilitating official sector gold sales in a manner that limits disruptions of the gold market.[25] The Fund's total gold holdings exceed one-tenth of total official holdings and are almost 30 percent larger than annual mining production in recent years.[26] Most Directors therefore also supported an approach that would clearly ring-fence the volume of gold sales.

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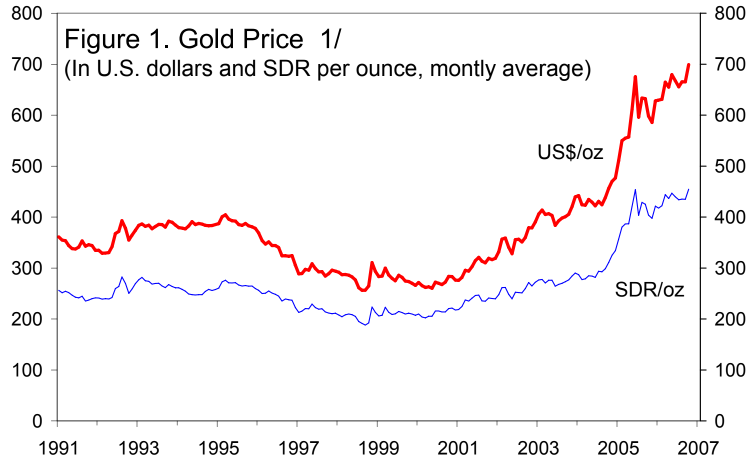
[25] Coordination of the Fund's gold sales with the CBGA would also imply that they occur at a carefully measured pace and in an orderly manner. Box 5 of SM/07/235 provides background on the CBGA.

[26] Table 2 of SM/07/235 provides more details on the relative scale of the Fund's gold holdings.

42. **The price of gold has firmed recently even with a modest rise in official gold sales.** During the first few weeks of September, the price of gold rose about 7 percent in U.S. dollar terms, to exceed US$700 per ounce for the first time since the brief spike in gold prices in May 2006. Contributing factors include recent financial market volatility and negative sentiment toward the U.S. dollar. There appears to have been little effect from a 4 percent y/y rise in net official sector gold sales in the first half of 2007, or from market commentary that a significant increase in official sector sales in the second half of 2007 is expected, largely through higher CBGA sales.



1/ U.S. dollar price is at London pm fix

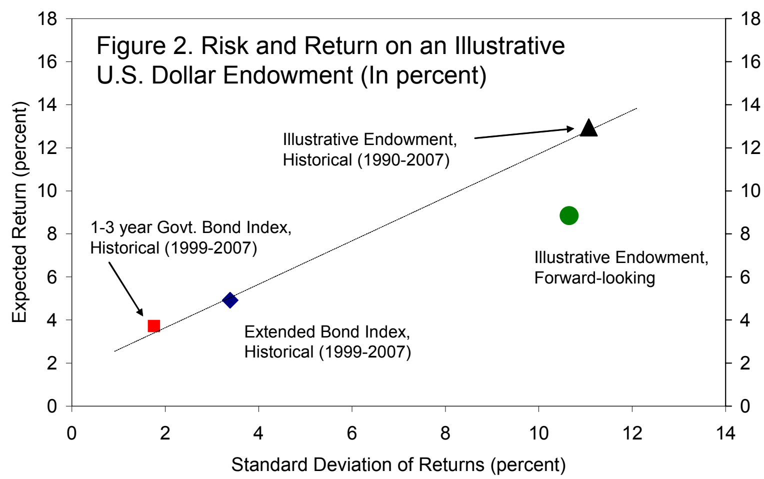
43. **Regardless of short-term developments in gold prices, staff continues to support clear ring-fencing of any gold sales by the Fund.** Hence, an Executive Board decision on gold sales, would specify that the gold to be sold is that acquired by the Fund after the Second Amendment, and identify the aggregate volume of gold that is authorized to be sold in this context. An 85 percent majority of the total voting power would be required to approve such a decision. Moreover, under current U.S. law, U.S. Congressional authorization would be required before the Executive Director appointed by the United States could support a decision for the Fund to sell such gold. As noted in SM/07/235, in practice, these requirements represent high hurdles to future gold sales. The confidence of market participants would be further reinforced if limited gold sales were clearly part of a broader package to place the Fund's finances on a sustainable basis.

44. **Staff continue to work on developing the modalities for potential gold sales to ensure that there would be adequate safeguards against market disruption**. Staff analysis in SM/07/235, based on the gold sales conducted by central banks in recent years, indicated that that the Fund's gold sales could be readily absorbed by the market over a number of years. Staff contacts with various participants in the gold market have generally confirmed this conclusion. At the same time, these contacts emphasized the importance to the overall success of the gold sales of setting firm limits on the total volume of sales, and of careful management of external relations. A more detailed discussion of the modalities of potential sales, including on issues such as the possibility of direct placements of gold to official holders, and potential arrangements for the coordination of Fund gold sales with the CBGA, will be incorporated into a subsequent Board paper.

45. **Considering the limited liquidity requirement of investments funded by the profits of gold sales, most Directors supported further analysis of the option to invest such funds in an endowment**. Endowment funds seeking to generate sustained real income over a long-term horizon have typically adopted a diversified asset allocation, with a relatively small share of fixed income securities. Annex IV provides an illustrative endowment portfolio based on the asset allocation typically followed by large U.S.-based endowment funds.[27] The illustrative portfolio's major investment is in global equities, and other investments include real estate, hedge funds, venture capital, and a variety of different types of long-term bonds. Like an endowment, the Fund's Staff Retirement Plan (SRP) has a broadly diversified portfolio structured with a view to achieve a real return target over a long investment horizon (Figure IV.3). Such endowment funds have historically generated returns substantially exceeding inflation, thereby protecting the real value of the endowment in the long-term. For example, while the average real return on the 1–3 year government bond index has averaged 2½ percent in the past 17 years, the average U.S. endowment fund has achieved a real return of 9 percent.

46. **Returns on endowment portfolios are also subject to substantially higher volatility and downside risks than fixed income portfolios** (Figure 2). Negative returns are expected to occur in one-in-five years on the illustrative endowment fund, twice as often as expected in the case of an extended bond index. Similarly, the SRP has had negative returns in four of the past 17 years. Adverse return performance can in some cases be sustained, with the illustrative endowment experiencing a peak-to-trough decline of 24 percent from end-1999 until September 2002, and not exceeding the previous peak until five years later. The SRP also faced cumulative negative returns of over 15 percent during 2000–02. A decision by the Executive Board to adopt a diversified asset allocation comparable to an endowment for the profits from gold sales would entail a strategic

Figure 2. Risk and Return on an Illustrative U.S. Dollar Endowment (In percent)



Source: IMF staff calculations.

[27] The data in Annex III are for U.S. based endowment funds, and hence they are accounted for in U.S. dollars rather than SDRs, although they invest globally. The Fund's administrative expenses are predominantly U.S. dollar denominated, which suggests that further analysis of an endowment should explore alternatives regarding the currency denomination of investments among other issues.

commitment to absorb such volatility in the short to medium-term in order to generate additional income in the longer run.

47. **Given the extent of volatility in annual returns, typical practice is to smooth drawings from the endowment according to a payout ratio that would be set by the Executive Board**. As noted above, the Fund could create an endowment tranche within the IA with a diversified strategic asset allocation that would be approved by the Board. The Board could also adopt a policy on the payouts from this tranche that would be transferred to the GRA to meet the Fund's expenses, such as fixing the ratio of payouts relative to the current value of the endowment tranche, or perhaps an average value over a number of years to further smooth the transfers to the GRA. Further analysis of the appropriate payout rule will be needed to balance the desirability of generating a relatively smooth flow of income from investments with the objective of preserving the value of the endowment.

D. Expanding the Investment Authority for SDA and PRGF-ESF Trust Resources

48. **It is proposed that an additional amendment be adopted to expand the investment authority for resources held in the SDA.** As discussed above, profits from the sale of pre-Second Amendment gold can either be placed in the SDA or transferred to the IA. The SDA's investment authority (Article V, Section 12(h)) is identical to the IA's investment authority, and both were specified in the context of the Second Amendment. It is proposed that the Articles be amended so as to expand the SDA's investment authority in line that proposed above for the IA, which would maintain the long-standing symmetry between the investment authorities for these two accounts. In any case, the Board, if it deemed this appropriate, would be free to adopt investment policies for the investment of SDA resources that are different from the policies for resources in the IA.

49. **An expansion of the SDA investment authority along the lines proposed would have implications for the investment of resources of the PRGF-ESF Trust.** A large portion of that Trust's investable resources are derived from the SDA (rather than from contributors), and thus remain subject to SDA rules despite their transfer to the PRGF-ESF Trust. Liberalization of the SDA's investment mandate would allow the Board to authorize the investment of SDA-derived PRGF-ESF Trust assets in instruments with higher income potential. This in turn could cushion the impact of the proposal that the PRGF-EST Trust resume reimbursement of the Fund for administrative expenses of that Trust.[28]

50. **A broader investment mandate could, over time, have significant benefits for the income of the PRGF-ESF Trust**. As discussed in Annex V, staff analysis of a potential

[28] Separately, and as noted in the first paper, the investment authority for the portion of PRGF-ESF Trust resources that is derived from contributor resources could be changed by adoption of an Executive Board decision to this effect.

expansion in the range of PRGF-ESF Trust investments indicates that the additional income could be of a magnitude that would cover a majority of the administrative expenses of the Trust that are currently met by the GRA. Hence, expanding the investment authority of the SDA could significantly cushion any decline in the capacity for concessional lending that would result from adopting the proposal to resume reimbursement of the GRA for these administrative expenses.

IV. Issues for Discussion

Framework for investing the Fund's resources

- How do Directors view the proposed unified framework for investing GRA currencies that are transferred to the IA?

- What are Directors' views on the proposed approach to selecting currencies for transfer to the IA? Do Directors agree with an approach whereby the Articles would specify that the currencies of all members would be transferred to the IA in an amount that is the same for all members in proportion to quota, but would also give the Executive Board operational flexibility to select a narrower range of currencies for transfer?

- Do Directors agree that transfers of currency to the IA should create or increase a member's reserve tranche position, regardless of whether the member has Fund credit outstanding?

- What are Directors views on the proposed approach regarding transfers from the IA to the GRA in case of a reduction in investment?

- Do Directors agree that the current arrangements for proportional allocation between the GRA and SDA of transfers from the IA should not be changed?

Expanding the Fund's investment authority

- Do Directors agree that the investment authority set out in the Articles should be broad as proposed, and that the Board should have the authority to establish investment policies by a decision adopted by a 70 percent majority of the total voting power?

- Do Directors agree that it would be appropriate to develop different strategic asset allocations and benchmarks for the gold endowment tranche, quotas tranche, and reserves investment tranche, reflecting different investment objectives and horizons specific to the source of resources attributable to each tranche?

- Do Directors have views on the broad investment objectives and risk tolerance that they would consider appropriate for each of the potential investment tranches?

- Do Directors agree that the Executive Board should adopt policies that would include the periodicity of reviews of the volume of investment and the investment strategy?
- How do Directors view the Fund’s current governance structure for investments in the context of a new income model?
- Do Directors agree that the investment authority of the SDA should be expanded?

Annex I. Illustrative Text of Possible Amendments to the Articles of Agreement

Article XII

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Section 6. Reserves, distribution of net income, and investment

(a) The Fund shall determine annually what part of its net income shall be placed to general reserve or special reserve, and what part, if any, shall be distributed.

(b) The Fund may use the special reserve for any purpose for which it may use the general reserve, except distribution.

(c) If any distribution is made of the net income of any year, it shall be made to all members in proportion to their quotas.

(d) The Fund, by a seventy percent majority of the total voting power, may decide at any time to distribute any part of the general reserve. Any such distribution shall be made to all members in proportion to their quotas.

(e) Payments under (c) and (d) above shall be made in special drawing rights, provided that either the Fund or the member may decide that the payment to the member shall be made in its own currency.

(f) (i) The Fund may establish an Investment Account for the purposes of this subsection (f). The assets of the Investment Account shall be held separately from the other accounts of the General Department.

(ii) The Fund may decide to transfer to the Investment Account a part of the proceeds of the sale of gold in accordance with Article V, Section 12(g) and, by a seventy percent majority of the total voting power, may decide to transfer to the Investment Account, for immediate investment, currencies held in the General Resources Account. ~~The amount of these transfers shall not exceed the total amount of the general reserve and the special reserve at the time of the decision.~~ Transfers to the Investment Account of currencies held in the General Resources Account shall be made in the currencies of all members in an amount specified by the Fund as a proportion of quota, which shall be the same for all members; provided that the Fund, may decide to limit the currencies that may be transferred to the Investment Account on the basis of policies adopted by an eighty five percent majority of the total voting power that take into account the principles in Article V, Section 3(d) of this Agreement. Each member shall ensure that balances of its currency transferred from the General Resources Account are balances of a freely usable currency or can be exchanged at the time of the transfer, upon request of the Fund, for a freely usable currency specified by the Fund at an exchange rate between the two currencies equivalent to the exchange rate between them on the basis of Article XIX, Section 7(a).

(iii) The Fund may invest ~~a member’s~~ currenc~~y~~ies held in the Investment Account as it may determine, in accordance with rules and regulations adopted by the Fund by a seventy percent majority of the total voting power, such rules and regulations to include provisions regarding administration of the Investment Account, which shall be consistent with (vii), (viii), (ix) and (x) below. ~~marketable obligations of that member or in marketable obligations of international financial organizations. No investment shall be made without the concurrence of the member whose currency is used to make the investment. The Fund shall invest only in obligations denominated in special drawing rights or in the currency used for the investment.~~

(iv) The income of investment may be invested in accordance with the provisions of this subsection (f). Income not invested shall be held in the Investment Account or may be used for meeting the expenses of conducting the business of the Fund.

(v) The Fund may use a member's currency held in the Investment Account to obtain the currencies needed to meet the expenses of conducting the business of the Fund.

(vi) The Investment Account shall be terminated in the event of liquidation of the Fund and may be terminated, or the amount of the investment may be reduced, prior to liquidation of the Fund by a seventy percent majority of the total voting power. ~~The Fund, by a seventy percent majority of the total voting power, shall adopt rules and regulations regarding administration of the Investment Account, which shall be consistent with (vii), (viii) and (ix) below.~~

(vii) Upon termination of the Investment Account because of liquidation of the Fund, any assets in this account shall be distributed in accordance with the provisions of Schedule K, provided that a portion of these assets corresponding to the proportion of the assets transferred to this account under Article V, Section 12(g) to the total of the assets transferred to this account shall be deemed to be assets held in the Special Disbursement Account and shall be distributed in accordance with Schedule K, paragraph 2(a)(ii).

(viii) Upon termination of the Investment Account prior to liquidation of the Fund, a portion of the assets held in this account corresponding to the proportion of the assets transferred to this account under Article V, Section 12(g) to the total of the assets transferred to the account shall be transferred to the Special Disbursement Account if it has not been terminated, and the balance of the assets held in the Investment Account shall be transferred to the General Resources Account. ~~for immediate use in operations and transactions.~~

(ix) On a reduction of the amount of the investment by the Fund, a portion of the reduction corresponding to the proportion of the assets transferred to the Investment

Account under Article V, Section 12(g) to the total of the assets transferred to this account shall be transferred to the Special Disbursement Account if it has not been terminated, and the balance of the reduction shall be transferred to the General Resources Account ~~for immediate use in operations and transactions~~.

(x) The Fund shall adopt policies and procedures on the selection of currencies to be transferred to the General Resources Account under (viii) and (ix) above that take into account the principles in Article V, Section 7(i) of this Agreement. No transfer shall be made to the General Resources Account that would cause the Fund's holdings of a member's currency in that account to increase above the level at which they would be subject to charges under Article V, Section 8(b)(ii). If the currency of a member selected for transfer to the General Resources Account pursuant to this provision is not a freely usable currency, the member shall ensure that, upon request of the Fund, the Fund can obtain the specified amount of its currency at the time of the transfer in exchange for a freely usable currency provided by the Fund. An exchange of currency under this provision shall take place at an exchange rate between the two currencies equivalent to the exchange rate between them on the basis of Article XIX, Section 7(a).

Article V

Section 12. Other operations and transactions

(*a*) The Fund shall be guided in all its policies and decisions under this Section by the objectives set forth in Article VIII, Section 7 and by the objective of avoiding the management of the price, or the establishment of a fixed price, in the gold market.

(*b*) Decisions of the Fund to engage in operations or transactions under (*c*), (*d*), and (*e*) below shall be made by an eighty-five percent majority of the total voting power.

(*c*) The Fund may sell gold for the currency of any member after consulting the member for whose currency the gold is sold, provided that the Fund's holdings of a member's currency held in the General Resources Account shall not be increased by the sale above the level at which they would be subject to charges under Section 8(*b*)(ii) of this Article without the concurrence of the member, and provided that, at the request of the member, the Fund at the time of sale shall exchange for the currency of another member such part of the currency received as would prevent such an increase. The exchange of a currency for the currency of another member shall be made after consultation with that member, and shall not increase the Fund's holdings of that member's currency above the level at which they would be subject to charges under Section 8(*b*)(ii) of this Article. The Fund shall adopt policies and procedures with regard to exchanges that take into account the principles applied under Section 7(*i*) of this Article. Sales under this provision to a member shall be at a price agreed for each transaction on the basis of prices in the market.

(*d*) The Fund may accept payments from a member in gold instead of special drawing rights or currency in any operations or transactions under this Agreement. Payments to the Fund under this provision shall be at a price agreed for each operation or transaction on the basis of prices in the market.

(*e*) The Fund may sell gold held by it on the date of the second amendment of this Agreement to those members that were members on August 31, 1975 and that agree to buy it, in proportion to their quotas on that date. If the Fund intends to sell gold under (*c*) above for the purpose of (*f*)(ii) below, it may sell to each developing member that agrees to buy it that portion of the gold which, if sold under (*c*) above, would have produced the excess that could have been distributed to it under (*f*)(iii) below. The gold that would be sold under this provision to a member that has been declared ineligible to use the general resources of the Fund under Section 5 of this Article shall be sold to it when the ineligibility ceases, unless the Fund decides to make the sale sooner. The sale of gold to a member under this subsection (*e*) shall be made in exchange for its currency and at a price equivalent at the time of sale to one special drawing right per 0.888 671 gram of fine gold.

(*f*) Whenever under (*c*) above the Fund sells gold held by it on the date of the second amendment of this Agreement, an amount of the proceeds equivalent at the time of sale to one special drawing right per 0.888 671 gram of fine gold shall be placed in the General Resources Account and, except as the Fund may decide otherwise under (*g*) below, any excess shall be held in the Special Disbursement Account. The assets held in the Special Disbursement Account shall be held separately from the other accounts of the General Department, and may be used at any time:

(i) to make transfers to the General Resources Account for immediate use in operations and transactions authorized by provisions of this Agreement other than this Section;

(ii) for operations and transactions that are not authorized by other provisions of this Agreement but are consistent with the purposes of the Fund. Under this subsection (*f*)(ii) balance of payments assistance may be made available on special terms to developing members in difficult circumstances, and for this purpose the Fund shall take into account the level of per capita income;

(iii) for distribution to those developing members that were members on August 31, 1975, in proportion to their quotas on that date, of such part of the assets that the Fund decides to use for the purposes of (ii) above as corresponds to the proportion of the quotas of these members on the date of distribution to the total of the quotas of all members on the same date, provided that the distribution under this provision to a member that has been declared ineligible to use the general resources of the Fund under Section 5 of this Article shall be made when the ineligibility ceases, unless the Fund decides to make the distribution sooner.

Decisions to use assets pursuant to (i) above shall be taken by a seventy percent majority of the total voting power, and decisions pursuant to (ii) and (iii) above shall be taken by an eighty-five percent majority of the total voting power.

(*g*) The Fund may decide, by an eighty-five percent majority of the total voting power, to transfer a part of the excess referred to in (*f*) above to the Investment Account for use pursuant to the provisions of Article XII, Section 6(*f*).

(*h*) Pending uses specified under (*f*) above, the Fund may invest a member's currency held in the Special Disbursement Account as it may determine, in accordance with rules and regulations adopted by the Fund by a seventy percent majority of the total voting power. ~~marketable obligations of that member or in marketable obligations of international financial organizations.~~ The income of investment and interest received under (f)(ii) above shall be placed in the Special Disbursement account. ~~No investment shall be made without the concurrence of the member whose currency is used to make the investment. The Fund shall invest only in obligations denominated in special drawing rights or in the currency used for investment.~~

(*i*) The General Resources Account shall be reimbursed from time to time in respect of the expenses of administration of the Special Disbursement Account paid from the General Resources Account by transfers from the Special Disbursement Account on the basis of a reasonable estimate of such expenses.

(*j*) The Special Disbursement Account shall be terminated in the event of the liquidation of the Fund and may be terminated prior to liquidation of the Fund by a seventy percent majority of the total voting power. Upon termination of the account because of the liquidation of the Fund, any assets in this account shall be distributed in accordance with the provisions of Schedule K. Upon termination prior to liquidation of the Fund, any assets in this account shall be transferred to the General Resources Account for immediate use in operations and transactions. The Fund, by a seventy percent majority of the total voting power, shall adopt rules and regulations for the administration of the Special Disbursement Account.

ANNEX II. MEMBERS' PARTICIPATION IN INVESTMENT

This annex further analyzes the breadth of participation by members in the Fund's expanded investment framework. In the previous paper, staff proposed that all members participate in quota investment, consistent with the Committee's recommendation that a portion of the quotas of all members would be made available for investment in order to increase the equity of the proposal. Under the staff's proposal, the currencies of each Fund member would be transferred from the GRA to the IA in an equal proportion of quota. Moreover, to ensure that the Fund is able to make appropriate investments, members would have an obligation to exchange the amount of their currencies transferred to the IA into freely usable currencies at the request of the Fund. In effect, upon a request by the Fund for an exchange of its currency, each member would be obligated to transfer a portion of its foreign exchange reserves for investment by the Fund. Some Directors called for further assessment of the alternative of more limited participation by members in investment.

Members' provision of resources for investment would change the composition of their foreign reserves and would not reduce the level of these reserves.[29] As noted earlier, the transfer of a member's currency to the IA would be reflected in an equivalent increase in the member's reserve tranche position in the Fund—denominated in SDRs and remunerated at the SDR interest rate. This reserve tranche position would have the same characteristics as existing reserve tranche positions in that it would be unconditionally available to a member were it to experience a balance of payments need.[30] Hence, this increased reserve tranche position would lift members' international reserves, offsetting the decline in foreign exchange holdings resulting from the transfer of currency to the IA (among those members called upon to exchange their currencies for freely usable currencies).

For most members, the use of their currency for investment would be expected to be small relative to their foreign reserves. In SM/07/235, in estimating the income from investments, it was assumed that about 10 percent of quota would be invested—in addition to the assumed profits from gold sales and the existing funds in the IA in an amount close to GRA reserves. This assumption was consistent with those made in the Committee's report and maintaining this assumption does not prejudge the precise level of investment that the Fund could decide. Staff calculations on this basis indicate that for 89 percent of members, less than 5 percent of their foreign exchange reserves would be used if GRA currencies equivalent to 10 percent of quota were to be invested (Table II.1). For just over three-quarters of members, investment of 10 percent of quota would be less than 3 percent of foreign exchange reserves.

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[29] Transfers of a member's currency to the IA would result in an increase in the member's foreign reserves in any case where the member is not requested by the Fund to convert the amount of its currency transferred into a freely usable currency. This result would thus apply, for example, to a member whose currency is a freely usable currency, or to a member whose currency the Fund otherwise is able to use to make appropriate investments.

[30] Under the Articles, a member has a right to make a reserve tranche purchase on the basis of a representation that it has a balance of payments need, which the Fund may not challenge.

Table II.1. Indicative Level of Investment Relative to Foreign Exchange Reserves [1]

	All Members	FTP Members	Non-FTP Members
	(Number of members where 10% of quota exceeds a certain proportion of foreign reserves)		
Share of FX reserves [2] (In percent)			
>10	7	3	4
>5	20	8	12
>3	42	15	27
Total number of members	185	48	137

Sources: IFS and staff calculations.

[1] Investment of 10 percent of quota is used as an example that is consistent with the assumptions made in SM/07/235, Table 3.

[2] Reserves excluding gold, 2006 average.

Additional investment of GRA currencies equivalent to 10 percent of quota would also involve a small share of the foreign exchange reserves of most members not included in the Financial Transactions Plan (FTP). Excluding members in protracted arrears, for only three non-FTP members would such investment use more than 10 percent of reserves, and for only 11 non-FTP members would such use of GRA currencies exceed 5 percent of reserves. If these members represent a balance of payments need to the Fund, they (like all members) would be entitled to make a reserve tranche purchase of up to the full amount of currencies transferred for investment.

However, experience indicates that not all members with a balance of payments need choose to draw down their reserve tranche position. For example, of the 23 members with outstanding Fund credit at end-August 2007, a total of 19 had a positive reserve tranche position—with seven having a position exceeding 1 percent of quota—and these positions averaged 5 percent of quota; little below the 7.1 percent of quota average position among FTP members.

Having all members provide resources for investment would therefore give members with a balance of payments need the option to maintain part of their foreign reserves in the form of a reserve tranche position. For some members, it appears that the reserve tranche position can offer an opportunity to diversify their international reserves and receive remuneration commensurate with the low credit risk and high liquidity of this reserve asset.

Overall, there does not appear to be a strong basis for precluding some members from providing resources for investment. Relatively few of the members not included in the FTP would provide more than a minor fraction of their reserves for investment, and the effect, at most, would be to change the composition of their reserves, and in no event to decrease reserves. If members have a balance of payments need, they have the option to draw down their reserve tranche position, but they also have the opportunity to retain this position if it forms a useful element of reserves.

ANNEX III. INVESTMENT GUIDELINES AT THE WORLD BANK

This annex provides an overview of the investment guidelines of the various portfolios managed by the World Bank, including their investment objectives, risk thresholds, performance benchmarks, and scope for tactical management. It covers the portfolios of the IBRD and IDA along with the Trust Account portfolios.

Investment Guidelines for IBRD Portfolios

The IBRD has two main liquid portfolios that together total about US$25 billion. Reflecting funding and liquidity considerations, both the stable portfolio and the operational portfolio are managed according to a very short duration benchmark. Neither of these portfolios takes any strategic risk.

- The **stable portfolio**, representing the bulk of the assets, is managed to ensure that assets are available to meet liquidity requirements over a six-month period. The stable portfolio consists entirely of U.S. dollar assets. The benchmark for this portfolio is USD 3-month LIBID. Tactical deviations from the benchmark are permitted, subject to a stop-loss limit of US$100 million against the benchmark. Eligible securities include high grade money market instruments, bank deposits, and short-duration government, agency, and triple-A rated asset-backed securities. The stable portfolio's return has averaged 2.5 percent annually during the five years through 2006

- The **operational portfolio's** objective is to provide working capital to meet the World Bank's day-to-day payment needs. Its benchmark is overnight LIBID, and its currency composition is mixed.

Investment Guidelines for IDA Portfolios

IDA also has two main investment portfolios together totaling about US$17 billion. Eligible investments for both tranches include government securities, triple-A securitized corporate securities, asset-backed securities, mortgage-backed securities, double-A rated government agencies, the obligations of multilaterals and other official institutions, as well as swaps and other derivatives (see Box III.1).

- The **tranche 1 portfolio** (US$12.5 billion) is managed to match the duration of expected net cash outflows to fund IDA lending. Its currency composition is a customized blend of dollars, euro, sterling, and yen (not necessarily weighted to reflect the SDR). The duration of the portfolio varies with cycles in IDA funding and lending given the desire to immunize the net value of the portfolio against changes in interest rates. The duration of the tranche 1 portfolio is about 4.4 years at the beginning of the funding cycle, falling to 1.9 years at the end of the cycle.

- The objective of the **tranche 2 portfolio** (US$4.3 billion) is to maximize returns over a three-year horizon, subject to a risk limit that permits no more than a 5 percent probability of incurring negative returns over a three-year horizon. Its currency composition mimics the SDR. The target duration of the portfolio is currently 4.5 years. This duration is subject to change to remain within the risk threshold established for the portfolio. During 2002–06, the actual return on this portfolio was 3.1 percent, which exceeded the SDR rate by about 66 basis points.

Investment Guidelines for Trust Account Portfolios

Assets of the trusts are divided into two tranches with different investment horizons and risk tolerance. The Bank manages 900 trust funds comprising 3,500 accounts. For management purposes, assets of the trusts are divided into two tranches depending on liquidity requirement and investment horizon. The investment approach for both tranches puts a premium on capital preservation, with a relatively low probability of investment losses:

- In the case of the **first tranche**, investments are structured so that the probability of incurring a negative return in a 12-month horizon is no more than about 1 percent. The portfolio of the first tranche is currently invested in U.S. Treasury securities and money market instruments and has a target duration of 1¼ years.

- The **second tranche** maintains the same probability of loss but over a three-year horizon, permitting a higher level of risk.[31] The portfolio of the second tranche has a target allocation of 30 percent to mortgage-backed securities and 70 percent to U.S. Treasury securities and is currently managed in line with a 1–5 year index. The average duration of the portfolio is 2½ years. The portfolio may also include off-benchmark securities, including in particular other credit spread products.

The duration and other characteristics of the portfolio are managed to remain within these upper bounds on portfolio risk. In the case of the trust assets managed by the Bank, a constant risk strategy is used—as opposed to targeting a specific duration embodied in a benchmark. The duration and structure of the portfolios is reset periodically such that the probability of loss over the relevant horizon is no greater than 1 percent.

The Bank evaluates portfolio risk each quarter using a Monte Carlo simulation approach. In most cases, there is no change in the benchmark, as the risk threshold is rarely breached. However, a reduction in duration and credit exposure would be automatic if the threshold were breached. An extension of duration and credit risk when the risk of loss falls

[31] Trusts included in the second tranche must have at least US$200 million in assets, an expected life of at least three years, and predictable cash flow requirements.

below the maximum threshold is based on an analysis of the available risk and return tradeoff.

Box III.1. Eligible Securities for World Bank Investments

The range of eligible securities (as well as other aspects of the Bank's investment guidelines) is approved from time to time by the Bank's Board. Eligible securities and permitted transactions are similar for all of the Bank's various investment pools (IBRD, IDA, and Trust Accounts). These include:

- Government securities of any Bank member country denominated in the currency of the country;

- Government securities of any Bank member country denominated in a foreign currency, provided that the member has not received any sort of financial assistance from the IBRD or IDA during the five-year period preceding the transaction, and that the security is rated at least AA-;

- Marketable bonds or other obligations (including asset-backed and mortgage-backed securities) issued by government agencies, official entities, and multinational organizations provided that the security is rated at least AA-;

- Corporate bonds or other obligations rated AAA;

- Deposits, or other obligations issued or unconditionally guaranteed by banks or other financial institutions whose senior debt securities are rated A-;

- Securities lending and repo operations;

- Exchange-traded futures and options;

- Forward rate agreements and swaps, and (in specific approved circumstances) OTC options; and

- Short-term borrowings from commercial banks and other financial institutions for cash management purposes.

ANNEX IV. ANALYSIS OF ALTERNATIVE PORTFOLIO STRUCTURES

This annex presents preliminary results of a quantitative asset allocation model. The model has been applied to derive illustrative portfolios whose risk and return characteristics could be consistent with the strategic asset allocation eventually adopted by the Executive Board for different investment pools. The results presented are intended to illustrate the range of outcomes that could be expected from different portfolio structures over long horizons. Further analysis would be necessary to construct and assess the portfolio structures appropriate to different investment tranches. This additional analysis would aim to assist the Board reach decisions on the appropriate strategic tradeoffs between risk and return in the various investment tranches. Further work will also be needed to consider in greater detail the operational issues associated with initiating the new investment strategies.

The risk and return characteristics of three main types of portfolios are considered here:

- The first type focuses on **government bond portfolios** of different maturities constructed using the government bonds of the four currencies comprising the SDR basket with each currency accorded its weight in the SDR. These portfolios are consistent with the Fund's current investment authority. They are presented to provide a baseline for the impact of diversification into other asset classes.

- The second type of portfolio analyzed is constructed using a **broad range of investment grade bonds**, consistent with the recommendations of the Committee for the Investment Account. These portfolios are also SDR based. The range of securities included in the second type of portfolio is similar to that adopted by the World Bank, the BIS, and a number of other central banks and official institutions.

- The third type of illustrative portfolio considered is typical of **endowment and pension funds** with a relatively long investment horizon and a real return investment objective. This type of portfolio is consistent with the recommendation of the Committee for the establishment of an endowment to supplement Fund income. Unlike the other two types of portfolios, the analysis of endowment portfolios is U.S. dollar based.

The analysis was undertaken in consultation with our external advisors, including in particular the BIS and the World Bank. Collaboration was particularly close with colleagues in the World Bank who made available their recently developed Strategic Asset Allocation (SAA) Workbench portfolio modeling tool. The SAA Workbench is a collection of quantitative tools designed to facilitate the strategic asset allocation process (Box IV.1). The SAA Workbench provides a quantitative framework for generating risk and return expectations and translating these expectations into optimal asset allocations. The characteristics of the various portfolios considered in this section were analyzed using the World Bank's SAA Workbench.

Box IV.1. Objectives and Pitfalls of Portfolio Optimization

Strategic asset allocation involves the development of a benchmark portfolio that is consistent with the investor's investment objectives, risk tolerance, and investment constraints. The aim is to construct a portfolio, based on the investor's long-run capital market expectations, whose allocation across assets represents an optimal tradeoff between risk and return, and is expected to generate an acceptable range of outcomes. Whatever technique used to construct and analyze different portfolio structures, future returns will remain uncertain. However, the analysis underpinning portfolio optimization should help to put the range of likely outcomes into perspective.

Portfolio optimization involves the construction of portfolios comprising different combinations of assets that maximize return for a given level of risk. The main building blocks for the analysis are the expected returns, standard deviation of returns, and correlations of the eligible assets used to construct the portfolio.

Mean variance optimization has two main shortcomings. First, expected returns are difficult to estimate, especially when a wide range of asset classes is involved. Second, the weights assigned to each asset in a mean variance optimization are highly sensitive to the return assumptions used. Optimal portfolios whose asset allocations are determined without any constraints on the share of each asset in the portfolio often result in corner solutions recommending a zero weight for many assets and large weights on a few assets.

To avoid such extreme allocations, investors typically impose constraints on the weight of each asset in the portfolio. Such constraints typically reflect the market capitalization of each asset, the relative market liquidity of, and ease of investing in, the assets concerned, currency allocation considerations, and/or the allocations of investors with similar objectives.

The capital market expectations used in the mean variance optimization are often based on historical data. Optimizations undertaken on the basis of historical data implicitly assume that asset allocations that have performed best historically will have the best expected returns. To avoid this implicit assumption, optimizations based on historical data can be complemented with forward-looking analysis using model-based calculations of equilibrium risk premiums for different assets developed taking into account current relative market pricing and spreads. The portfolios analyzed in this section use both historical and model-based expected returns for different asset classes.

Government Bond Portfolios

The historical return on government bond portfolios has tended to increase with maturity, albeit at the cost of a rising level of return volatility (Table IV.1). For example, the 1–3 year benchmark currently used for the IA has generated a higher return than the 3-month SDR interest rate in about three-quarters of the rolling 12-month periods since 1986. This benchmark has also never generated a negative return in any rolling 12-month period. Portfolios with longer maturities than the 1–3 year benchmark have generated progressively higher returns, but their increased volatility results in a slightly higher proportion of relative and absolute underperformance, and lower average returns in the tail of the probability distribution.

Table IV.1. Historical Risk and Return Characteristics of SDR-Weighted Government Bond Portfolios

(In percent, unless otherwise indicated; based on 1986-2007 data)

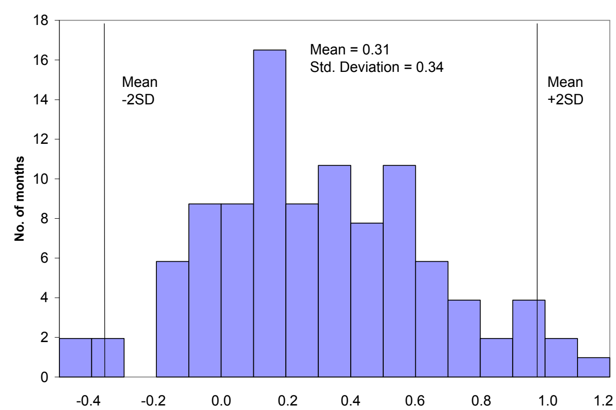
	1-3 year	3-5 year	5-7 year	7-10 year
Expected return 1/	5.6	6.4	6.9	7.2
Standard deviation	1.4	2.7	3.7	4.7
Sharpe ratio	0.71	0.67	0.64	0.56
Duration (in years)	1.8	3.6	5.1	6.8
VaR return (95%)	3.3	1.9	0.9	-0.6
CVaR return (95%) 2/	2.7	0.7	-0.7	-2.6
Prob. of negative return	0.0	1.0	3.0	6.4
Prob. of return < SDR return	23.8	25.3	26.0	28.9

1/ Historical returns calculated assuming that the current currency weights are constant throughout the period. Indices cover government bonds in the U.S., euro area, the U.K. and Japan.

2/ CVaR is equal to the average return within the five percentile tail assuming a normal distribution of returns.

The historical returns of the government bond portfolios have tended to be approximately normally distributed, consistent with the assumption used in calculating value-at-risk (VaR) of different portfolios (Figure IV.1). In the tables presented in this Annex, actual investment returns are expected to exceed the VaR return with 95 percent probability. The average expected return in cases when returns are below this threshold—i.e., the average of the returns in the 5 percent tail—is given by the Conditional VaR (CVaR).

Figure IV.1. SDR-Weighted 1–3 Year Government Bond Index: Distribution of Monthly Returns from 1999–2007 (in percent)



The model-based expected returns for these government bond portfolios exhibit a similar risk/return tradeoff, but the absolute returns are lower. These model-based expected returns are calculated using a Nelson-Siegel approach to modeling equilibrium yield curves.[32] This approach derives an equilibrium yield curve from long-term historical observations of the level, slope, and curvature of each relevant yield curve. The expected returns are generated assuming that the current yield curve normalizes, such that the level, slope, and curvature of the various yield curves revert to their long-term equilibrium. In the current period, yields below five year maturities are somewhat above their long-term average, while longer term yields are slightly below, and the yield curve is significantly flatter than its typical upward slope. As a result, the assumed normalization of yield levels and yield curve slope results in a lower expected return when compared with the historical data characterized by a secular decline in yields. Model-based levels of expected volatility are moderately higher than observed historically. This in part reflects uncertainty over whether the decrease in actual volatility observed in recent years will persist.

Table IV.2. Model-Based Expected Return of SDR-Weighted Government Bond Portfolios
(In percent, unless otherwise indicated; based on 1986-2007 data)

	1-3 year	3-5 year	5-7 year	7-10 year
Expected Return 1/	4.2	4.7	5.0	5.1
Standard deviation	2.0	3.3	4.3	5.4
Sharpe ratio	0.36	0.38	0.35	0.30
Duration (in years)	1.8	3.7	5.2	7.0
VaR return (95%)	0.9	-0.7	-2.1	-3.8
CVaR return (95%) 2/	0.0	-2.0	-3.9	-6.0
Prob. of negative return	1.8	7.5	12.4	17.2
Prob. of return <SDR return	36.0	35.2	36.2	38.1

1/ Historical return calculated assuming that the current currency weights are constant through out the period. Indices cover government bonds in the U.S., euro area, the U.K. and Japan.
2/ CVAR is equal to the average return within the five percentile tail assuming a normal distribution of returns.

The combination of lower expected returns and higher expected volatility in the forward-looking, model-based analysis results in a higher probability of negative returns and underperformance which increases with the duration of the portfolio (Table IV.2). Nevertheless, the bond portfolios are expected to exceed the returns on the 3-month SDR about two-thirds of the time and thus add value over the long run (Table IV.4).

Broad Investment Grade Bond Portfolios

[32] Nelson, C. R. and A. F. Siegel, 1987, "Parsimonious Modeling of Yield Curves", *Journal of Business*, 60, 473–89.

An illustrative extended bond index is constructed following the Committee's recommendation to lengthen the duration and broaden the range of eligible securities. The composition of the index reflects the structure and liquidity of the fixed income markets of the four currencies of the SDR (Figure IV.2).[33] The illustrative extended index has the following main characteristics:

- The index has an average duration of about four years, in local currency and overall, although the various asset classes of the index have different durations.

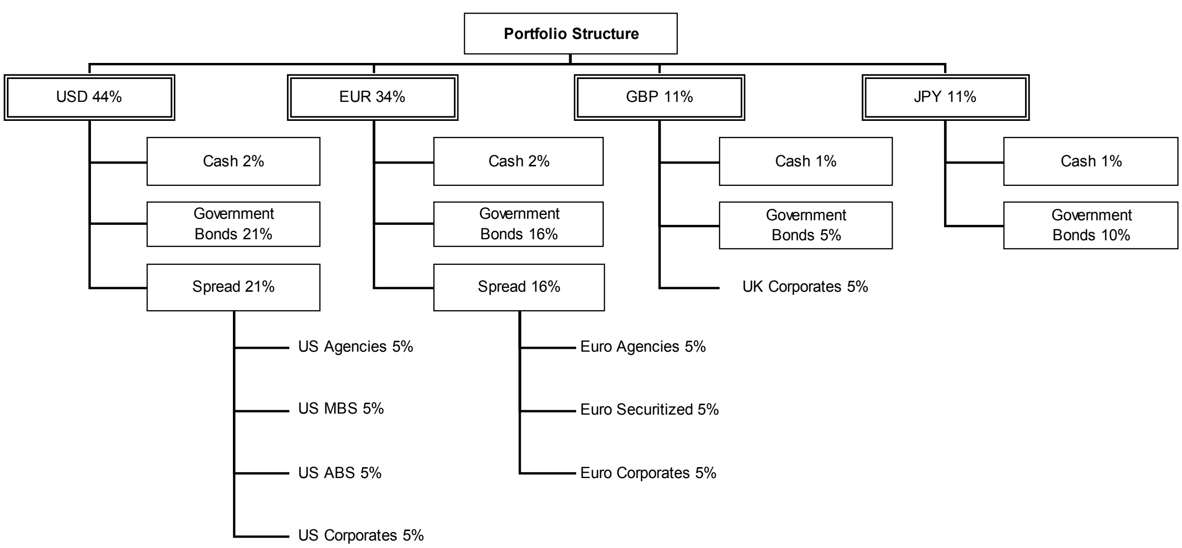
- In the case of the U.S. and the euro area components of the index, about half of each country index comprises government bond indices. The balance consists of standard spread product indices, broadly reflecting the structure of the respective markets.

- Similarly, the U.K. component of the index is invested half in government bonds and half in corporate bonds.

- The country index for the Japanese market consists only of government bonds.

- Cash is limited to about 5 percent of the overall portfolio.

Figure IV.2 Structure of the Illustrative Extended Index



[33] The version of the illustrative extended index considered here is similar to that presented in SM/07/235, with two main differences: cash has been added as an asset class in each of the four currencies and an allocation to corporate bonds has been added to the sterling component of the index. These changes aim to further diversify the composition of the index, and open up additional options for active management by external managers.

Based on historical data, the illustrative extended index has offered a relatively efficient risk-return tradeoff compared with government bond portfolios of a similar duration (Table IV.3). Over the period since 1999, the 3–5 year government bond index has generated annual returns of about 4.4 percent, compared with 4.9 percent for the extended index which had only modestly higher return volatility. Indeed, the average return of the extended index matched that of the 5–7 year government bond index while achieving lower volatility, as reflected in the higher Sharpe ratio for the extended index. This higher risk-adjusted historical performance reflects the benefits of diversification as well as the higher risk premiums on the credit spread products included in the portfolio and the trend toward tightening spreads up until the recent money market turbulence. Over the past eight years, this index has generated a higher return than the 3-month SDR interest rate in about 70 percent of the rolling 12-month periods. Historical data suggest that the probability of negative returns over a 12-month horizon is about 6.6 percent. As was the case with the government bond portfolios in the previous section, the distribution of the historical returns of the illustrative extended index has been approximately normal.

The model-based expected returns for the extended index are broadly similar to the historical observations, albeit with a slightly higher expected volatility, and suggest gains from diversification (see Table IV.3). The model-based expected returns for the extended index reflect the same movements in the term structure described previously combined with an industry-based prepayment model for mortgage-backed securities and an industry-based matrix of probabilities of ratings changes for corporate bonds.[34] The model-based returns do not take into account recent turbulence in credit markets.

Table IV.3. Risk and Return Characteristics of Selected Fixed Income Portfolios

(In percent, unless otherwise indicated; based on 1999-2007 data)

	Historical					Model-Based
	1-3 year	3-5 year	5-7 year	7-10 year	Extended Index	Extended Index
Expected Return 1/	3.7	4.4	4.9	5.0	4.9	5.1
Standard deviation	1.8	3.0	3.7	4.5	3.4	4.0
Sharpe Ratio	0.41	0.48	0.50	0.46	0.56	0.47
Duration (in years)	1.8	3.6	5.0	6.8	4.4	4.4
VaR return (95%)	1.4	0.4	-0.7	-2.6	-0.6	-1.4
CVaR return (95%) 2/	1.3	-0.2	-1.3	-3.2	-1.3	-3.0
Prob. of negative return	0.0	2.9	12.6	15.5	6.6	10.4
Prob. of return <SDR return	39.8	37.9	32.0	32.0	30.8	32.4

1/ Historical returns calculated assuming that the current currency weights are constant throughout the period. Indices cover government bonds in the U.S., euro area, the U.K. and Japan.
2/ CVaR is equal to the average return within the five percentile tail assuming a normal distribution of returns.

[34] However, the period considered for the extended index (1999–2007) is shorter than that used in the in the case of the government bond portfolios given data availability. As a result, there is a shorter window for the calculation of equilibrium yields and spreads in the case of the extended index.

Endowment Portfolios

The portfolio of the average U.S. endowment fund has a large allocation to equities, real estate, and alternative investments—including hedge funds, private equity, and venture capital—and a relatively smaller allocation to fixed income securities and money market instruments (Table IV.6). Since the 1990s, the portfolios of U.S. endowment funds have tended to increase their allocations to alternative investments as a means of diversification and to boost expected returns. Endowment funds have the objective of preserving the real value of the portfolio over time, while generating a target income stream to fund expenditures, and the portfolio structure adopted by these funds is judged to be consistent with their real return and income generation objectives. Indeed, over the past 17 years, the asset allocation adopted by U.S. endowment funds has generated strong real returns (Figure IV.7).

An illustrative endowment portfolio has been constructed largely based on the asset allocations typically followed by large, U.S.-based endowment funds (Figure IV.4).[35] The illustrative allocation considered here is indicative at this stage and provides a baseline for analyzing the performance of such a diversified mix of assets. Returns are expressed in U.S. dollar terms. The Fund's own Staff Retirement Plan (SRP) has an actuarial return target of 3⅓ percent in real terms so it can also serve as an example of asset allocation for achieving a real return objective over a long-term horizon (Figure IV.3).

Figure IV.3. SRP Strategic Benchmark

Sector	Weight (percent of total)	Benchmark
U.S. Equity	21.5	Wilshire 5000
EAFE	21.5	MSCI EAFE
Emerging market equity	10.0	MSCI Emerging Market Free
High yield	8.0	CSFB High yield Bond Index
Real estate	7.5	NCREIF National Property Index
Global fixed income	14.5	JP Morgan Global Government Bond
Alternative investments	7.0	Weighted average equity and high-yield return plus 30 basis points
Enhanced cash/absolute return	10.0	T-bill plus 200 basis points
SRP strategic benchmark	**100.0**	Weighted average

Based on historical data since 1990, the illustrative endowment portfolio has generated substantial real returns on average. Returns have averaged about 13 percent, or 8.9 percent in real terms (Figure IV.4). The Committee assumed an endowment could generate real returns of about 3 percent, and the illustrative endowment index exceeded a 3 percent real return objective about three-quarters of the time, although it also had an 11 percent chance of generating negative

[35] The weights used in the illustrative index differ from the current average allocation of U.S. endowments to take into account data availability to permit analysis using the World Bank's SAA Workbench model. The asset allocation of the illustrative index does not include investments in natural resources and limits the share and range of the alternative asset classes.

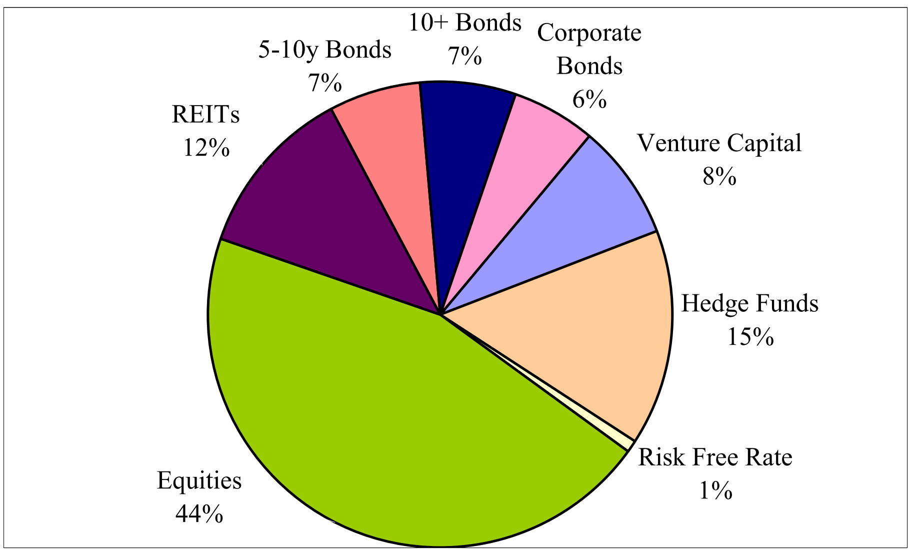
returns over a 12-month horizon. Past performance was buoyed by the high returns of equities and "alternative investments" (Table IV.5).

Model-based expected returns are lower, as they target long-term equilibrium levels, but still suggest that the endowment portfolio would achieve a 3 percent real return about three-fifths of the time. The probability of negative returns over a 12-month horizon is expected to be about double that experienced historically, mainly as a result of the lower level of mean expected returns compared with historical return experience.

Figure IV.4. Illustrative Endowment Portfolio Risk and Return Characteristics

Endowment Fund Structure

(In percent; based on 1990-2006 data)



Endowment Fund Characteristics

Historical statistics:			
Expected Return:	13.0	VaR return (95%):	-9.1
Standard Deviation:	11.1	CVaR return (95%):	-11.7
Duration:	-	Prob. of negative return:	10.9
		Prob. of return < CPI +3%:	26.6
Model-based statistics:			
Expected Return:	8.9	VaR return (95%):	-8.7
Standard Deviation:	10.7	CVaR return (95%):	-13.1
Duration:	-	Prob. of negative return:	20.3
		Prob. of return < CPI +3%:	38.5

Cumulative Returns of Various Indices
(In percent)

Figure IV.5. SDR Benchmarks, January 1986–July 2007

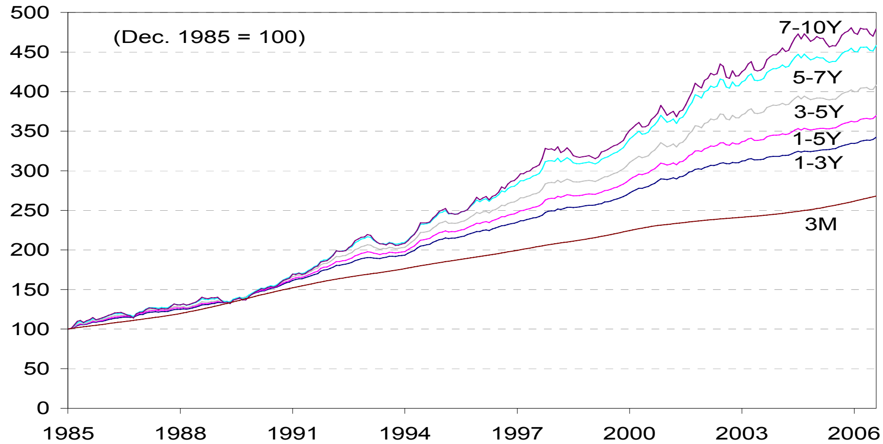


Figure IV.6. SDR-Weighted Extended Index and 1–3 Year Government Bond Index, January 1999–July 2007

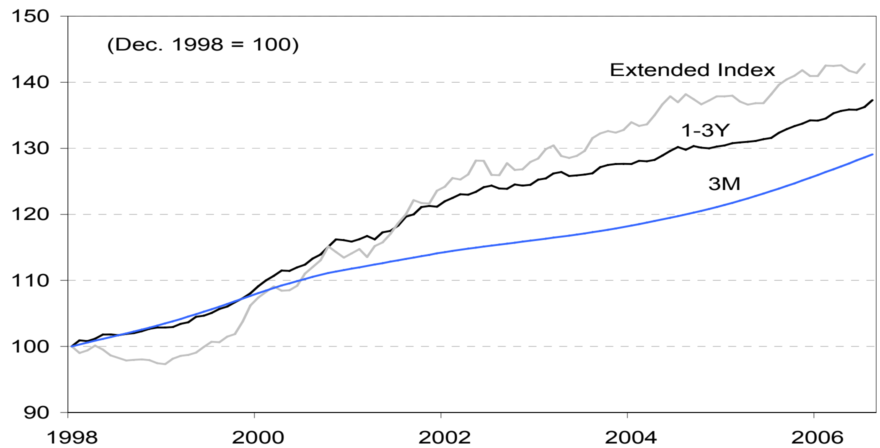


Figure IV.7. Average U.S. Endowment Fund and U.S. 1–3 Year Government Bond Index, Annual data from 1990 to 2006

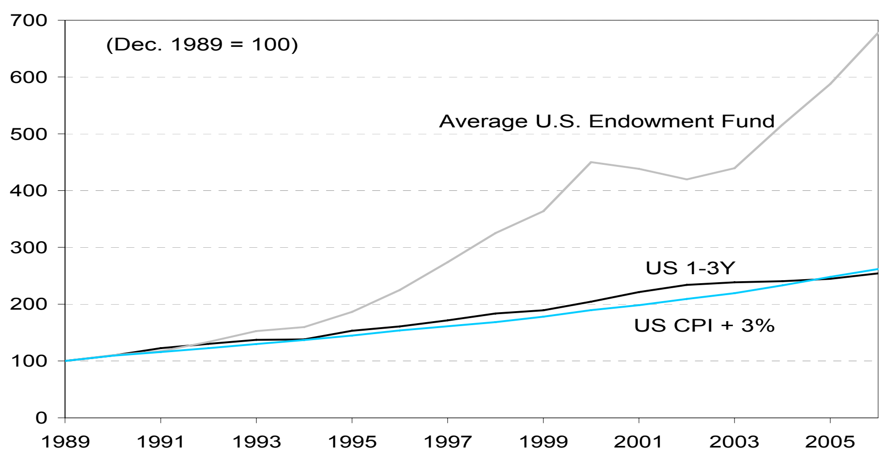


Table IV.4. Fixed Income Investment Performance Indicators, 1986–2006
(Annual return in percent, based on monthly data)

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007 1/	Since 1986
3-Month SDR																							
Annualized rate of return	6.39	5.87	6.25	8.27	9.09	7.64	6.26	4.63	4.28	4.59	3.90	4.07	4.11	3.48	4.44	3.42	2.24	1.65	1.84	2.63	3.75	2.48	4.68
Standard deviation of return	0.16	0.06	0.20	0.10	0.02	0.14	0.11	0.14	0.09	0.09	0.02	0.04	0.07	0.05	0.08	0.21	0.03	0.04	0.07	0.07	0.09	…	0.55
Merrill Lynch 1-3																							
Annualized rate of return	10.76	6.99	5.32	7.02	9.06	10.83	9.39	7.81	1.60	10.43	4.52	5.22	6.12	2.86	6.08	6.20	5.25	2.68	1.90	2.20	2.88	2.32	5.87
Standard deviation of return	2.03	1.94	1.66	1.49	1.86	1.13	1.47	1.31	1.11	1.55	1.18	1.09	1.32	1.04	0.94	1.44	1.60	1.10	1.05	0.99	0.60	…	1.53
Sharpe ratio 2/	2.16	0.58	-0.55	-0.83	-0.01	2.83	2.13	2.43	-2.41	3.77	0.53	1.06	1.53	-0.59	1.75	1.94	1.90	0.94	0.07	-0.43	-1.45	…	0.79
Merrill Lynch 1-5																							
Annualized rate of return	11.86	7.30	5.40	6.60	8.45	11.84	10.29	9.48	0.16	12.55	4.80	5.92	7.21	2.09	6.82	6.34	6.61	2.77	2.53	2.23	2.51	2.19	6.24
Standard deviation of return	2.77	2.47	2.01	1.97	2.53	1.60	1.89	1.73	1.54	1.96	1.73	1.52	1.79	1.47	1.12	1.98	2.23	1.92	1.59	1.47	0.97	…	2.02
Sharpe ratio	1.99	0.59	-0.41	-0.84	-0.24	2.64	2.14	2.81	-2.67	4.08	0.53	1.22	1.74	-0.94	2.12	1.48	1.97	0.59	0.45	-0.26	-1.28	…	0.79
Merrill Lynch 3-5																							
Annualized rate of return	13.20	7.22	5.50	6.36	7.99	13.21	11.25	11.43	-1.53	15.45	4.83	6.76	8.45	0.88	8.05	6.40	8.97	3.01	3.38	2.25	2.06	2.05	6.73
Standard deviation of return	3.78	3.26	2.64	2.70	3.56	2.20	2.47	2.27	2.11	2.56	2.51	2.13	2.46	2.07	1.53	2.91	3.41	3.36	2.49	2.22	1.54	…	2.78
Sharpe ratio	1.82	0.43	-0.28	-0.69	-0.29	2.54	2.04	3.00	-2.75	4.26	0.38	1.27	1.78	-1.24	2.36	1.03	1.99	0.42	0.63	-0.16	-1.09	…	0.75
Merrill Lynch 5-7																							
Annualized rate of return	14.98	6.51	6.73	6.38	6.18	14.91	12.18	13.80	-3.30	18.34	5.27	8.56	10.13	-0.64	9.74	6.23	10.63	3.11	4.49	3.01	1.60	1.68	7.31
Standard deviation of return	5.44	4.69	3.50	3.28	5.08	2.96	2.91	3.14	2.80	3.32	3.55	2.92	3.28	2.96	2.00	3.86	4.28	4.46	3.08	3.00	2.34	…	3.70
Sharpe ratio	1.61	0.16	0.15	-0.56	-0.55	2.47	2.05	2.93	-2.69	4.16	0.40	1.55	1.85	-1.38	2.66	0.75	1.98	0.35	0.87	0.14	-0.91	…	0.73
Merrill Lynch 7-10																							
Annualized rate of return	15.56	5.04	7.53	7.54	4.47	15.51	11.84	15.77	-5.07	20.32	5.06	10.57	11.96	-2.66	10.71	5.39	11.96	2.63	5.88	4.32	0.96	1.06	7.53
Standard deviation of return	7.43	6.55	4.59	3.75	7.12	3.58	3.37	3.73	3.44	3.96	4.77	3.81	4.56	3.84	2.54	4.87	5.10	5.84	3.94	3.96	3.43	…	4.76
Sharpe ratio	1.27	-0.10	0.30	-0.18	-0.62	2.22	1.67	3.01	-2.70	3.99	0.27	1.72	1.74	-1.58	2.48	0.43	1.93	0.20	1.04	0.45	-0.80	…	0.62

Sources: Bloomberg and IMF staff calculations.

1/ Cumulative return to end-July non annualized, including currency fluctuations.
2/ The Sharpe Ratio is derived by dividing the average return of the portfolio earned in excess of the risk free rate (SDR 3-month interest rate) by the standard deviation of the portfolio over that time period.

Table IV.5. Diversified Endowment Investment Performance Indicators, 1986–2006
(Annual return in percent, based on quarterly data)

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Since 1986
Cash																						
Annualized rate of return	6.18	5.37	6.54	7.92	7.41	5.10	3.60	2.97	4.17	5.55	5.07	5.16	4.92	4.98	5.64	3.44	1.53	1.08	1.32	3.15	4.85	4.43
Standard deviation of return	0.36	0.23	0.54	0.24	0.12	0.20	0.21	0.07	0.43	0.14	0.19	0.26	0.21	0.14	0.29	0.69	0.07	0.07	0.21	0.30	0.26	0.92
Gov't Bonds 5-10 Year																						
Annualized rate of return	13.60	5.69	8.17	8.85	5.89	13.20	7.86	12.40	-3.73	18.06	8.69	10.58	11.03	1.31	10.67	6.27	7.97	1.97	4.84	5.10	3.29	7.38
Standard deviation of return	7.10	7.85	2.50	3.60	7.10	3.35	3.78	1.28	3.96	1.93	3.34	2.49	4.14	1.41	2.11	2.99	4.06	2.26	3.66	2.78	4.09	4.17
Sharpe ratio 1/	1.07	0.07	0.67	0.27	-0.19	2.43	1.14	7.39	-1.98	6.48	1.10	2.19	1.49	-2.59	2.39	0.96	1.60	0.40	0.98	0.71	-0.37	0.75
Gov't Bonds >10 Year																						
Annualized rate of return	19.04	1.47	9.19	13.60	4.20	17.55	7.97	19.77	-8.60	26.70	6.59	17.29	15.79	-4.44	16.01	4.95	13.35	2.18	9.04	10.01	1.88	9.10
Standard deviation of return	17.73	12.81	3.90	7.13	13.19	6.61	6.66	3.88	7.64	4.87	7.24	6.11	7.47	2.32	5.02	5.48	8.63	4.94	7.31	5.38	8.49	8.08
Sharpe ratio	0.79	-0.26	0.70	0.82	-0.19	1.91	0.68	4.35	-1.64	4.37	0.24	2.01	1.49	-4.06	2.08	0.30	1.40	0.24	1.09	1.30	-0.32	0.64
Corporate Bonds																						
Annualized rate of return	19.85	-0.27	10.70	16.23	6.78	19.89	9.39	13.19	-5.76	27.20	1.40	12.95	10.76	-7.45	12.85	10.64	16.64	5.27	8.72	3.52	2.16	8.70
Standard deviation of return	9.06	13.23	2.93	8.76	7.82	4.98	5.99	5.38	5.28	5.28	7.81	7.15	3.27	3.03	4.56	3.72	7.59	6.60	10.56	7.00	8.50	7.31
Sharpe ratio	1.54	-0.38	1.44	0.98	-0.05	2.99	0.99	1.92	-1.86	4.13	-0.44	1.12	1.80	-4.10	1.60	1.95	2.02	0.66	0.74	0.08	-0.28	0.64
Equities Weighted 2/																						
Annualized rate of return	17.20	1.40	19.35	31.59	-7.26	36.70	15.32	11.47	-1.66	36.86	17.38	31.45	22.87	16.42	-4.98	-5.88	-26.37	33.58	13.06	4.68	15.62	11.69
Standard deviation of return	18.05	35.21	6.33	7.98	23.78	15.04	7.51	3.63	9.66	5.55	4.33	14.43	25.23	17.88	11.73	26.28	25.96	20.76	10.71	6.04	8.01	16.50
Sharpe ratio	0.69	0.03	2.05	3.00	-0.53	2.17	1.59	2.35	-0.57	5.67	2.86	1.88	0.82	0.71	-0.86	-0.26	-0.99	1.66	1.14	0.28	1.38	0.54
Commodities																						
Annualized rate of return	-1.16	18.71	16.03	4.59	5.07	-4.03	-3.16	-10.06	19.39	20.17	45.25	-7.09	-28.69	44.41	49.99	-22.81	38.54	38.03	20.70	27.97	-1.88	10.34
Standard deviation of return	13.09	6.22	17.24	4.45	11.21	7.58	4.16	8.13	14.75	13.29	8.36	13.82	9.96	12.44	10.67	6.41	9.22	8.59	18.41	17.42	13.81	14.49
Sharpe ratio	-0.51	2.17	0.62	-0.73	-0.16	-1.18	-1.61	-1.57	1.09	1.15	4.84	-0.84	-3.34	3.23	4.20	-4.08	4.05	4.34	1.13	1.50	-0.43	0.50
Euro Equities																						
Annualized rate of return	44.46	4.10	16.35	29.06	-3.37	13.66	-4.25	29.79	2.66	22.13	21.57	23.42	40.96	22.34	-8.35	-23.02	-22.80	42.60	20.36	8.92	36.00	12.95
Standard deviation of return	18.70	27.36	10.78	10.10	24.23	15.53	14.10	6.99	5.40	2.89	6.30	8.06	34.89	25.91	11.68	27.80	35.89	35.60	18.44	7.78	9.79	19.60
Sharpe ratio	2.13	0.07	0.95	2.14	-0.35	0.61	-0.51	3.87	-0.26	5.75	2.65	2.30	1.20	0.77	-1.15	-0.86	-0.55	1.33	1.11	0.77	3.23	0.56
Global TIPS																						
Annualized rate of return	4.66	6.69	6.24	9.08	7.63	4.42	6.00	11.09	-4.36	13.06	7.37	8.34	8.03	2.76	10.10	4.92	20.19	16.59	14.29	-1.29	7.09	7.41
Standard deviation of return	6.32	7.30	0.72	2.55	6.39	1.84	3.45	3.28	4.32	3.41	2.91	1.79	1.57	2.43	1.78	1.89	7.77	4.68	8.21	1.99	4.10	4.58
Sharpe ratio	-0.22	0.21	-0.40	0.47	0.06	-0.36	0.71	2.49	-1.96	2.22	0.80	1.79	1.98	-0.91	2.51	0.79	2.43	3.33	1.61	-2.22	0.56	0.69
REITs																						
Annualized rate of return	19.18	-10.67	11.36	-1.81	-17.35	35.68	12.18	18.55	0.81	18.31	35.75	18.86	-18.82	-6.48	25.89	15.50	5.22	38.47	30.41	8.29	34.35	11.36
Standard deviation of return	8.00	13.06	11.55	9.65	14.60	19.52	3.41	22.95	3.85	4.62	14.47	9.89	8.64	17.11	7.60	11.91	15.06	11.19	19.14	17.31	12.73	14.07
Sharpe ratio	1.66	-1.18	0.46	-0.97	-1.64	1.65	2.53	0.77	-0.86	2.78	2.18	1.42	-2.72	-0.61	2.70	1.06	0.30	3.39	1.61	0.36	2.37	0.58
Venture Capital																						
Annualized rate of return	10.60	-6.73	11.68	8.15	-0.43	27.89	11.95	16.65	16.35	57.41	22.09	29.91	33.94	442.92	-72.80	-0.53	-34.87	5.38	17.94	1.74	13.30	11.77
Standard deviation of return	13.77	10.05	6.58	4.57	13.83	7.77	25.54	9.29	18.19	8.24	23.76	54.23	31.06	118.50	46.39	15.27	11.69	8.27	14.26	21.03	11.30	41.21
Sharpe ratio	0.37	-1.17	0.81	0.07	-0.51	2.97	0.43	1.51	0.74	6.33	0.81	0.68	1.06	4.66	-1.59	-0.20	-3.08	0.55	1.22	0.02	0.79	0.36
Hedge Funds																						
Annualized rate of return					11.44	22.20	14.83	19.29	3.14	18.78	15.81	15.47	6.32	14.23	11.36	7.44	1.96	9.69	6.15	6.36	10.05	8.80
Standard deviation of return					2.08	5.04	2.58	2.60	1.43	1.99	1.51	3.38	7.58	4.28	1.84	0.86	2.02	2.22	3.22	2.10	2.85	3.84
Sharpe ratio					1.94	3.41	4.36	6.29	-0.71	6.66	7.12	3.07	0.21	2.18	3.12	4.67	0.22	3.88	1.51	1.54	1.83	1.78

Sources: Bloomberg and IMF staff calculations.

1/ The Sharpe Ratio is derived by dividing the average return of the portfolio earned in excess of the risk free rate (in dollar terms) by the standard deviation of the portfolio over that time period.
2/ The Equities Weighted index is comprised of 43.6% US Large Cap Value, 47.0% US Large Cap Growth, 4.7% US Small Cap Value, and 4.6% US Small Cap Growth.

Table IV.6. Return and Asset Allocation of U.S. Endowments
(In percent)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Return 1/	10.4	6.1	14.0	14.5	4.4	16.9	20.6	21.8	18.6	11.9	23.8	-2.7	-4.2	4.7	17.4	13.9	15.3
Asset Classes 2/																	
Equity	51.9	51.3	52.5	53.2	55.9	55.2	55.1	58.2	54.6	50.8	43.7	45.5	45.1	44.8	46.3	44.9	44.9
Fixed Income	29.2	30.2	30.7	26.9	22.4	20.3	20.1	18	15.9	15	15.3	19.1	20.5	18.6	15.2	14.2	12.5
Real Estate	4.4	4.2	3.7	3.7	4.2	5.1	5.2	5.2	6.9	6.6	5.7	4.6	4.3	4.2	4	4	4.4
Cash	6.9	6.1	5.2	4.6	3.2	4.1	3.2	3.1	2.5	3	3.3	3.4	1.9	1.8	2.7	2	1.7
Alternative Investments	5.2	5.8	5.9	8.9	11.8	13.2	14.2	13.4	17.4	21.5	29.6	26.3	26	28.1	28.6	31	31.8
Hedge Funds	…	…	…	1.3	2.4	3.1	3.4	4.1	6.2	6.8	5.6	7.5	17.8	19.9	20.2	21.7	22.4
Private Equity	1.4	1.3	1.2	1.6	2.1	2.4	2.6	2.6	3.8	4.5	6	4.6	4.3	5.2	4.9	5.7	5.9
Venture Capital	3.7	3.9	3.9	4	4.5	4.6	4.9	3.9	4.4	6.6	12.6	7	3.9	3	3.5	3.6	3.5
Other Alternative Investments 3/	0.1	0.6	0.8	2	2.8	3.1	3.3	2.8	3	3.6	5.4	7.2	…	…	…	…	…
Other 4/	2.4	2.4	2	2.7	2.5	2.1	2.2	2.1	2.7	3.1	2.4	1.1	2.2	2.5	3.2	3.9	4.7
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: National Association of College and University Business Officers

1/ Dollar-weighted average rate of return for endowments of all sizes.
2/ Average asset allocation for large endowments.
3/ Includes high-yield bonds, distressed securities, and arbitrage.
4/ Includes timber and other commodities.

Annex V. An Illustration of Liberalizing PRGF-ESF Trust Investment

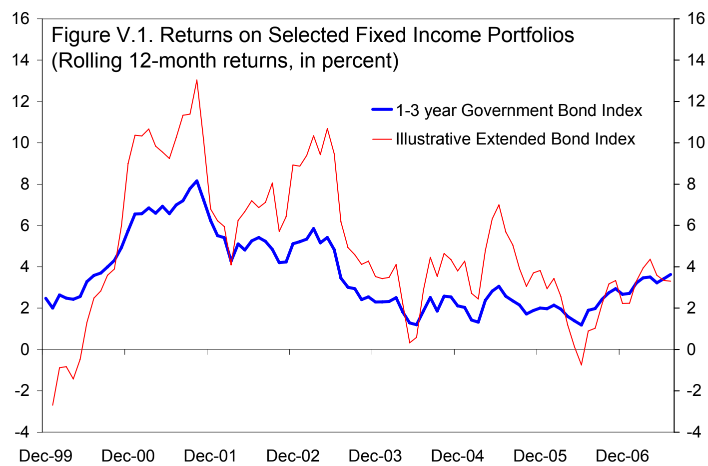
Resuming reimbursement of the GRA for the administrative expenses of the PRGF-ESF Trust would reduce the capacity for concessional lending. In its role as Trustee of the PRGF-ESF Trust, the IMF incurs expenses for staff time, travel, and governance, which are met from the GRA. These expenses are projected at SDR 50.2 million in FY2008. As noted in SM/07/235, if the PRGF-ESF Trust were to resume the previous practice of reimbursing the GRA for these expenses, these funds would be drawn from the Trust's Reserve Account. As a result, the capacity to provide subsidies for concessional lending on a perpetual basis would be reduced from SDR 0.7 billion to SDR 0.5 billion, assuming the reimbursement of SDR 50 million annually and the commencement of self-sustaining lending in 2009.

Conversely, increasing the income of the PRGF-ESF Trust assets could help support the capacity for concessional lending. Increasing the income of the Trust would be reflected in the balance of the Reserve Account (SDR 3.4 billion at end-July 2007), thereby increasing the self-sustained lending capacity.

This annex discusses the potential effect on PRGF-ESF Trust income from liberalizing the Trust's investment mandate. Currently, two-thirds of PRGF-ESF Trust Assets are invested according to the 1–3 year government bond index that also forms the benchmark for the IA, while the remainder is held in short-term deposits for liquidity purposes and as a result of agreements with contributors. Liberalizing the Trust's investment mandate could allow the possibility to seek higher income from the SDR 4.6 billion in Trust assets that are not held for liquidity purposes, which could, for example, be invested according to the illustrative extended bond index described in Annex IV, which has a longer duration and includes credit spread products in addition to government bonds.

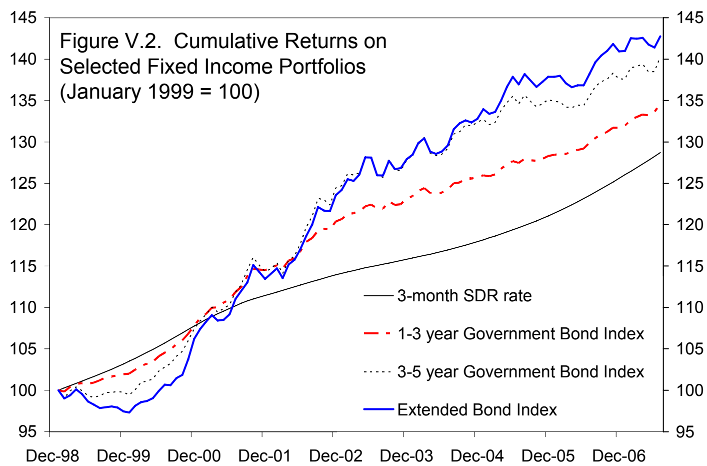
The extended bond index is expected to outperform the current 1–3 year benchmark over time. Over the 1999–2007 period for which the extended bond index is available, it has generated a return of 4.92 percent, 120 basis points above the return on the 1–3 year government bond index (Figure V.1). The prospective incremental return on a forward-looking basis is estimated to be somewhat

Figure V.1. Returns on Selected Fixed Income Portfolios (Rolling 12-month returns, in percent)



smaller, at about 90 basis points (Table IV.3).[36] If this incremental return were realized, the average income of the Trust would, on average over time, be increased by about SDR 40 million annually, significantly offsetting the effect of resuming reimbursement to the GRA for the administrative expenses of the Trust.

The Trust's investment horizon would be a key consideration when evaluating such a change in the investment benchmark. The expected variance of the annual returns on the extended index is almost double that of the 1–3 year government bond index. As a result, a negative return on the extended index is expected about one-in-ten years, whereas negative returns are rarely expected to occur under the 1–3 year index. Nonetheless, the extended bond index has also experienced periods of relatively high returns, as reflected in the cumulative return performance (Figure V.2).



[36] This estimate is derived from the World Bank's SSA Workbench which models the forward-looking return of each instrument included in these two indices. Monte Carlo simulations of the yield curves underpinning these instruments are used to calculate the expected bond returns assuming that the yield curve reverts to its long term equilibrium. The analysis of credit instruments is supplemented with a prepayment model for mortgage-backed securities and an industry-based matrix of probabilities of rating changes for corporate bonds.