

**FOR
AGENDA**

SM/12/317

CONFIDENTIAL

December 28, 2012

To: Members of the Executive Board

From: The Secretary

Subject: **Broadening the Fund's Investment Mandate—Remaining Strategic Implementation Issues**

Attached for consideration by the Executive Directors is a paper on broadening the Fund's investment mandate—remaining strategic implementation issues. This paper, together with the paper on broadening the Fund's investment mandate—proposed rules and regulations for the investment account (SM/12/318, 12/28/12), is tentatively scheduled for discussion on **Wednesday, January 23, 2013**. Issues for discussion appear on pages 35 and 36.

The staff does not propose the publication of this paper as it relates to internal Fund operations.

Questions may be referred to Mr. Krueger (ext. 36854) and Mr. Steinberg (ext. 36386) in FIN, and Mr. Steinki (ext. 38222) and Mr. Patterson (ext. 39799) in LEG.

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

Broadening the Fund's Investment Mandate—Remaining Strategic Implementation Issues

Prepared by the Finance and Legal Departments

In consultation with other departments

Approved by Andrew Tweedie and Sean Hagan

December 26, 2012

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Executive Summary

This paper covers remaining strategic implementation issues for a gold-sales funded endowment. In previous discussions, Executive Directors broadly supported many key aspects that would apply to the endowment under the Fund's broadened investment mandate. Among others, they supported a globally diversified portfolio along the lines of a "conservative diversified portfolio," involving fixed income assets but also a limited portion of equities, and endorsed a governance framework that would provide strong protection against actual or perceived conflicts of interest. In the June 2012 discussion, Directors also called for staff proposals on the remaining strategic implementation issues.

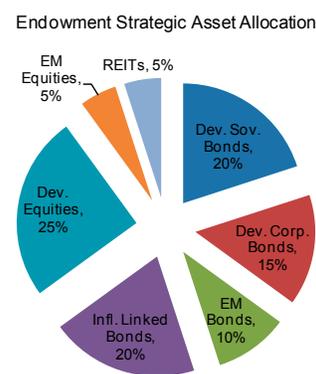
The paper presents proposals for the endowment in the following areas:

- **General principles for investment management and external manager selection.** In line with previous Board guidance, the core portion of the portfolio will be passively managed by external managers. The actively managed portion will be strictly limited—with initial funding not to exceed 5 percent and a maximum limit of 10 percent of total assets.
- **Base currency and deflator.** The proposed base currency (U.S. dollar) and deflator (linked to the Fund's administrative expenditures) align these parameters with the endowment's financial objectives of supporting the Fund's administrative expenditures.
- **Currency hedging.** To limit short-term volatility of returns associated with currency movements, staff proposes to hedge currency exposures for all fixed income assets denominated in developed-market currencies, where hedging costs are typically low.
- **Phasing of initial investments.** The core, passively managed portfolio is expected to be phased-in over 3 years, designed to limit near-term performance risks. Pending final investment, funds would be placed in highly-rated, developed market bonds or obligations of the BIS.
- **Rebalancing and policy bands.** To control tracking error vis-à-vis the strategic asset allocation, it is proposed to rebalance the passive core portfolio annually, or intra-annually when relatively narrow bands (+/- 8 percent, and +/- 4 percent for small-weight asset classes) are breached.
- **Payout policy.** In light of the currently depressed return environment and gradual phasing-in of investments, it is proposed to suspend payouts from the endowment during the phase-in period. The Executive Board would review a longer-term payout rule before the end of the phase-in period.
- **Use of minimum credit threshold.** A minimum credit rating of BBB+ for sovereign bonds is proposed, limiting conflict of interest risks while allowing for adequate diversification.

These and other relevant aspects governing the endowment (as well as those for the rest of the Investment Account) are set out in the proposed new **Rules and Regulations**, presented in a companion paper.

I. INTRODUCTION ¹

1. **This paper discusses several remaining issues related to implementation of the Fund’s broadened investment mandate.**² In previous discussions, Directors have broadly supported an investment strategy and governance framework aimed at meeting the key financial objectives of an endowment funded with part of the profits from the recent limited gold sales, while adequately addressing actual or perceived conflicts of interest. Specifically, Directors supported a strategic asset allocation along the lines of the “conservative diversified portfolio,” consisting of developed and emerging market bonds and equities as well as a small allocation to real estate investment trusts (REITS). They also endorsed a 3 percent real return target, while acknowledging that such a target would be difficult to achieve in the near to medium term, given historically low yields on highly-rated sovereign bonds, which will form an important part of the endowment. Directors agreed that the endowment should build on the current approach of the Investment Account, using external managers with a mandate to track widely available broad benchmarks or, where warranted, appropriately customized benchmarks. Most Directors also supported active management for a very limited portion of the portfolio.



2. **The paper presents specific proposals in several areas where Executive Directors had requested further work.** Section II.A elaborates on the principles underpinning investment arrangements and external manager selection. This is followed by a discussion of the base currency and deflator (Section II.B); currency hedging (Section II.C); phasing, portfolio rebalancing and bands (Sections II.D–E); payout policies (Section II.F); and use of minimum credit ratings thresholds (Section II.G). Section III concludes. Building on the

¹ The paper was prepared by a staff team led by G. Steinberg (FIN) and B. Steinki (LEG), and comprising A. Attie, L. Cruz, T. Mattina, R. Price, and S. Sribhoga in FIN and H. Pham, C. DeLong, B. Patterson, and G. Rosenberg in LEG. The team worked under the direction of T. Krueger (FIN) and S. Hagan (LEG).

² The focus of the paper is on an endowment to be funded with part of the profits from limited gold sales, which has been the subject of several earlier Board discussions; see *The Chairman’s Summing Up—Developing a New Income Model for the Fund* (BUFF/07/115, 8/03/07); *The Chairman’s Summing Up—Developing a New Income Model for the Fund—Further Considerations* (BUFF 07/142, 10/16/07); *The Chairman’s Summing Up—Developing a New Income Model for the Fund—Additional Considerations* (BUFF 08/29, 2/28/08); *The Acting Chair’s Summing Up—Asset Allocation Under a Broadened Investment Mandate—Preliminary Considerations* (BUFF/11/33, 2/17/11); *The Acting Chair’s Summing Up—Broadening the Fund’s Investment Mandate—Further Considerations* (BUFF/11/128, 9/14/11); and *The Acting Chair’s Summing Up—Broadening the Fund’s Investment Mandate—Additional Considerations* (BUFF/12/75, 6/27/12).

issues covered in this and previous papers, a companion document proposes new rules and regulations for the endowment as well as for other assets in the Investment Account.³

II. STRATEGIC IMPLEMENTATION ISSUES

A. Investment Arrangements for the Endowment and Selection of External Managers—General Principles

Background

3. **In past discussions, Directors endorsed a largely passive investment approach for the endowment, while leaving room for a small actively managed component.**⁴ To implement the passive approach, Directors supported using external managers with a mandate to track widely available broad benchmark indices or, where warranted, appropriately customized benchmarks.⁵ In addition, most Directors also supported active management for a very limited portion of the portfolio in cases of clear opportunities to add value, noting that this could also facilitate the evolution of the Fund’s investment strategy over time.

4. **The differentiation between passive and active management strategies reflects foremost whether or not there are intentional deviations from benchmarks.**

- *Passive* management is an investment style in which the composition and risk and return characteristics of a benchmark index are reproduced as closely as possible. While widely available broad benchmark indices exist for the endowment’s SAA, a

³ While this paper focuses mainly on the gold endowment, it also refers in a few places to the reserves portfolio and to the remaining gold sales windfall profits. These three separate Investment Account Subaccounts are designated in the companion paper as the Endowment Subaccount, the Fixed Income Subaccount, and the Temporary Windfall Profits Subaccount, respectively.

⁴ See, for example, *Developing a New Income Model for the Fund—Decisions and Report of the Executive Board to the Board of Governors* (SM/08/80, Rev. 1, Sup. 1; 4/8/08); and *The Acting Chair’s Summing Up—Broadening the Fund’s Investment Mandate—Additional Considerations* (BUFF/12/75, 6/27/12).

⁵ The term “widely available broad benchmark indices” further clarifies the terminology of “widely available benchmarks” and “widely used benchmarks” used interchangeably in previous papers. The term widely available *broad* benchmark indices signals that such indices, maintained by recognized providers (e.g., JP Morgan, Barclays Capital, or MSCI), would not be country- or sector-specific. This additional qualification echoes the need to avoid perceived or actual conflicts of interest and is in line with previous Board guidance. Regarding possible customization, this would be done by the index provider, to take into account the Fund-specific conflict of interest policies, such as specific credit risk thresholds, and other relevant considerations, such as potentially using indices that are not market-cap weighted (e.g., fundamental indices; see *Broadening the Fund’s Investment Mandate—Additional Considerations* (SM/12/111, 5/31/12)).

passive mandate could still be expected to result in tracking errors.⁶ However, these tracking errors would not result from intentional deviations from a benchmark, but rather from technical difficulties in the cost-effective replication of a benchmark, especially in the case of less liquid markets. For the endowment, this could be expected mainly for corporate bonds, emerging market equities and bonds, and REITs.⁷

- *Active* management, on the other hand, is an investment approach which *intentionally* deviates, sometimes significantly, from the composition of a benchmark index in order to generate excess return. Deviations from benchmark can be implemented through over or under representing securities, sectors, markets or asset classes.

5. **As requested by several Executive Directors, this section provides more detail on the general principles of the proposed investment arrangements.** These arrangements form an integral part of an approach to achieve the endowment’s financial objectives and are anchored in a governance structure (see Box 1) that was broadly supported by the Board in previous discussions and aims at addressing actual and perceived conflicts of interest.⁸

⁶ Tracking error is a measure of the risk profile of a portfolio relative to a benchmark. It is defined as the standard deviation, or volatility, of excess returns, i.e., of the difference between the portfolio’s return and the benchmark’s return.

⁷ See *Broadening the Fund’s Investment Mandate—Additional Considerations* (SM/12/111, 5/31/12). Further staff outreach has also found that a passive, benchmark-based approach is feasible for all asset classes included in the SAA.

⁸ The law firm of Wilmer Hale has confirmed that the proposed approach adequately addresses actual and perceived conflicts of interest. This followed its 2008 review of possible sources of actual or perceived conflicts of interest, particularly in the case of “specialized asset classes,” those assets which are more prone to conflicts issues. As one option to address such conflicts, it had suggested the use of active external managers whose investments encompass a broad range of investments based on a widely used benchmark index. Wilmer Hale noted that a passively indexed approach is another possible approach to reducing the perceived opportunity for use of any confidential information, but that this approach would limit the managers’ ability to add value through active investment decisions. See *Developing a New Income Model for the Fund—Additional Considerations—Supplementary Material* (SM/08/48, Sup. 1, 2/8/08). Wilmer Hale was consulted for an updated opinion ahead of the June 2012 Board discussion and again for the current paper and the accompanying Rules and Regulations for the Investment Account.

Box 1. Governance Framework of the Investment Account (IA)

The envisaged governance framework for the IA was developed in previous staff papers (including SM/12/111) and broadly supported by Executive Directors (BUFF/12/75). It draws on governance principles followed by many institutional investors while also addressing the Fund-specific concerns about mitigating the risk of actual or perceived conflicts of interest. A central feature is a clear separation of responsibilities between the Executive Board, the Managing Director, and external managers.

The responsibilities of the Executive Board are focused on strategic aspects of the IA. With the adoption of the proposed new Rules and Regulations, the Board would determine the purpose, broad financial objectives, and strategic investment policies of the IA. The Board is also charged with strategic oversight. Its responsibilities include:

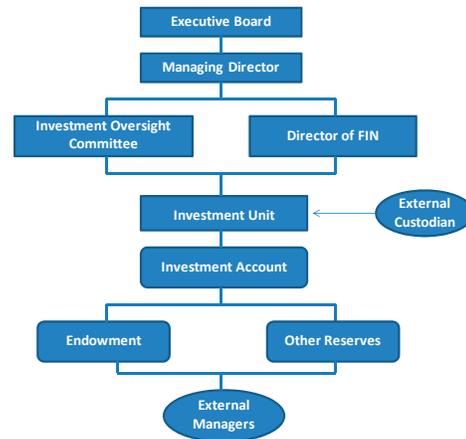
- Establishing the *overall objective of the IA*;
- Determining the *broad strategic parameters for the operation of the IA*, including on the responsibilities of the Managing Director; the requirement to use external managers; and general guidance on portfolio implementation, such as base currency, investment objective, the benchmark selection, the scope for active management, eligible asset classes and the exclusion of specific investment activities, and, for the Endowment Subaccount, the SAA, deflator, phase-in period and payout policy during the phase-in period; and
- Reviewing regular *financial reports*, and reviewing the *Rules and Regulations* at least every 5 years.

The Managing Director is responsible for implementing the investment strategies for the IA. In carrying out these responsibilities, the Managing Director would establish effective decision making and oversight arrangements, establish risk control measures, and take necessary measures that seek to avoid actual or perceived conflicts of interest.

- **In this context, it is expected that the Managing Director will delegate certain key implementation issues to a staff-level Investment Oversight Committee (IOC),** whose members collectively have expertise on investment matters. Its responsibilities are expected to include:
 - Establishing procedures to implement policies established by the Executive Board or Management;
 - Hiring and terminating external managers and custodians;
 - Approving specific benchmark indices and investment management arrangements;
 - Determining the modalities of portfolio phasing, rebalancing and credit rating requirements;
 - Reviewing regular performance reports prepared by the FIN's Investment Unit; and
 - Providing general oversight and advice.
- **Day-to-day implementation is delegated to the Investment Unit in FIN,** with robust information barriers around the Investment Unit. The Investment Unit's responsibilities include:
 - Conducting search processes and monitoring external managers and custodians;
 - Rebalancing the overall portfolio based on established rules;
 - Preparing performance and risk reports; and
 - Developing proposals to revise strategic and operational aspects of the investment framework, as needed.

Specific investment decisions are taken by external managers (except for BIS investments), with strong protections against information flows between the Fund and the managers.

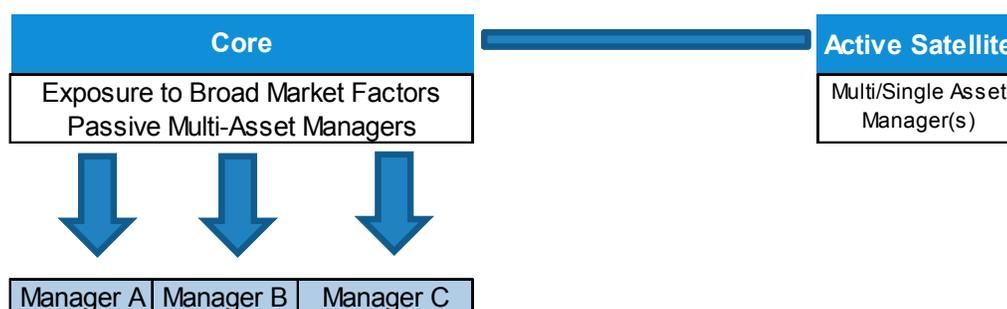
Text Figure 1. Reporting Lines for the Investment Management of the Investment Account



Proposed portfolio structure and guidelines for selection of passive and active managers

6. Staff envisages a “core-satellite” approach to portfolio construction—a relatively conventional set-up within the institutional investment industry (Figure 1).⁹ As elaborated below, the largest portion would be managed passively (the “core” portfolio) while a limited portion would be managed actively (the “satellite” portfolio). Both portfolios will be managed by external managers and, with a view to limiting operational risks, mandates would be given to a number of managers (rather than a single one). The eligible asset classes would be the same for both the core and satellite portfolios.

Figure 1. Stylized Portfolio Structure



7. **Deciding on the level of active management within the overall portfolio can be accomplished through various means.** The most common approaches are the following:

- In a first approach, the size of the actively managed portfolio is set ex ante as a maximum share of total assets. This approach has the advantage of setting out a clearly defined and well-understood rule to guide investment activities. A drawback is, however, that the rule is not explicitly linked to the potential risks associated with actively managing this portion of the portfolio. Moreover, these risks can vary depending on the specific strategies pursued by active managers as well as on market developments over time.
- A second approach determines the actively managed portfolio on the basis of a risk budgeting approach. Originally designed for pension fund investing, risk budgeting has evolved to be accommodate other types of long-term institutional portfolios.¹⁰

⁹ See, for example, Barton Waring and Laurence Siegel, 2003, *Understanding Active Management*, Investment Insights, April 2003, Volume 6, Issue 1 (Blackrock); and Daniel Wallick, Neeraj Bhatia, and C. William Cole, 2010, *Building a Global Core-Satellite Portfolio*, Vanguard Research.

¹⁰ See R. C. Urwin, S. J. Breban, T. M. Hodgson and A. Hunt; *Risk Budgeting in Pension Investment*; and Roger Clarke, Harinda de Silva, and Steven Thorley, 2009, *Investing Separately in Alpha and Beta*, CFA Institute. Several international institutions use active risk budgets, including the BIS and the World Bank’s pension funds.

Rather than setting a fixed, pre-determined nominal amount for the actively managed portfolio, this approach focuses on the maximum amount of tracking error (active risk) to be tolerated at the total asset level against the (passive) SAA.

8. Staff proposes adopting the first of the two approaches, with the Executive Board setting strict limits for the actively managed portion of the endowment.

Compared with the risk budgeting approach, setting a maximum limit for the actively managed portion has the benefit of greater transparency and stability, and may be understood more readily by all stakeholders. This reflects in part that risk budgeting, which has important conceptual appeal, requires as critical input the risk contributions of different managers and asset classes. These change over time as market conditions and fundamentals change, and could imply the need for ongoing adjustments in the share of the actively managed portfolio, posing significant operational challenges. Nevertheless, as discussed below, the magnitude of the proposed active tranche takes historical risk considerations into account and is consistent with keeping incremental active risk well-contained. Specifically, staff proposes the following:

- **The initial funding limit for the actively managed tranche is 5 percent of the total portfolio at the time of effectiveness of the new rules and regulations of the IA, and a maximum long-term share of 10 percent.**¹¹ Using a set of conservative assumptions, this would be consistent with containing the incremental contribution of active risk to overall portfolio risk to at most 1 percentage point (as measured by the portfolio's historical standard deviation).¹² This would be a modest level of active risk when compared to other large public institutional investors. The active allocation would also be expected to add an additional return over time, net of fees. Further consultation with the Executive Board will cover additional details.
- **Limits of 65/35 on the global bond/equity split that are identical to those for the passively managed portfolio.** Such limits would further contain potential risks to parameters that have been broadly supported by Executive Directors. However, active risk taking would call for some flexibility within the broad bond/equity split. Accordingly, it is proposed that the SAA of the active tranche would not specify more

¹¹ With the initial *funding* of the actively managed portfolio envisaged to be limited to 5 percent, the *maximum share* of 10 percent allows room for substantial valuation gains vis-à-vis the passively managed portion of the endowment.

¹² The standard deviation of the portfolio, if managed passively along the proposed SAA, would have been around 8 percent historically. The active tranche would have added at most 1 percentage point to the portfolio's historical standard deviation, or about 10 percent to the portfolio's overall volatility. These estimates are based on conservative assumptions, including the expectation that active managers' deviations from the passive benchmark are not always successful (information ratio of 0.4), and that their return remains imperfectly correlated to the benchmark (correlation of 0.2).

detailed asset classes beyond the broad bond/equity split (with REITs included in the equity portion).¹³

9. **External manager selection would be guided by principles aimed at achieving the endowment’s key objectives.** The selection of external managers is a critical component of the investment strategy, as these managers will be responsible for all specific security decisions of the passive as well as active tranches of the portfolio. An overriding principle for the selection of all external managers is that they should have a sound investment process, be of the highest professional standard, possess a strong market reputation, and have excellent compliance records.

- For the **passively managed tranche** (comprising 95 percent of the total portfolio at the time of the effectiveness of the new rules and regulations for the IA, and no less than 90 percent of the total portfolio at any time thereafter), managers will be appointed on the basis of their ability to replicate widely available broad benchmarks (or customized benchmarks, where warranted) with minimal tracking error and cost.¹⁴ Passive managers would be mandated to implement agreed rebalancing procedures and currency hedging (see below). In light of the prevailing industry practice, where a small number of multi-asset managers dominate the global passive investment market, it is expected that multi-asset managers would manage the passive tranche of the endowment.
- For the much smaller **actively managed tranche**, manager selection would seek to identify an appropriate group of external managers with broad investment expertise that could best meet the portfolio objectives, including that of generating excess returns after fees. The soundness of their investment process and proven skill in adding value will be important considerations in selecting active managers.

10. **For the actively managed portfolio, staff proposes that the Executive Board establish certain strategic parameters, and that consultation with the Board will be**

¹³ As noted above, the proposed SAA of the passively managed core portfolio includes also 65/35 bond/equity split. However, it would also set asset allocations for sub-groups: 20 percent each for inflation linked and developed market bonds; 15 percent for developed market corporate bonds; 10 percent for emerging market bonds; and 25 percent for developed market equities and 5 percent each for emerging market equities and REITs (see *Broadening the Fund’s Investment Mandate—Additional Considerations* (SM/12/111, 5/31/12)).

¹⁴ As previously noted (see SM/12/111, Section III, B on benchmark issues), passive managers will be expected to track the risk and return characteristics of broad benchmark indices underpinning the endowment’s SAA. To be effective, these benchmark indices should be representative, transparent, replicable, and regularly priced. The ease of replicating an index can vary, with a key factor being the liquidity of the underlying securities or instruments. Some of the most commonly used indices in the investment industry are constructed and maintained by third parties, such as Barclays Capital, MSCI, or JP Morgan, and therefore provide additional safeguards against the risk of perceived or actual conflicts of interest.

required in key areas where responsibilities are delegated to the Managing Director. Specifically, the Board would set the 65/35 bond/equity SAA benchmark and the overall share of the actively managed portion (i.e., the initial share of 5 percent at the time of the effectiveness of the new rules and regulations for the IA and a maximum share of 10 percent). The design of other aspects of the investment strategy and implementation decisions would be delegated to the Managing Director. Further preparatory work is required for this approach, and the Managing Director will consult with the Board prior to beginning the investment operations of the actively managed portion of the endowment. The consultation will cover, in particular, possible investment strategies for the endowment, where earlier staff work had pointed to a possible role for income- and value-based strategies, while leaving room for other approaches. It will also include the selection of benchmark indices, the establishment of appropriate selection criteria and risk controls for external managers (such as avoiding excessive concentration risks, leverage, and high frequency trading), policy bands and rebalancing procedures (both for the 65/35 bond/equity SAA and the maximum 10 percent limit), the initial phase-in of investments, currency hedging, and additional arrangements, if any, to address actual or perceived conflicts of interest specific to the actively managed portion.¹⁵ Following the initiation of investment operations, a consultation would take place whenever the Managing Director would envisage a change to these key elements of the investment strategy and investment arrangements for the actively managed portion.

B. Base Currency and Deflator

11. **The base currency and return deflator are two strategic investment decisions.** Directors previously endorsed a longer-term real return target of 3 percent for the endowment. To make the target operational requires the selection of both the base currency and a deflator. For illustrative purposes, earlier staff work had generally assumed the U.S. dollar as the base currency (and the U.S. CPI as the deflator). The choice for the base currency is essentially between the U.S. dollar and the SDR, with the deflator choice dependent on the base currency choice. This section responds to Directors' call for further work in this area.

12. **Choosing the SDR as the base currency would be consistent with the approach followed already for the reserves portfolio of the IA and the Trust Assets** (Table 1 summarizes the pros and cons of the SDR and the U.S. dollar as base currency). It would also ensure a uniform presentation of the endowment's performance across its periodic reports and on the Fund's balance sheet, which is presented in SDRs (the Fund's unit of account). In addition, choosing the SDR as the base currency would provide some degree of "natural"

¹⁵ Specialist managers would need to have relatively broad mandates (covering, for example, a wide range of regions and, in the case of equities, sectors) in order to avoid any perception that the selection of specific managers by the Managing Director amounts to the effective selection of specific investments.

hedge against currency risks, as a sizable portion of the endowment's portfolio would be exposed to the SDR basket currencies, though not in exactly the same proportions.

13. **However, using the U.S. dollar as the base currency would be more closely aligned with the objectives of the endowment.** The principle goal of the endowment is to provide a meaningful long-term contribution to the Fund's administrative expenditures while preserving the purchasing power of its assets.¹⁶ As these expenditures are largely invoiced in U.S. dollars and driven by U.S.-dollar based developments, the implicit liabilities of the endowment are mostly dollar based. Thus, by using the U.S. dollar as the base currency, there would be greater confidence that returns in line with the target would be sufficient to meet the financial goals of the endowment. The U.S. dollar is also widely used as a base currency and currency risks can be more easily hedged, to the extent this is considered desirable, than would be the case with the SDR. This approach would also be consistent with that followed by the Staff Retirement Plan (SRP), which also has liabilities that are strongly influenced by U.S. dollar developments.

14. **On balance, staff proposes to use the U.S. dollar as the base currency for the endowment.** The principal consideration is to align, as closely as possible, the choice of the base currency with the objectives of the endowment. With the latter driven by U.S. dollar based developments, this argues for using the U.S. dollar as the base currency. Conversely, if the SDR were chosen, it is possible that an SDR-based return target could be met over time but the endowment would still not meet its financial objectives (driven by U.S. dollar developments), for example, if there were to be a sustained appreciation of the dollar against the SDR.

15. **While the performance of the endowment vis-à-vis the return target would be measured in U.S. dollars, returns would be reported in SDRs in the Fund's income statement and balance sheet** (see Box 2 and Appendix I). Thus, the Fund's income statement and balance sheet would reflect valuation changes in the U.S. dollar vis-à-vis the SDR, and the performance of the endowment in U.S. dollar terms could well deviate from that in SDR terms. Reporting in SDRs is required under Article V, Section 10(a) for Fund's assets held in the General Department, which includes the IA assets, and will form the basis for recording the endowment portfolio on the Fund's balance sheet.¹⁷

¹⁶ In the case of the reserves portfolio (designated the "Fixed Income Subaccount" in the companion paper), the choice of the SDR as a base currency is broadly aligned with its overall purpose, which is to protect the Fund's balance sheet against the risk of financial losses. An important part of these risks, including those related to Fund lending, is denominated in SDRs.

¹⁷ For the SRP, which also uses the U.S. dollar as base currency, only its net position in SDRs is reported on the Fund's balance sheet; see *IMF, Audited Financial Statements for the ended April 30, 2012, and 2011*, p. 5 and Note 16 on pp. 19/20.

16. **Assessing portfolio performance vis-à-vis a *real* return target requires the choice of an appropriate deflator.** With the U.S. dollar proposed as the base currency,¹⁸ possible deflators include the headline U.S. consumer price index (CPI) (or another widely used U.S. price or cost deflator) or, alternatively, a customized index of the Fund's costs. The former approach is used by many institutional investors, typically involving the use of the U.S. CPI. On the other hand, some institutional investors use customized indices tailored to the specific needs of the institution.¹⁹ For the Fund, such an index is readily available in the form of its Global External Deflator (GED).

¹⁸ If the SDR were chosen as the base currency, a suitable SDR basket deflator would need to be developed.

¹⁹ An example is the Yale university endowment, which deflates nominal returns based on an index of university-related costs; see *The Yale Endowment 2010* available at <http://www.yale.edu/investments/>.

Box 2. The Recording of Exchange Rate Gains and Losses on the Fund's Balance Sheet

The IMF's unit of account for financial reporting purposes is the SDR.¹ Accordingly, financial reporting of the IMF's activities and financial position in the quarterly and annual financial statements is presented in SDRs.² The bulk of the investments in the gold-sales financed endowment are expected to be denominated in (and possibly hedged into) U.S. dollars, which is also proposed as the investment portfolio's base currency for performance reporting purposes. This raises the issue of how exchange rate gains and losses vis-à-vis the SDR would be recorded on the Fund's SDR-denominated balance sheet.

The Fund's financial reporting follows international financial reporting standards (IFRS), which cover the recording of foreign exchange rates and valuations in *IAS 21 (The Effects of Changes in Foreign Exchange Rates)*. Specifically, the initial acquisition of a foreign currency denominated monetary item (i.e., investment) is recorded in the financial reporting currency (SDRs for the Fund) by applying, to the underlying currency amount, the spot exchange rate between the SDR and the currency at the date of the transaction. Subsequently, at the end of each reporting period, foreign currency investments reported on the balance sheet are translated into SDRs using the closing period-end rate. The differences in the exchange rates, i.e., the initial spot rate and the period-end rate, result in unrealized gains and losses which are *accounting book entries* for the period under review. Upon disposal of the investments, these unrealized gains and losses are then normally reversed and realized gains and losses are computed and recognized based on the prevailing spot exchange rates at the time of sale of the investment.

Under IFRS, unrealized and realized exchange rate gains and losses during the reporting period are included in the computation of the net income for a reporting period. Exchange rate gains and losses are in addition to gains and losses arising from the local currency market value of investments.³ The Fund's financial statements reflect all these gains and losses in the income statement, and the reported asset values in the balance sheet are correspondingly "marked-to-market" prices. The Fund's General Department financial statements consolidate these income and asset positions, covering both the Fund's General Resources Account (GRA) and the IA.

As the endowment is implemented, currency exposures are likely to increase. In the past, the currency composition of assets in the IA was closely aligned with the SDR basket currencies and, as a result, exchange-rate related gains and losses were very limited. Going forward, the currency exposures of the gold-sales financed endowment are expected to deviate more substantially from the SDR basket. As a result, exchange rate gains and losses in the Fund's balance sheet would depend on the movements in the exchange rates of the investments' currencies vis-à-vis the SDR, unless these exposures are hedged. These issues are discussed in more detail in Section II.C.

¹ Article V, Section 10 in the Fund's Articles of Agreement requires that the value of the Fund's assets held in the accounts of the General Department be expressed in terms of the SDR. The General Department comprises the General Resources Account, the Investment Account and the Special Disbursement Account.

² In contrast to the General Department, the unit of account for financial reporting on the Fund's staff retirement plan (SRP) is the U.S. dollar.

³ The entire fair value change on debt and equity instruments may be presented on a net basis as a single line item in the income statement.

Nevertheless, one modification of the GED would seem warranted: for budget purposes, the GED is mainly used as a planning tool and it thus uses the *projected* U.S.-CPI for the next financial year; for the endowment, by contrast, the deflator is more relevant as an *ex post* monitoring (rather than a planning) tool. It is therefore proposed to use a modified index, with 30 percent of its weight based on the *actual* U.S.-CPI for the relevant period (rather than

the *projected* U.S.-CPI).²⁰ The remaining 70 percent would be the structure adjustment as determined by the Board for the relevant period. This “modified-GED” should capture well developments in the purchasing power of the endowment in terms of the Fund’s own administrative costs, which the endowment is tasked to support.

Table 1. U.S. Dollar or SDR as the Base Currency: Pros and Cons

	Pros	Cons
U.S. dollar	Well aligned to investment objectives Deflator closely linked to Fund expenditures is readily available Easily hedged if required Widely used as a base currency	Foreign exchange exposure material If hedged to the U.S. dollar, balance sheet volatility greater than for SDR
SDR	More limited foreign exchange risk; as a result, less need for hedging to contain balance sheet No currency-related differences between the Fund’s balance sheet and the endowment’s regular performance reports (both in SDRs)	Not well aligned with investment objectives Operationally more difficult to hedge than U.S. dollar Not widely used as base currency Appropriate deflator would need to be constructed

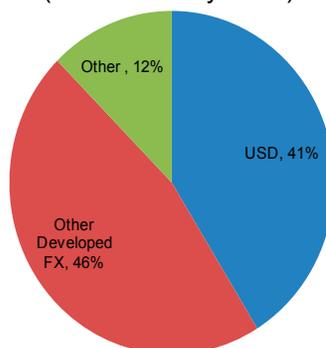
C. Currency Hedging

17. **The global diversification of the endowment will entail significant foreign exchange exposures.** With the U.S. dollar proposed as the base currency and U.S. dollar denominated assets expected to account for about 40 percent of total assets (Figure 2), almost two thirds of the portfolio will entail foreign exchange rate risks vis-à-vis the base currency. The currency exposures are mostly to other developed-market currencies, but the SAA of the conservatively diversified portfolio entails also a significant share of emerging market currencies.²¹

²⁰ The Fund’s medium-term budget uses the GED to project nominal administrative budgets; see *The Global External Deflator: Medium-term Budget and Consolidated Income and Expenses Framework* (EB/CB/11, 1/13/11). The GED is comprised of the Board approved structure adjustment to capture personnel cost increases (70 percent weight), and the projected U.S. CPI for the non-personnel component (30 percent weight).

²¹ The largest anticipated currency exposures in the conservative diversified portfolio are the U.S. dollar with around 41 percent; the euro with 18 percent; U.K. pound sterling with 11 percent; and Japanese yen with 11 percent.

Figure 2. Conservative Diversified Portfolio—Currency Exposures
(As of end-July 2012)



Sources: Barclays Capital, Bank of America Merrill Lynch, MSCI, and staff calculations.

18. **Currency volatility can significantly affect portfolio returns, particularly in the short run** (Figure 3a). Among different asset classes, unhedged currency volatility contributes a sizable share to the volatility of bond portfolios, but less so for equities, where local currency returns are typically more volatile than bond portfolios (Figure 3b). Moreover, currency movements have historically led to periodic breaks in the correlation between local and dollar-based returns. Cross-currency volatility is, however, predominantly a short- to medium-run phenomenon and, at least for the major currencies of developed markets, currency movements tend to unwind over time (Figures 3c and 3d).

19. **While currency hedging can limit risk, there are pros and cons to hedging.**²² Unlike stocks and bonds, currencies lack a systematic risk premium despite contributing significantly to portfolio volatility.²³ As a result, currency exposure represents an uncompensated source of volatility, and it has been suggested that currency hedging offers a “free lunch” by reducing volatility without sacrificing expected excess returns.²⁴ On the other

²² For general consideration regarding hedging within an international capital asset pricing model, see Fischer Black, “*Equilibrium Exchange Rate Hedging*,” *Journal of Finance*, Vol. XLV, No. 3, July 1990.

²³ Over the past 15 years, the annualized currency-related volatility from non-U.S. dollar denominated investments in the endowment’s conservative diversified portfolio amounted to just over one quarter of the portfolio’s overall volatility.

²⁴ See Perold, Andre and Evan Schulman, “*The Free Lunch in Currency Hedging: Implications for Investment Policy and Performance Standards*,” *Financial Analysts Journal*, May/June 1988.

Figure 3. Hedged and Unhedged Currency Volatility and Asset Returns

Figure 3a. Volatility differs substantially across asset classes^{1/}

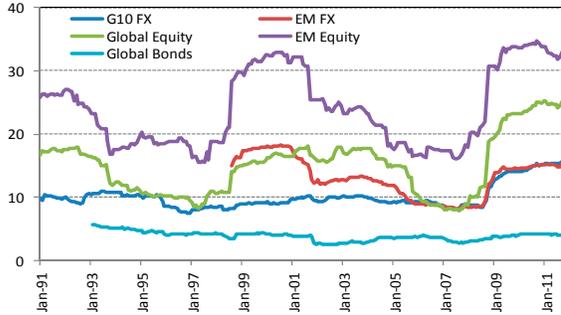


Figure 3b. Unhedged currency risk contributes a large share to bond volatility, less so for equities, but hedging can reduce this risk ^{2/}

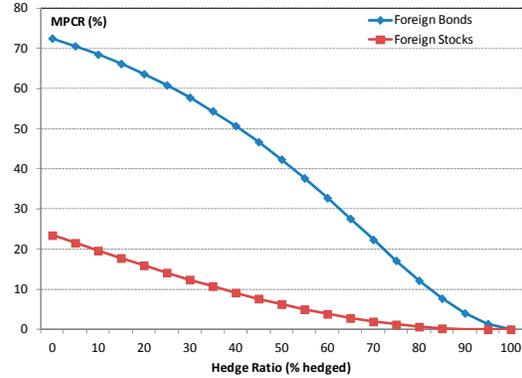


Figure 3c. While there is wide dispersion, on average, local currency returns have been about equal to unhedged returns in USD terms...^{3/}

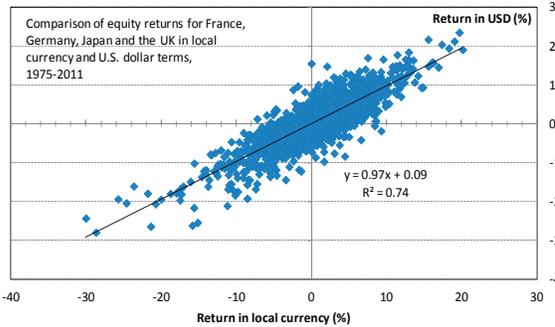
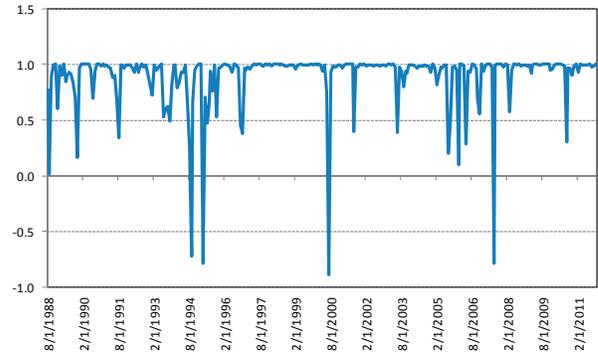


Figure 3d. ...although local/USD return correlations are punctuated by sharp deviations. ^{4/}



Sources: Datastream, Bloomberg, Haver Analytics, IMF staff calculations, Litterman, 2003, *Modern Investment Management*.

1/ The 3-year moving average of advanced and emerging currency volatilities relative to the U.S. dollar are represented by "G10 FX" and "EM FX," respectively; the average volatilities of global and emerging equities is measured by the MSCI All Country and MSCI EM indexes, respectively; and the volatility of global bonds is measured using the Barclays Global Bond Aggregate.

2/ The chart plots the marginal percent contribution to risk (MPCD) of stylized stock and bond portfolios for a U.S. investor. Annualized volatility is based on monthly U.S. dollar-based total returns during March 1985 to September 2011. The portfolios consist of equally weighted securities in Europe (French and German assets are used as a proxy for Europe), Japan and the UK. The foreign bond portfolio consists of holdings in 10-year sovereign bonds, and the foreign stock portfolio consists of MSCI equity indexes.

3/ MSCI country indexes are used as proxies for national equity market returns.

4/ MSCI All Country index is used as a proxy for global equity returns. Chart plots a rolling 3-month correlation between U.S. dollars and local currency returns.

hand, and given the tendency toward mean reversion in developed-market currencies, the benefits of currency hedging tend to decrease over longer horizons. Some empirical work also suggests that hedged portfolios could be at least as volatile as non-hedged portfolios in

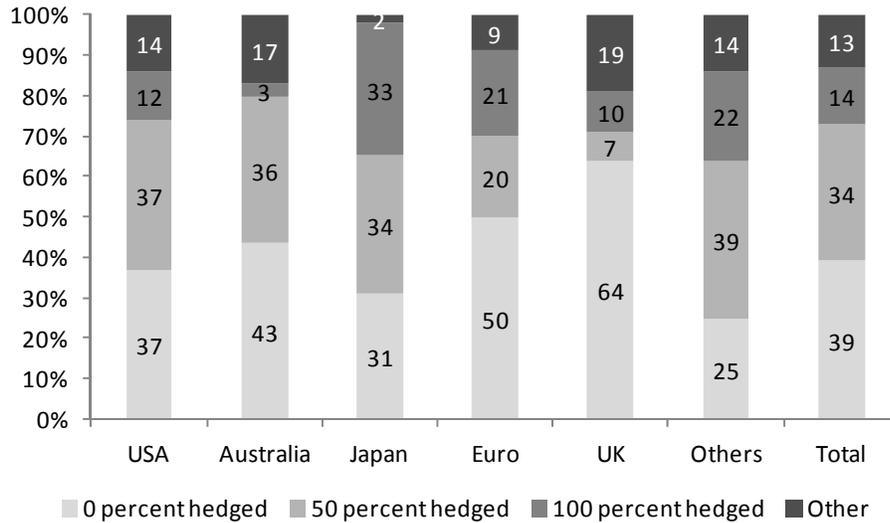
the long run without offering a better return.²⁵ Cost considerations can also play a role in hedging decisions: while such costs are limited for developed-market currencies, hedging costs for many emerging market currencies can be significant and, in some cases, market-based hedging instruments are not available.²⁶

20. **Investment practice varies considerably with respect to hedging.** The diversity of approaches reflects to some extent the lack of consensus in the literature, along with cost and implementation considerations. While some institutional investors fully hedge foreign currency assets, others use simple rules of thumb to implement partial hedging, for example by covering 50 percent of foreign currency exposures, or only fixed income assets in foreign currencies (Figure 4). Other investors continue to undertake no currency hedging, with hedging less prevalent among U.S. than European institutional investors. For some investors, such as pension funds, accounting and prudential considerations also play a role in hedging decisions, as shortfalls in valuations relative to actuarial liabilities may require sponsors to increase contributions to the plan. There are also considerable variations in the hedging practice of international institutions and their pension funds. For example, the Fund’s Staff Retirement Plan does not directly hedge currency exposures, and hedging needs are largely absent for the Fund’s reserve assets of the IA and Trust assets, as the currency composition of their investments is closely aligned with the SDR basket. As concerns other institutions, the BIS pension fund hedges currency exposure outside of its base currency (Swiss Franc), but only for developed markets, while the World Bank’s pension plan hedges only fixed-income assets. The IBRD routinely hedges its non-dollar borrowing back into U.S. dollars, and the World Bank’s Long-Term Investment Portfolio, which was recently wound down, had hedged all currency exposure into U.S. dollars.

²⁵ See Kenneth A. Froot, “*Currency Hedging Over Long Horizons*,” NBER Working Paper No. 4355, May 1993, and “*Investors Should Not (Usually) Hedge Currency Returns on International Equity Portfolios*” by Smithers & Co (2011). Froot argues that hedging instruments effectively shift the long-run risk exposure from currency fluctuations to cross-country differences in real interest rates, which can add to portfolio volatility.

²⁶ For the developed market currencies of the conservative diversified portfolio, currency hedging costs are estimated at around 1–2 basis points per annum. Some emerging market currencies can only be hedged using non-deliverable forwards. In addition, the hedging of relatively high interest rate currencies could lead to expected hedging losses in line with the extensively studied “forward discount anomaly” and the associated excess returns from currency carry trades; see, for example, Eugene Fama, “*Forward and Spot Exchange Rates*,” 1984, *Journal of Monetary Economics*, 14, 319–338; and Charles Engel, “*The Forward Discount Anomaly and the Risk Premium: A Survey of Recent Evidence*,” 1996, *Journal of Empirical Finance*, 3, 123–92.

Figure 4. Currency Hedging Practices of Institutional Investors 1/



1/ Survey covers 563 institutional investors delegating hedging decisions to external managers. Bars indicate the distribution of benchmark currency hedge ratios.

Source: BNY Mellon Currency Survey, 2004

21. **Staff proposes as an initial strategy that hedging would be required for developed-market currency fixed income assets of the passively managed portion of the portfolio.** This approach would remove a significant source of short-term portfolio volatility, which could otherwise dominate returns on these assets. As such, it would help mitigate concerns expressed in earlier Board discussions about the risk of short-term portfolio volatility and losses. The additional costs and counterparty risks associated with such an approach are expected to be small. Hedging would not be applied to developed-market equities and REITs, where currency volatility represents a smaller proportion of overall volatility, or to emerging market assets (other than fixed income assets denominated in non-U.S. dollar developed-market currencies), where hedging costs are likely to be significantly higher. This approach would leave about a third of the portfolio assets unhedged to the U.S. dollar base currency.²⁷ The operational modalities of the currency hedging program would be developed in consultation with external managers, and their performance assessment would take the currency hedging requirements into account. Currency hedging would be permitted but not required for the actively managed portion of the portfolio, and as noted the Executive Board will be consulted on the investment strategy for the actively managed portion of the endowment (§ 10). The case for ongoing currency hedging of the passively managed portion

²⁷ Based on data of end-July 2012, some 41 percent of total assets would have been denominated in U.S. dollars, while fixed income assets denominated in developed market currencies other than the U.S. dollar (equal to about 32 percent of total assets) would have been hedged.

could be revisited at a later point, in light of the portfolio's experience and market developments.

22. **While currency hedging would be expected to reduce the short-term volatility of endowment returns in the base currency, some of this volatility would appear in the SDR denominated returns recorded in the Fund's balance sheet.** An illustrative example is presented in Table 2: other things equal, for a portfolio size of SDR 4.4 billion, a 10 percent decline in the U.S. dollar vis-à-vis the SDR, if totally unhedged, would ceteris paribus result in a valuation gain of around \$690 million in the U.S.-dollar denominated portfolio, while the SDR-based value would essentially remain unchanged (first column of Table 2). Under the proposed strategy of hedging fixed income assets for developed-market currency movements against the U.S. dollar, this gain would be reduced to about \$310 million (last column in Table 2). At the same time, there would be a substantial valuation loss when the returns are recorded on the Fund's balance sheet (about SDR 215 million). Overall, the proposed strategy of partially hedging the portfolio would be expected to distribute the impact of currency volatility between returns in the base currency and those recorded in SDRs on the Fund's balance sheet. The divergence between portfolio performance measured in U.S. dollars and SDRs could be expected to unwind over time, assuming mean reversion in the dollar-SDR exchange rate in the longer run.

Table 2. Illustrative Exchange Rate Gains and Losses Resulting from a 10 Percent Decline in the U.S. Dollar vis-à-vis the SDR—Alternative Hedging Assumptions

	Unhedged	Hedge all markets	Hedge developed markets	Hedge fixed income developed
in U.S. Dollars (portfolio)	689	-	141	309
in SDR (balance sheet)	10	(400)	(316)	(216)

23. **Currency hedging would require a robust operational infrastructure that addresses perceived and actual conflicts of interest.** For the passively managed portion, the Board would determine the overall strategy of whether and what currencies to hedge (proposed here to be all developed-market currencies for developed-market fixed-income assets) and the permitted hedging instruments (including, but not limited to, currency forwards, futures, options, and swaps). Implementation of the strategy would be delegated to the Managing Director. As indicated, hedging will also be permitted (but not required) for the actively managed portion of the endowment, and the specific approach would need to be developed by the Managing Director in consultation with the Executive Board, in the context of setting the investment strategy for this portion of the portfolio (§ 10). To further address potential conflicts, contracts with external managers would establish clear rules for hedging (such as the currencies that would/would not be hedged, permissible instruments, and

counter-party risks). Actual hedging would be undertaken exclusively by external managers.²⁸

D. Phasing of Initial Investments

24. **In the previous discussion, Executive Directors agreed that the endowment's investment program should be phased over time.** Directors noted that the phasing should take place over a sufficiently long period in order to mitigate the risk of short-term losses. Such an approach could also help reduce the potential market impact of Fund investments in less liquid asset classes. This section develops specific proposals for the *passive* tranche, taking into account the general rationale of phasing as well as the investment mandate of the endowment. For the very limited *active* tranche, the merits of phasing, if any, will be covered as part of the future consultations with the Board (see ¶ 10).

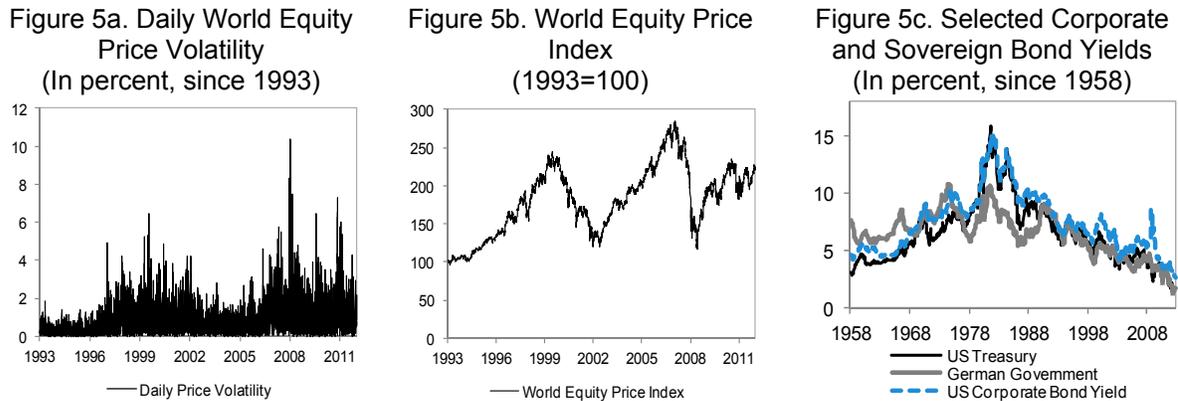
25. **Phasing tends to reduce the risk of adverse outcomes in the initial years, but often at a cost in terms of foregone earnings (for further details, see Appendix III).** Phasing of the initial investment can mitigate the likelihood of adverse outcomes by avoiding undue concentration of timing risk. Compared with lump sum investing, phasing reduces the probability, magnitude, and duration of large losses in the build-up period of a portfolio, particularly in the case of volatile assets and extreme valuations, and provided the transitional phase is long enough. While recognizing these risk-reducing benefits, the literature also emphasizes the potential costs of phasing in terms of foregone income. These costs stem from the fact that assets which are not yet invested would typically be placed in relatively safe short-duration bonds or deposits, carrying a lower ex ante return.

26. **A common approach involves investing a fixed nominal amount each period over an extended time horizon.** Under this approach, a fixed nominal amount is invested during the phasing period, e.g., one-quarter of the total dollar amount for each three-month period, if the phasing occurs over one year. The appropriate duration of the phasing is principally determined by its objective of mitigating timing risks during the start up period of the portfolio. These risks, in turn, relate mainly to two empirical phenomena: short-term volatility in asset prices, especially in equities and a few other asset classes; and, secondly, longer-term valuation cycles that have historically been observed for many asset classes. To address the first risk (illustrated by Figure 5a), investors typically try to avoid investing the full amount on a single day or within a very short time period; investment over a one-year horizon could be expected to largely overcome these short-term volatility risks. Asset valuation cycles, on the other hand, tend to be longer in duration both for equities and bonds

²⁸ As noted above, global multi-asset managers are expected to manage the largest portion of the endowment. These managers offer market-based currency hedging as part of their investment products; alternatively, a separate currency overlay manager could be selected.

(Figures 5b-c); addressing valuation risks through phasing would therefore call for multi-year funding periods.

Figure 5. Asset Price Volatility and Valuation Cycles



Sources: Bloomberg, Datastream, and Global Financial Data.

27. **Back-testing of a phased investment strategy supports the view that such a strategy can help contain risks.** Using historical data for the period since the mid-1980s, performance for the endowment’s proposed SAA is assessed by comparing a lump-sum, fully funded portfolio with a portfolio funded quarterly over 1 through 5 years.²⁹ Phasing would have reduced volatility and the frequency of loss during the initial period, but at the cost of lower returns. This was true for the more volatile asset classes but also, albeit to a lesser degree, at the portfolio level. The volatility of equities over 5-year periods decreased from about 7 percent to slightly less than 5 percent annualized (see Figure 6a); the risk of nominal loss was lowered with phasing, particularly for equities (Figure 6c).³⁰ However, this lower risk would have had an opportunity cost: on average, at the portfolio level, returns fell by about 0.3 percent for each additional year of phasing, as un-invested cash was assumed to be placed in low yielding instruments (Figure 6b).³¹ The risk reduction of phasing was also noticeable over the most recent 1998–2012 period, during which equities experienced two

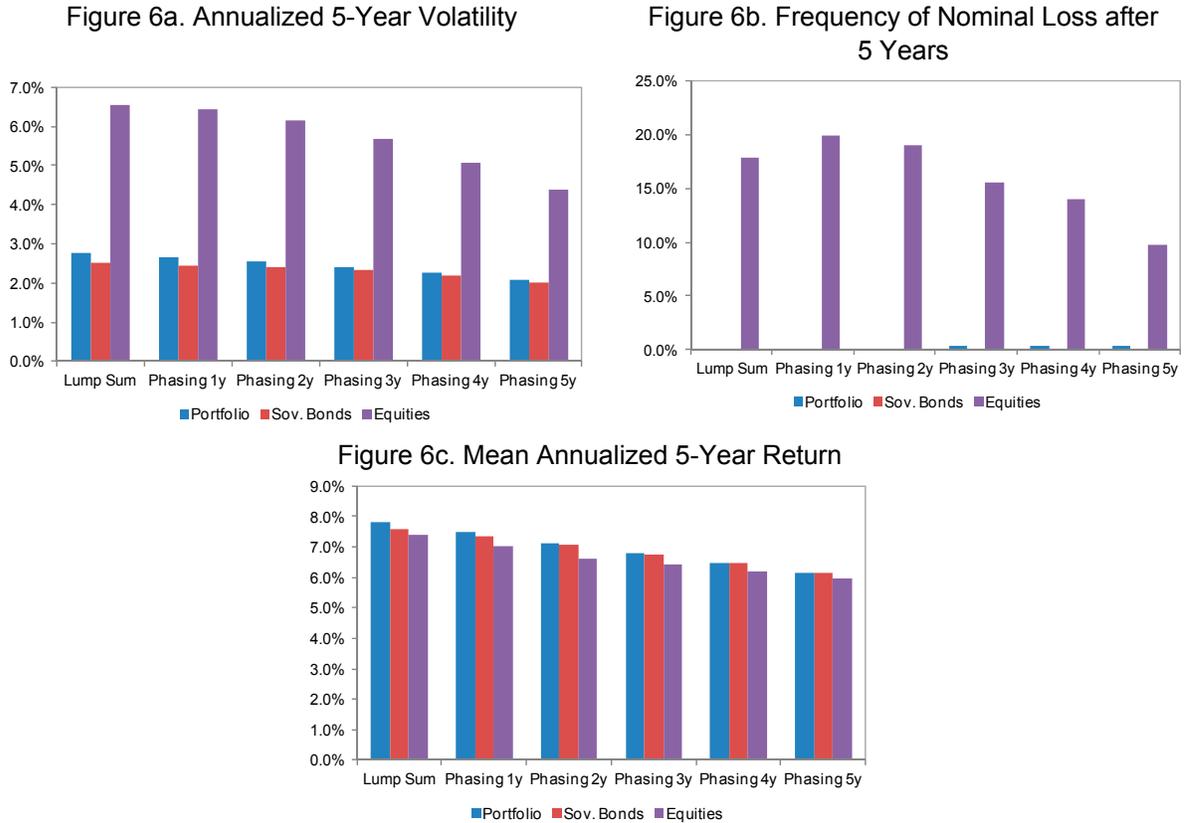
²⁹ To overcome data limitations, a simplified allocation of the endowment’s envisaged SAA is used over the period 1987–97 (with 40 percent in developed market sovereign bonds, 25 percent in U.S. corporate bonds, and 35 percent in developed equities); the endowment’s SAA is used over the period since 1998. “Lump-sum” phasing refers to the full investment of the endowment over a 1-month period. The benefits of phasing were also measured for U.S. bonds and equities over the period since 1920, with similar results.

³⁰ Equity returns over 12-month periods are typically characterized by a standard deviation of returns of about 18 percent. Readings are lower in annualized terms over 5-year overlapping periods as the dispersion of returns is smoothed out.

³¹ For illustrative purposes, non-invested gold sales profits are assumed to be placed in 3-month deposits until there are invested in the SAA.

sharp bear markets. The less volatile fixed income instruments would historically have been less affected by phasing.

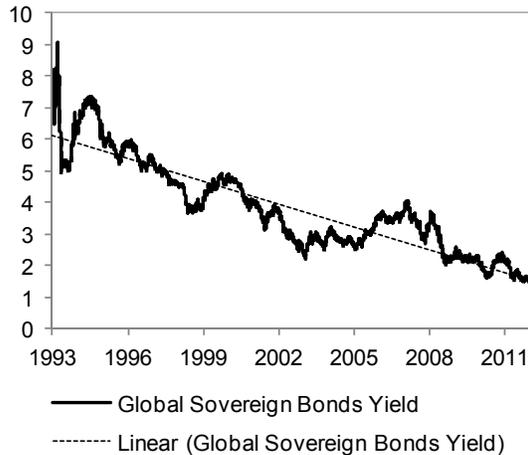
Figure 6. Empirical Back-Testing of a Phased Investment Strategy
(Data since 1986)



Sources: Datastream and staff calculations.

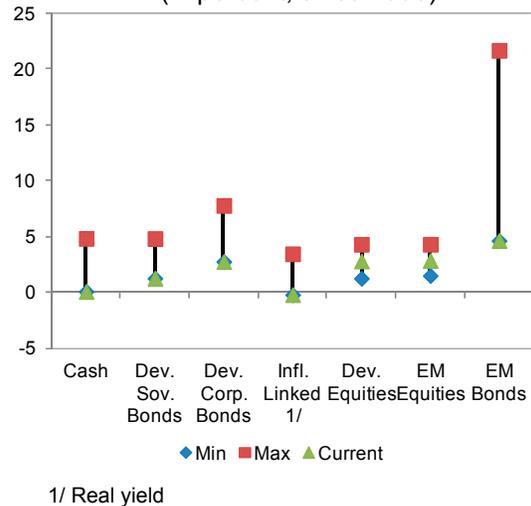
28. **The case for phasing over an extended time period would seem to be strengthened at present by historically high valuation levels for high-quality bonds.** As noted above, the case for phasing has historically been weak for fixed income assets, while a stronger case exists for more volatile asset classes (Appendix III provides further analysis of the pros and cons of phasing for different asset classes). However, valuations of developed-market high-quality fixed income instruments currently appear to be at extreme levels. Sovereign bond valuations are at all-time highs, spreads are compressed, and yields on inflation-linked bonds are currently negative (Figure 7). As discussed previously (SM/12/111), there is, therefore, some risk that the endowment could be invested at or near the top of a long-term bond market valuation cycle. Given that roughly two-thirds of the portfolio would be invested in fixed income assets with significant duration, as determined by the benchmark, this could expose the endowment to substantial risk of short-term losses. Short of revisiting the SAA to reduce the share of fixed income assets, phasing provides the main tool for containing such risks.

Figure 7a. Global Sovereign Bond Yields
(in percent, since 1993)



Sources: Bloomberg and Datastream.

Figure 7b. Current Yields vs. Historical High-Low Levels
(in percent, since 1998)



29. **Staff proposes to phase the investment of the passive tranche of the endowment portfolio over a 3-year period.** In light of the above considerations, the case for phasing high-quality fixed income instruments would currently appear to be equally strong as the case for phasing the (generally more volatile) other asset classes of the SAA. Moreover, a case can be made to phase over a somewhat longer period than suggested by typical valuation cycles.³² The proposed strategy also needs to provide some flexibility to temporarily suspend new investments in the event of exceptional market conditions (which would be expected to be very rare). Taking account of these considerations, the following strategy is proposed for the initial investment of the endowment's core, passively managed portfolio:

- ✓ The phasing of all asset classes would take place over a 3-year horizon.
- ✓ In the case of exceptional market conditions, the Managing Director could decide to temporarily suspend the phasing, or to extend the phase-in period by up to one year.³³

³² Looking at two historical adverse outcomes, one around the time of the first oil price shock (April 1973–December 1975), the other during the global financial crisis (April 2008–December 2010), the average duration of returning to the previous peak level for a portfolio replicating the SAA was about 2 ½ years.

³³ Exceptional market conditions include major disruptions in global asset markets as well as more localized market developments that would make the envisaged baseline phasing strategy a clearly sub-optimal approach. The Board would be informed promptly of any deviations from the 3-year-baseline phasing approach. In arriving at her decisions, the Managing Director is expected to draw on the views of the Investment Oversight Committee, in line with the governance framework described in SM/12/111 (5/31/12).

- ✓ Phasing would take place in equal quarterly installments of about SDR 350 million (for the passive tranche); in the event of suspending or extending of phasing, the rephasing would also be in equal installments.
- ✓ Pending investment in the SAA, gold-sales profits would be placed in highly-rated, developed-market fixed income instruments or fixed-income instruments offered by the BIS.³⁴

30. **Phasing raises the issue of how performance is assessed during the initial period.** Staff envisages that the portion invested along the lines of the SAA would be subject to the performance benchmark applying to the SAA. The remainder of the portfolio would be invested on an interim basis in fixed income instruments and deposits, as noted above.

E. Policy Bands and Portfolio Rebalancing

31. **In previous discussions, Executive Directors broadly supported mechanistic, rules-based rebalancing and the use of policy bands.**³⁵ Rebalancing can help to keep the portfolio within the broad risk parameters endorsed by the Board. Against this background, Directors supported an approach where rebalancing would take place annually, and provision would also be made for intra-year rebalancing if pre-set policy bands were breached. Most Directors supported the staff proposal that the bands used to trigger intra-year rebalancing be set at +/- 10 percentage points for each major asset class (+/- 5 percentage points for the smaller-weight asset classes of emerging market bonds and equities as well as REITs), but a few Directors preferred narrower bands. This section responds to the call for further work on these issues.

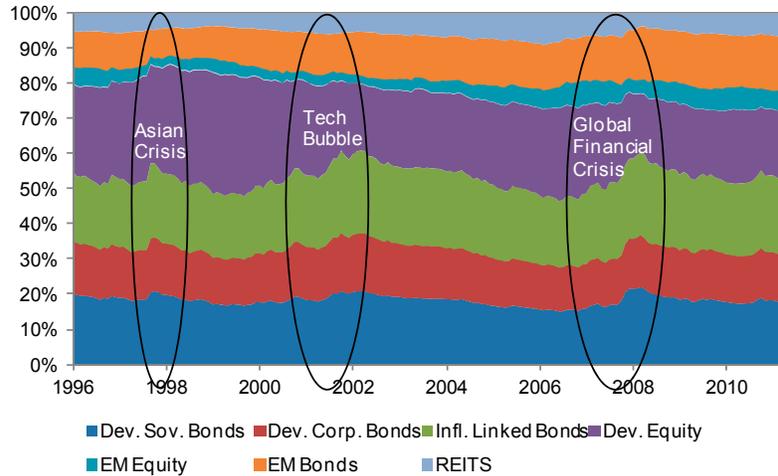
32. **Portfolio rebalancing is a common risk management mechanism.** This technique involves the adjustment of the share of asset classes to realign the portfolio with SAA weights. It is an essential tool of risk control, particularly in the case of predominantly passive investment strategies. As asset prices change over time, their share in the portfolio tends to drift away from long-term policy allocations. The point is illustrated in Figure 8 below: if the portfolio was initially invested in 1997 and never rebalanced, the asset shares would now deviate substantially from the SAA (for example, the share of developed-market

³⁴ This would mirror the approach currently applied to the interim investment of the gold-sales related profits, with the purpose of avoiding nominal losses and ensuring the portfolio's liquidity to fund the phasing-in of investments. Instruments will include those currently eligible for the reserves portfolio: government and government agency bonds of member countries whose currencies constitute the SDR basket; bonds issued by international financial institutions; and medium-term instruments and deposits of the BIS in SDR and SDR basket currencies. Market conditions permitting, the duration of these instruments is likely to mirror the timing of their use. See also *Annual Report of the Investment Account* (EBS/12/105, 8/7/12), paragraph 16.

³⁵ See *Broadening the Fund's Investment Mandate—Additional Considerations* (SM/12/111, 5/31/12).

equities would have fallen from 25 to 20 percent by 2012 and emerging market debt would have risen from 10 to 16 percent).

Figure 8. Asset Weights Assuming the Portfolio is Never Rebalanced (1997–2012)



33. **For the endowment, regular annual rebalancing would be expected to strike an appropriate balance between risk and cost considerations.** An extreme solution to limit any risk of deviating significantly from the SAA would involve very frequent, say monthly, rebalancing of the portfolio. This approach, however, would generate very high turnover and is neither cost effective nor efficient (Figure 9).³⁶ A more common practice is to accept some degree of policy drift (or tracking error), possibly subject to policy bands, as discussed below. The impact of different regular rebalancing frequencies on portfolio risk and return characteristics broadly supports a one-year frequency, as previously discussed by the Board, as it would limit policy drift while slightly improving returns when compared to a portfolio that is never rebalanced (Table 3).³⁷

34. **Directors have also discussed policy bands whose breach would trigger intra-year rebalancing.** With annual rebalancing providing the main risk mitigation tool, the width of the policy bands is ultimately an expression of the risk tolerance of the Executive

³⁶ Transaction costs are difficult to estimate for each asset class included in the SAA. Costs vary widely across markets and depend, among other factors, on transaction size, market access by portfolio managers, as well as the degree of liquidity and volatility of the market. Using estimates provided by Barclays and JP Morgan, transaction costs could reduce portfolio returns by as much as 11 basis points (annualized) with a monthly rebalancing frequency. Estimated transaction costs would be less than half for an annual rebalancing.

³⁷ Over the period since 1998, the average return of the portfolio, net of transaction cost estimates, would have been 7.66 percent, assuming an annual rebalancing, compared to 7.35 percent with a monthly rebalancing and 7.14 percent if the portfolio was never rebalanced. The improved return profile reflects that rebalancing forces investors to sell assets that have gone up in value (and may thus be relatively expensive) and buy those whose value has dropped (and may thus be relatively cheap).

Board to intra-year deviations from the SAA. Very narrow bands would result in relatively frequent rebalancing and entail significant costs. Very wide bands, on the other hand, could in principle allow substantial intra-year deviations from the Board-endorsed SAA—although deviations would tend to be more limited for the conservatively diversified portfolio than for portfolios of institutional investors that hold more volatile asset classes.

35. **As requested by a few Directors during the last meeting, staff has undertaken further work on the appropriate width of policy bands.** Table 4 summarizes the implications for intra-year rebalancing, using alternative band width assumptions and historical data (all simulations also assume annual rebalancing). For example, a 2 percent band around the mid-point policy weight of the SAA would have generated a breach in developed and emerging market equities in almost twenty percent of the years. The previous staff proposal (+/- 10 percent and +/- 5 percent for smaller-weight assets) was broadly in line with industry practice, particularly when some limited scope of active risk is permitted. On a passively managed portfolio, it would have largely avoided intra-year rebalancing and transaction costs. Excessive turnover and cost associated with intra-year portfolio adjustments would also have been avoided with a somewhat narrower, +/- 8 percent band (+/- 4 percent for smaller asset classes). These results suggest that somewhat narrower bands for intra-year adjustments could also be considered without significant implications for portfolio performance. The band widths could be revisited in the future as experience is gained.

Figure 9. Annual Turnover with Different Rebalancing Frequencies

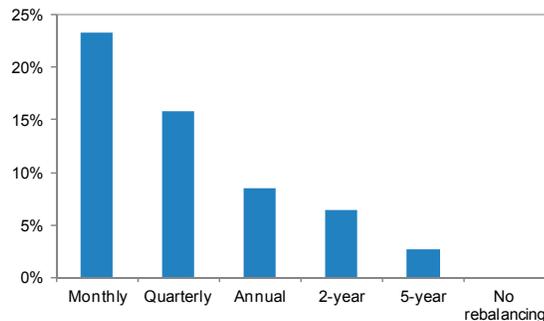


Table 3. Portfolio Risk and Return Statistics with Different Rebalancing Frequencies
(In percent)

Rebalancing Frequency	Monthly	Quarterly	Annual	2-year	5-year	No rebalancing
Mean Return (Annualized)	7.35	7.51	7.66	7.74	7.27	7.14
Standard Deviation (Annualized)	8.88	8.83	8.69	8.79	8.52	8.79
95% VaR	-3.38	-3.28	-3.27	-3.24	-3.37	-3.34
99% VaR	-7.08	-7.02	-6.81	-7.07	-7.07	-7.13
95% CVaR	-6.14	-6.07	-5.95	-6.02	-5.77	-6.02
99% CVaR	-10.09	-10.04	-9.61	-9.71	-9.70	-10.33
Estimated Transaction Cost Impact on Returns	-0.11	-0.07	-0.04	-0.03	-0.01	0.00

Sources: Bloomberg, Datastream, staff calculations.

36. **On balance, with respect to the passive core portfolio, staff proposes to combine annual rebalancing to the SAA with the use of policy bands of +/- 8 percent (+/- 4 percent for smaller asset classes).** Historical analysis suggests that this should provide a reasonable risk-return balance for the endowment. The policy bands would be somewhat tighter than those used by most institutional investors. However, such bands would seem consistent with the general risk characteristics of the portfolio, which also entail less risk of losses than assumed by a typical larger institutional investor. In any case, as long as assets remain within the pre-determined bands, their weights would be brought back to the SAA every year. To minimize transactions costs, it is envisaged that the annual rebalancing takes place in the context of the Fund's annual income disposition decisions; or at end-July of each year, if no such dispositions affecting the endowment take place.³⁸

37. **The strategy for the small actively managed tranche of the endowment will be developed separately with Board consultation.** The above parameters would govern the bulk of the endowment, which will be invested passively. For the actively managed portion, further consultations with the Executive Board will be needed as described in paragraph 10.

³⁸ To limit transactions costs, the annual rebalancing would not take place if an intra-year rebalancing occurs within 3 months of the scheduled annual rebalancing. The specific operational modalities for the intra-year rebalancing will be developed in the period ahead, taking into account best industry practice. In deciding on these modalities, the Managing Director is expected to draw on the views of the Investment Oversight Committee (see SM/12/111, Section IV). At the same time, and with a view to limit actual and perceived conflicts of interest, all specific asset sales and purchases will be taken by external managers, and specific rules for rebalancing will be set out in the mandates for external managers.

Table 4. Minimum and Maximum Observed Asset Weight with an Annual Rebalancing and Frequency of Breach of Policy Bands around SAA Weights
(In percent, since 1997)

Asset	Developed Market Sovereign Bonds	Developed Market Corporate Bonds	Inflation Linked Bonds	Developed Equities	Emerging Market Equities	Emerging Market Bonds	REITs
SAA Weight	20	15	20	25	5	10	5
Min. Observed Weight	18	14	18	18	3	7	3
Max. Observed Weight	26	17	23	28	7	11	6
<u>Frequency of Policy Band Breach 1/</u>							
2 percent band	5.9	0.0	2.2	18.9	18.4	5.9	4.9
5 percent band	1.1	0.0	0.0	2.2	0.0	0.0	0.0
8 percent band	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10 percent band 4/	0.0	0.0	0.0	0.0	0.0	0.0	0.0

1/ The band for emerging market bonds and equities and REITs is half the size of the band for other asset classes.

F. Payout Policy

38. **In previous discussions, Directors saw merit in a conservative approach to payouts in the early stages of implementing the endowment.**³⁹ Staff's analysis had suggested a cautious approach to payouts to help build a buffer and preserve the real value of the endowment—especially in the early period, when investments were being phased in and when current yields and most forward-looking indicators suggested that the portfolio is unlikely to meet its longer-run return target. Against this background, a number of Directors pointed to the possibility of delaying the initiation of payouts, if warranted. This section responds to Directors' request for further staff analysis on these issues.

39. **A payout rule can provide a robust mechanism to support the endowment's financial objectives.** In contrast with annual ad hoc decisions, rules-based payouts can help balance the interests of current and future stakeholders, and provide some predictability of future payout levels. The industry uses a wide array of payout rules, often based either on (i) a fixed nominal or real annual payout amount; (ii) a fixed percentage of the portfolio's asset value; (iii) a share or all of the annual income flow (interest and dividends); or (iv) some combination of these rules (see Appendix II). Such rules can have a material impact on portfolio performance over time and the portfolio's robustness to shocks.

40. **Staff proposes that the details of the payout policy should be considered once the endowment is fully invested.** In the interim transitional period, no payouts would be made with the aim of safeguarding the real value of the endowment during the period when it is not fully invested. As noted above, present market valuations indicate very low near-term returns

³⁹ See *The Acting Chair's Summing Up—Broadening the Fund's Investment Mandate—Additional Considerations* (BUFF/12/175, 6/27/12).

for the endowment's SAA. Moreover, returns during the phase-in period will be affected adversely as the un-invested portion of the endowment would be placed in low-yielding developed-market fixed income instruments or fixed-income instruments offered by the BIS. Taken together, it could prove difficult to preserve the real value of the endowment—one of its key objectives—during the phase-in period, even if no payouts were to take place. It would become even more challenging if the aim were to build up a cushion that could safeguard the endowment's earning's capacity through adverse scenarios, as several Directors had suggested.

41. **Staff would propose to return to the issue of an appropriate payout rule toward the end of the phase-in period of the passive core portfolio.** Given the relatively robust outlook for lending income in the next few years, such an approach is not expected to have a significant effect on the Fund's ability to cover its administrative expenditures.⁴⁰ This approach could, however, be revisited if warranted in light of the investment performance of the endowment and other developments.

G. Use of Minimum Credit Thresholds

42. **Previous work has highlighted the potential for perceived conflicts of interest between the Fund's investment and its other activities.** The 2008 external review of Fund's conflict of interest and governance arrangements by the international law firm Wilmer Hale identified increased risks of actual or perceived conflicts of interest from investments in "specialized asset classes"—including securities of members to whom the Fund is providing or is likely to provide financial assistance.⁴¹ While the use of external managers for all specific investment decisions in government securities, together with other elements of the envisaged governance framework, would mitigate most of these concerns, the potential for perceptions of impairment of the Fund's advice and lending decisions could still arise in cases involving the holdings of sovereign bonds of members receiving Fund financing—in particular if these bonds were to become distressed.

43. **There are different options to address such conflict risks, each with their own pros and cons.** As discussed in the previous paper, one option would be to use minimum credit ratings for sovereign bonds, based on ratings of external ratings agencies; holdings in such assets would then have to be divested, once the minimum rating threshold is breached. It was agreed in the June discussion that staff would further explore this issue. Several possible approaches could be considered:

⁴⁰ See *The Consolidated Medium-Term Income and Expenditure Framework* (EBAP/12/38, 4/12/12).

⁴¹ The Wilmer Hale report was circulated to the Board as SM/08/48, Sup. 1 (2/08/08).

- **Use of external credit rating agencies.** The use of minimum credit ratings by these agencies can provide a clear ex ante signal that would alleviate the potential for conflicts of interest. It is a widely adopted strategy by central banks and other institutional investors, and is used already for the IA and Trust Assets (see below). However, concerns have been raised that the wide-spread use of credit ratings in by foreign reserve managers and in the asset management industry risks feeding procyclical behavior, to the extent that creditors are forced to divest their holdings at the same time when other investors, applying similar ratings thresholds, would also divest. The Fund has highlighted these concerns and its Global Financial Stability Report has called on policymakers to continue their efforts to gradually reduce their reliance on external credit ratings systems, to the extent possible.⁴²
- **Ratings by external managers.** Relying on the internal ratings of the Fund’s external managers could in principle provide an alternative approach, to the extent that the managers operate such systems based on their own risk assessments. However, external managers often use external credit ratings as one relevant input into their systems, so the practical benefits in terms of reduced procyclical behavior is not clear cut. More importantly, such an approach would represent a potentially significant departure from the agreed passive approach (as managers would be taking active decisions vis-à-vis the benchmark) and would reduce the key protection that minimum credit rating thresholds provide to the Fund against potential conflicts of interest. It would also likely increase manager fees and require staff to assess the effectiveness of the manager’s risk assessment process.
- **Internal ratings by Fund staff.** Some investors have developed their own internal credit ratings system as a guide to investment decisions. While they may use external ratings as one of the inputs, they also involve an in-house analysis of an issuer’s financial health. However, this approach would not be practical for the Fund’s endowment: an internal ratings system managed by Fund staff would provide market signals when external managers are instructed to sell (or buy) securities. Moreover, it could also raise important conflict of interest issues.

⁴² Most of the information value of credit rating agencies and their influence on market prices is delivered through *outlooks*, *reviews* and *watches*. Actual rating changes also matter and can cause acute market reactions, particularly when they cross the investment-grade threshold (BBB-). Since this level is most often used by investors as a trigger for immediate liquidation, its breach can lead to “cliff effects” in prices and spreads. For a further discussion, see *The Uses and Abuses of Sovereign Credit Ratings*, IMF, Global Financial Stability Report October 2010. On the topic of procyclicality, see also Gärtner, Manfred and Griesbach, Björn (2012), *Rating Agencies, Self-fulfilling Prophecy and Multiple Equilibria? An Empirical Model of the European Sovereign Debt Crisis 2009–2011*, Economics Working Paper Series 1215, University of St. Gallen, School of Economics and Political Science.

- **Divestiture for all Fund supported programs.** This rule would not be based on credit assessments, but would *a priori* set out a divestiture requirement once a member enters into a Fund-supported program (excluding FCLs and possibly PLLs, or limited to drawing arrangements). However, earlier staff work had already argued against such an approach, noting that it could exacerbate market pressures and thus undermine the effectiveness of Fund-supported programs.⁴³ Alternatively, sovereign holdings could be frozen when a member enters into a Fund program. However, the continued holdings by the Fund of such instruments would imply an ongoing risk of a perceived impairment to the Fund’s policy advice and lending activities, particularly should the sovereign debt become distressed. Moreover, a “freeze-all-holdings-rule” could, over time, result in a maturity profile that deviates substantially from the endowment’s benchmark portfolio and its associated risk profile. These deviations would hamper an effective performance assessment of external managers.

44. **Staff proposes the use of minimum credit rating thresholds for the endowment.**

Such an approach could play an important role in addressing potential conflicts of interest between the Fund’s investment and its other activities. It is also aligned with the current Board approved practice for IA and Trust Asset resources.⁴⁴ Two elements are proposed in order to address the concerns about potential procyclical behavior, as discussed further below. First, external managers would be provided with a relatively long divestiture period, after ratings thresholds have been breached. Second, the proposed ratings threshold for sovereign bonds would be higher than the minimum investment grade threshold used by many investors (and which therefore entails the highest risk of procyclical “cliff effects”).

45. **A judgment is needed on the level of the rating threshold for sovereign bonds.**

While a relatively high threshold can be expected to insulate the endowment from holdings in most (and possibly all) Fund program cases, it would also limit diversification and opportunities for prospective returns, with potentially important drawbacks for the endowment’s financial objectives. These issues are captured in Figure 10, which shows the coverage of sovereign bonds for alternative ratings thresholds:

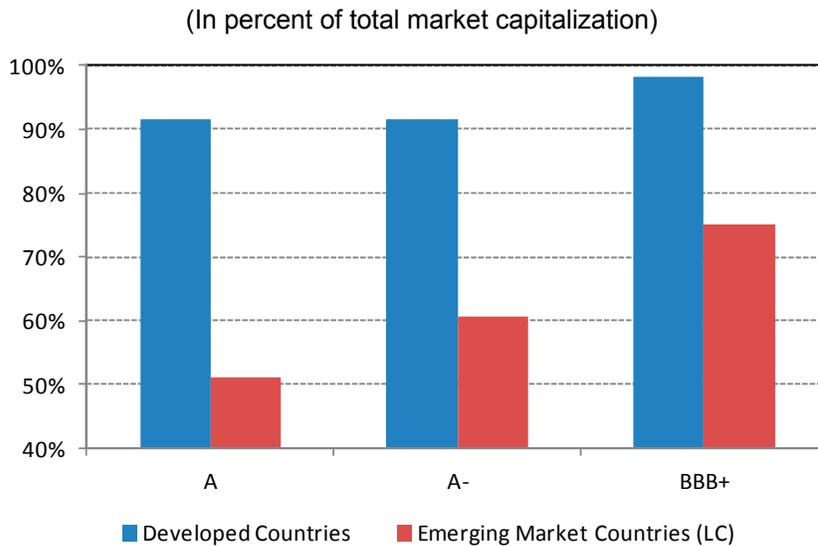
- **Threshold of A:** This threshold, which currently applies in the IA, would seem incompatible with the financial objectives of the endowment. While it could be

⁴³ See *Developing a New Income Model for the Fund—Additional Considerations* (SM/08/48, 2/8/08).

⁴⁴ Under current investment practices, IA and Trust assets have a minimum credit rating equivalent to S&P’s A rating.

expected to eliminate most program-related conflicts of interest,⁴⁵ it would exclude sizable segments of the global bond market, including most emerging markets.

Figure 10. Coverage of Local Currency Bond Indexes for Advanced and Emerging Market Countries by Credit Rating Threshold



Sources: Fund staff calculations, based on Barclays and JPMorgan global bond index weights. Ratings are based on the S&P classification system.

- **Threshold of A-:** The lowest A grade rating would provide little additional diversification relative to the A threshold, and still severely limit the eligible instruments, especially for emerging market sovereigns.
- **Threshold of BBB+:** Compared with a minimum A-rating, this would cover several larger emerging market economies as well as additional advanced countries, allowing for significantly broader portfolio diversification. In the recent past, a BBB+ rating would also have excluded investment in the vast majority of Fund program cases with drawing arrangements, and all cases where debt was restructured.⁴⁶

⁴⁵ Over the past 15 years, the exceptions when a new Fund program was approved for a member whose debt was still rated A or higher relate to the local currency debt of Korea and Thailand in 1997, Ireland in 2010, and Poland in 2011.

⁴⁶ The threshold would have captured all drawing arrangements within three months of Board program approval, except for the case of Ireland in 2010 and local currency debt of Iceland in 2008. Moreover, no sovereign has entered into a debt workout within six months of being rated BBB+ (or higher). This analysis is based on combined ratings of Fitch, Moody's, and S&P. In the case of split ratings, the mid-point of the three credit rating agencies is used as a reference.

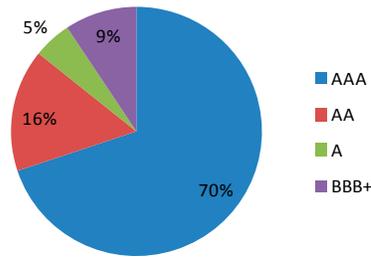
- **Threshold of BBB-:** Using the lowest investment grade rating (BBB-) as the threshold would significantly broaden the coverage of potential investments but would also historically have increased substantially the chance of holding the sovereign bonds of countries implementing Fund-supported programs.

46. **On balance, staff proposes a minimum rating threshold equivalent to BBB+ for sovereign bonds, coupled with relatively long divestment periods if the threshold is breached.** To ensure a sufficiently broad diversification of sovereign bonds (which will constitute a significant portion of the portfolio) while containing conflict of interest risks, it is proposed to set a minimum rating equivalent to BBB+ (S&P's ratings scale) for sovereign bonds.⁴⁷ The Managing Director would specify a rules-based approach to deal with cases of split ratings between agencies. Under this approach the endowment's sovereign fixed income portfolio would be allocated predominantly to high credit quality assets (Figure 11).⁴⁸ External managers would be given a 3-month window to divest the bonds after the threshold is breached. This period is somewhat longer than the typical divestiture period in the industry (which varies between a few weeks to some 2 months) and is meant to further alleviate the concerns about pro-cyclical divestment behavior that has been associated with the use of credit ratings. Within these parameters, all specific timing decisions would be taken by external managers.

⁴⁷ For the purposes of the SAA benchmark, the categorization of bonds as sovereign bonds is determined by the specific benchmark index selected by the Managing Director, and could include government bonds, government-agency bonds, and bonds of international financial institutions. Respective weights would be benchmark-driven.

⁴⁸ In line with the portfolio's general approach to containing financial risks, it is proposed that investments in corporate bonds also be subject to the minimum threshold, in this case investment grade equivalent to S&P's (BBB-). The threshold is lower than the one proposed for sovereigns, where conflict of interest issues are more pronounced, as discussed above. To manage risk, many investors also use exposure limits, either by country/region or issuance. However, for the passively managed assets in the endowment, the size of the Fund's own holdings of a given security or issuer would be guided by its relative share within the benchmark index. It would be a very small portion of the amounts outstanding, and further limits would be inconsistent with the approach of passively tracking benchmark indices as broadly endorsed by the Executive Board. For the actively managed portfolio, the Board will be consulted on these considerations in the future (§ 10).

Figure 11. The Endowment's Sovereign Fixed-Income Allocations by Credit Rating



Source: Based on JPMorgan Global Broad Index (GBI) for developed market, EMBI+ index for EM foreign currency-bonds and GBI-EM for local currency bonds.

III. CONCLUSIONS AND ISSUES FOR DISCUSSION

47. **This paper reviews the remaining strategic implementation issues for the gold-sales funded endowment.** Responding to requests from Directors for further staff work, the paper covers investment arrangements and external manager selection, the endowment's base currency, deflator, and currency hedging; phasing of the initial investment as well as portfolio rebalancing; payout policies; and the role of credit ratings thresholds. Specific proposals in each area are reflected in the proposed new Rules and Regulations, submitted for Executive Directors' approval in a companion paper.

48. **In this context, Directors may wish to comment on the following issues:**

- i. Do Directors support the general principles for investment management and external manager selection as set out in Section II.A? With the core portfolio to be passively managed, do they agree that the actively managed portion should be strictly limited to no more than 10 percent of total assets (and initial funding of 5 percent of total assets)?
- ii. Do Directors agree that using the U.S. dollar as the base currency and a deflator linked to the Fund's administrative expenditures would best align these parameters with the endowment's financial objectives? With a view to limiting the impact of currency volatility on portfolio returns, do they support the proposal to hedge currency exposures for the portion of the passively managed portfolio invested in fixed-income assets and denominated in non-U.S. dollar developed-market currencies?
- iii. Do Directors agree that investments in the core passively managed portfolio should be phased over a 3-year period? Do they agree that payouts from the endowment should not be initiated during the phase-in period?

- iv. Do Directors support the proposal that the core passive tranche of the portfolio should be rebalanced annually, or more frequently if relatively narrow policy bands (+/- 8 percent, and +/- 4 percent for small-weight asset classes) are breached?
- v. Do Directors agree that a minimum credit rating threshold of BBB+ should be applied to limit conflict of interest risks associated with sovereign bonds, along with a maximum divestiture period of 3 months?

Appendix I. Accounting and Financial Reporting for the Endowment

Background

- 1. The Fund’s reporting of financial instruments is currently guided by IAS 39, following International Financial Reporting Standards (IFRS).** Under current standards, IAS 39 (Financial Instruments: Recognition and Measurement) provides guidance on financial reporting for the financial instruments in the SAA, i.e., equities, debt securities (bonds) and real estate investment trusts (REITs). IAS 39 requires that financial assets be classified in one of several categories: assets held for trading or designated at fair value through profit and loss, held-to-maturity instruments, available for sale financial assets, and loans and receivables. The classification of assets determines the measurement basis. Held-to-maturity investments and loans and receivables are measured at amortized cost while the other classifications are measured at fair value.¹
- 2. Going forward, the Fund’s reporting will be subjected to new reporting standards for the reporting of financial instruments under IFRS.** A new standard, IFRS 9 (Financial Instruments), will replace IAS 39 with only two classification categories: amortized cost or fair value.² Classification under IFRS 9 depends on the entity’s business model (intent) for managing the assets and the assets’ contractual characteristics. A financial asset is measured at amortized cost if two criteria are met: (i) the objective of the business is to hold the asset for collection of the contractual cash flows, and (ii) the contractual cash flows under the instrument solely represent payments of principal and interest. Consequently, under IFRS 9 equity investments should be measured at fair value. Designation of the classification is made upon initial recognition of the financial assets, with strict conditions for any reclassification between categories (changes are expected to be infrequent). IFRS 9 prohibits reclassifications except in rare circumstances when the entity’s business model changes.³

¹ Fair value is the price that would be received (or paid) in an orderly transaction between market participants. Amortized cost is the amount at which an instrument is measured at initial recognition, less principal repayments; and adjustments for (i) the cumulative amortization of any difference between the initial amount and the maturity amount, or (ii) any reductions for impairment or uncollectibility.

² IFRS 9 becomes effective for annual periods beginning January 1, 2015, but earlier adoption is permitted.

³ IAS 39 prohibited reclassification of an instrument into or out of the fair value through profit and loss category while it was held or issued. This restriction prevented “cherry picking” of selective changes in the fair values.

Current Practice

3. **Assets in the Investment Account (IA) are designated as financial assets and recorded in the Fund’s financial statements at fair value.** Following its establishment in June 2006, the IA comprised primarily fixed-income securities, i.e., domestic government bonds of countries in the Euro area, Japan, the United Kingdom, and the United States; bonds of international financial organizations; and claims on the Bank for International Settlements (BIS). These assets were designated as financial assets held at fair value through profit and loss, consistent with the IA’s governance structure under which external asset managers are entrusted with buying and selling securities in accordance with the IA’s investment guidelines and benchmark. Monthly rebalancing operations (buying and selling of securities) are conducted in order to maintain the currency composition of the assets in line with the SDR basket and the maturity structure aligned with the portfolio’s benchmark. The fair value basis for financial reporting is also consistent with the performance measurement and reporting to the Executive Board, i.e., market values of the IA assets.

Proposed Practice for the Endowment

4. **The proposed accounting treatment for the endowment is to record securities held at their fair value under IFRS 9.** Given the predominantly passive nature of the endowment, external managers will be expected to replicate changes in benchmark indices selected for each asset class of the SAA. This will imply that external managers will conduct small but regular transactions to align the composition of the portfolios with the SAA, both within and across asset classes. This requirement makes a held-to-maturity option unsuitable for debt securities, notwithstanding its apparent advantage of reducing the volatility in the Fund’s income.⁴ As noted in paragraph 2 above, equities and REITs would need to be reported at fair value. The proposed accounting treatment for the endowment is consistent with the approach selected for the IA’s reserves portfolio (labeled “Fixed Income Subaccount” in the companion paper).

5. **Under this accounting treatment, all gains and losses would be reflected in the income statements for the reporting period.** As noted in Box 2, under IFRS all unrealized and realized gains and losses (from changes in their local currency market values and/or exchange rates) during the reporting period are included in the computation of net income. Earnings from the gold profit portfolio from inception through end-FY 2012 (SDR 33 million), have been retained in the IA and not transferred to the GRA. It is anticipated that the same accounting treatment will continue during the phase-in of the initial

⁴ Given the IFRS presumption of an “infrequent” need to sell securities prior to maturity under the held-to-maturity classification, lengthening of the rebalancing periods to accommodate the standard’s requirements would introduce greater exposure to exchange rate risk and could result in divergence from the envisaged benchmark and tracking error limits.

investment of the endowment, with staff proposing to delay payouts during this period (see Section II.F). Staff will revert to the Board and present broader options before the end of the phase-in period.⁵

⁵ The options include a continuation of the current approach to retain earnings in the gold-sales funded endowment of the IA, or the two-step transfer approach for the non-gold portfolio in the IA, where all portfolio earnings are initially transferred to the GRA to increase GRA net income and reserves, and then a second transfer is made of currencies from the GRA (representing available net income) to the IA, consistent with the objective of the IA to generate returns in excess of the SDR interest rate. This second approach, if also applied to the gold-sales funded endowment in the IA, would maintain coherence between the level of invested IA assets and GRA reserves.

Appendix II. Payout Rules

1. **A pre-determined payout rule can be an important element of a robust governance framework and help achieve the endowment's financial objectives.** A rules-based approach is widely used by endowments and considered best practice. It provides a clear and robust mechanism for balancing the interests between current and future stakeholders in a way that can support an endowment's financial objectives. For the gold-sales funded endowment, two objectives are relevant in this context: (1) maintaining the real purchasing power of the resources over time; and (2) providing a substantial contribution to financing the Fund's administrative expenditure, as envisaged in the context of the 3 percent real return target that has been broadly supported by Executive Directors. These goals can sometimes come into conflict, particularly during swings in market valuations, and need to be balanced in the design of the payout rule. While Section II of the main text proposed that payouts do not begin until the end of the phase-in period for investments, it is still helpful to look at the potential design of a long-run payout rule. Staff would come back to the Board with specific proposals before the end of the phase-in period.

2. **Several approaches are possible for the design of a long-run payout rule.** In this context, practices in the payout rules of institutional investors differ considerably. In broad terms, some of the commonly-used rules link the annual payout to the value of the portfolio itself (especially Rules R1 and R2 below), allowing for fluctuations in the payout amounts as the portfolio value changes; by contrast, other rules preset the payout amount, regardless of the portfolio value (Rule 3). Rules combining these considerations (Rule 4) or linking the payout to the portfolio's income flows (Rule 5) are also used in the industry:¹

- **R1: Fixed percentage payout.** This would involve transferring a fixed percentage (say 3 percent) of the beginning-period market value of the portfolio to the GRA as income. The rule would be closely aligned with the return target of the portfolio, but could result in significant year-to-year fluctuations in real payouts, as the portfolio value changes.
- **R2: Moving average of fixed percentage payout.** The income transfer could be stabilized to some extent by basing the payout on a trailing (e.g., 3-year) average of the portfolio value. While the implications are broadly similar to R1, the payouts would tend to be less volatile.

¹ According to the *2010 NACUBO-Commonfund Study of Endowments*, 90 percent of US Educational Endowments use one of the rules listed in this section; other institutions decide on the payout each year. A smoothing rule like R2 was the most commonly used approach and was employed by some 75 percent of surveyed endowments.

- **R3: Constant real spending rule.** The income transfer would be a fixed (real) value per annum, regardless of the portfolio's value and performance.² Alternatively, some institutions have adopted a banded inflation method whereby the pay-out amount set by R3 is capped by an upper limit to avoid excessive spending (e.g., it cannot exceed a set percentage of the market value of the portfolio) and supported by a lower bound (e.g., a minimum percentage of the market value will be paid out).
- **R4: Hybrid rule.** In striving to achieve stable spending and the preservation of purchasing power, some large endowments set the spending level as a weighted average of the prior year's spending (R3) and the market value of the portfolio (R1).³ As a result, the payout would gradually adapt to changes in market value, with the adaption speed depending on the choice of weights between the two components of the hybrid rule.
- **R5: Income-based spending rule.** This rule would entail transferring the annual income stream from dividends and coupons to the GRA as income. As noted in previous staff work, income is an important driver of long-run asset returns,⁴ and a spending rule based on income could possibly build on these considerations.

3. **Payout rules can have a material impact on annual payout amounts and on the portfolio's asset value over time.** These issues are illustrated below by simulations of the historical performance for the "conservative diversified" portfolio, as broadly endorsed by the Board. All simulations use historical return data and are based on a 3 percent payout, using rules R1–R5 discussed above (Figure AII.1; for R5, the assumptions are detailed in the footnote to Figure AII.1). The results illustrate the considerable payout volatility associated with rule R1 in periods when asset valuations fluctuate sharply. A smoother payout path is achieved under rules R2 and R4 and, of course, a constant (real) payout is embedded in rule R3. Portfolio values fluctuate also considerably across the different payout rules, and some of the rules entail the risk that the real portfolio value could be eroded over time.⁵ Different

² For the purpose of the simulations below, the U.S. CPI is used as the price deflator.

³ A hybrid rule was originally developed by James Tobin for the Yale endowment. Yale's current rule sets the transfer equal to 80 percent of the average of prior spending adjusted for inflation and 20 percent of the amount that would have been transferred based on a fixed payout rule. According to the Commonfund Institute "(...) anecdotal evidence indicates that more institutions are considering moving away from the moving average spending formula toward inflation-based and hybrid models."

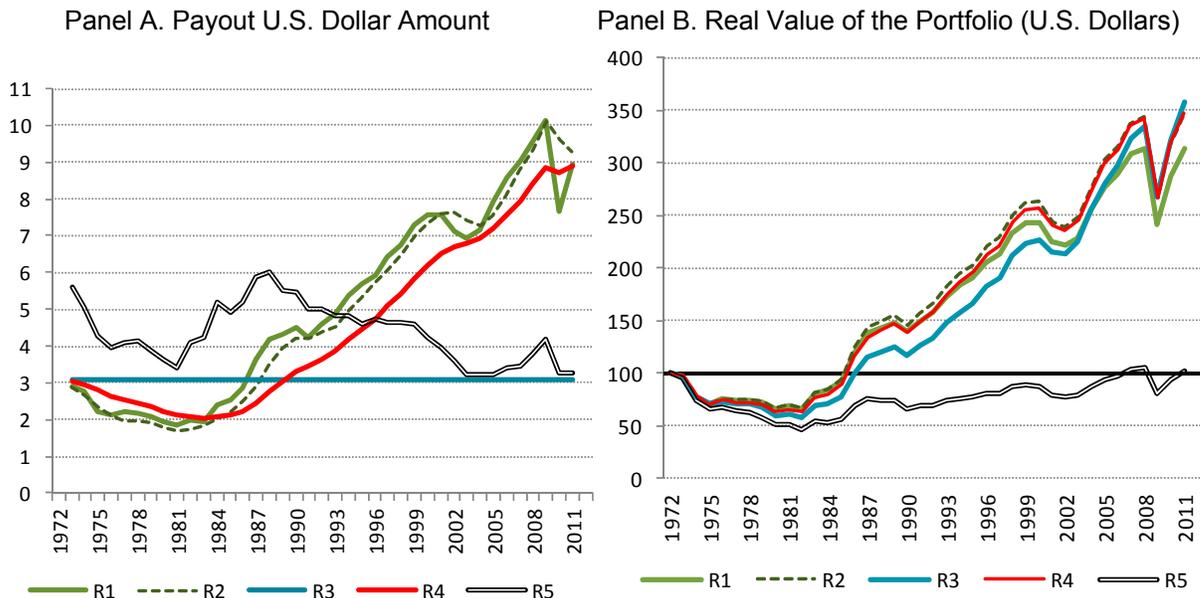
⁴ See *Asset Allocation under a Broadened Investment Mandate—Preliminary Considerations* (SM/10/306, 12/01/10).

⁵ Panel B of Figure A.II.1 illustrates that the real value of the portfolio employing the proposed SAA would have increased significantly over the long run under all but one of the payout rules (the exception being rule R5). This is consistent with earlier staff papers, which noted that the real return of the SAA allocation would have exceeded 3 percent over the period since 1970. However, current market valuations indicate considerably lower returns going forward than those observed historically.

payout rules also imply different hedging properties with the Fund's lending income, but the relationship has not been very stable (Figure AII.2).

4. **The previously described rules could be combined with a stop-loss provision to limit the risk that spending erodes the real value of the portfolio.** These provisions are particularly relevant in difficult market environments such as the 1970s, when all of the above mentioned rules would have eroded further the real value of the portfolio. Under this approach, a payout rule would generally apply but the Board could have the option to suspend payouts following (possibly several years of) significant negative returns. The suspensions would have to be balanced with the need for net distributions of income in that particular year.

Figure AII.1. Pay-Out Under Different Spending Rules
(U.S. dollar, 1972–2011, real values based on initial portfolio value of 100)

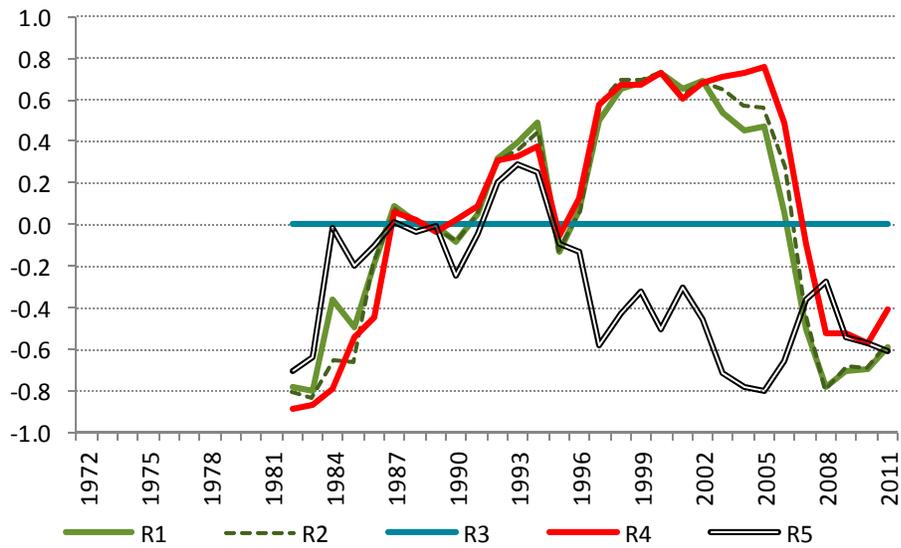


Sources: Datastream, Bloomberg and staff calculations

1/ R5 income estimation based on a 70/30 portfolio and average dividend and coupons. Dividend yields extracted from S&P 500 before 1995 and from the MSCI World after 1995. Coupon rates are obtained from Barclays Aggregate indices.

5. **The Board is expected to discuss specific proposals for a long-run payout rule before the end of the phase-in period.** As described in Section II.F, staff proposes to delay payouts during the initial phase-in period of the endowment. It is expected that the future work on a long-run payout rule would build on the options presented in this section as well as evolving industry practice.

Figure All.2. Moving 10-year Correlation between
Net Income and Pay-Outs (real values) 1/



Sources: Datastream, Bloomberg and staff calculations.

1/ Represents net income/loss of the General Resource Account and a payout amount for a simulated conservatively diversified portfolio under different payout rules (see Figure A1). The annual income figure for FY 2000 excludes the cumulative effect of the adoption of IAS 19, and net income for FY 2010 excludes profits from limited gold sales.

Appendix III. Phasing of the Investment Strategy

Background

1. **As discussed in Section II.D, phasing is an attempt to mitigate the likelihood of adverse outcomes in the initial years by avoiding entering markets at inopportune moments.** By investing capital over time rather than lump sum, phasing aims to reduce the average cost of market entry and the risks of investing when market valuations are high. Typically, phasing involves committing regular amounts of capital over pre-determined periods of time (“dollar cost averaging”). It is widely used in the investment industry.
2. **Academic evidence on the benefits of phasing yields mixed results but provides some useful guiding principles:**
 - While phasing can reduce the probability of adverse outcomes, it also tends to entail opportunity costs, as assets which are not yet invested are essentially placed in safe (and low yielding) instruments such as short-duration bonds or deposits.^{1,2}
 - Several studies highlight that phasing reduces the probability, magnitude, and duration of large losses in the build-up period of a portfolio, particularly in the case of volatile assets and if the transitional phase is long enough.³ For example, Brennan, Li, and

¹ See Constantinides, G. M. (1979), “A Note on the Suboptimality of Dollar-Cost Averaging as an Investment Policy,” *Journal of Financial and Quantitative Analysis*, Vol. 14, pp.443–449.; Williams, R. E. and Bacon, P.W., (1993), “Lump Sum Beats Dollar-cost Averaging,” *Journal of Financial Planning*, April 1993, pp. 64–67; Knight, J. R. and Mandell, L., (1993), “Nobody Gains from Dollar Cost Averaging, Analytical, Numerical and Empirical Results” *Financial Services Review*, Vol. 2, 1993, pp. 51–61.; Rozeff, M. (1994) “Lump-Sum Investing versus Dollar Cost Averaging,” *Journal of Portfolio Management*, Vol. 20, pp.45–50.; Abeysekera, S., and Rosenbloom, E.S., (2000) ,“A Simulation Model for Deciding between Lump-Sum and Dollar-Cost Averaging,” *Journal of Financial Planning*, June 2000, pp. 86–96; Leggio, K., and Lien, D., (2001), “Comparing Alternative Investment Strategies Using Risk-Adjusted Performance Measures,” *Journal of Financial Planning*, January 2001, pp. 82–86.

² In unchanged market conditions, the cost-of-carry of a phased approach could be approximated by comparing bond and dividend yields to deposit rates (or short duration bond yields) where funds not yet invested in the equity-bond mix are placed. Changes in the valuations of bonds and equities increase or decrease this cost-of-carry, which is compounded over time. Some investors, such as Norway’s Government Pension Fund, report the ex-post cost-benefit of phasing to their authorities.

³ See Statman, M. (1995), “A behavioral framework for dollar-cost averaging,” *Journal of Portfolio Management*, Vol. 22, pp. 70–78., Milevsky, M. A., and Posner, S. E., (2003), “A Continuous-Time Reexamination of Dollar-Cost Averaging,” *International Journal of Theoretical and Applied Finance*, Vol. 6, pp. 173–194; Dobil, R. “Investment Averaging: A Risk-Reducing Strategy,” *Journal of Wealth Management*, Spring 2005, pp. 35–42; (2005); Brennan, M., Li, F., and Torous, W., (2005), “Dollar Cost Averaging,” *Review of Finance*, Vol. 9, pp. 509–535; Trainor, W., (2005), “Within Horizon Exposure to Loss for Dollar Cost Averaging and Lump Sum Investing,” *Financial Services Review*, Vol. 14, pp. 319–330; Dichtl, H., and

(continued)

Torous (2005), suggest that adverse timing risk could be reduced significantly, if the phasing period is relatively long, say at least 2–3 years. Shorter phasing periods, on the other hand, may not materially reduce this risk.

- A number of additional considerations are also noted in the literature. One consideration is whether phasing should be differentiated across asset classes. In particular, the benefits of phasing maybe most pronounced for asset classes whose valuations are relatively volatile and where the risk of entering the market in adverse conditions is comparatively high. Conversely, shorter or no phasing may be warranted for less volatile asset classes, where the opportunity costs of phasing (rather than risk considerations) could become the dominant consideration. Second, some authors have argued that phasing should take into account considerations related to asset valuation levels. This could involve accelerating the phasing when assets are viewed as trading at attractive valuation levels; and vice versa. While a debate continues if such exploitable opportunities exist, some empirical studies found evidence that the benefits of phasing are more noticeable when asset valuations are taken into account (e.g., Wessels, 2008).⁴

Empirical Back-Testing of a Phased Strategy

Data and methodology

3. **The performance of various phasing approaches was back-tested using historical data.** Back-testing can illustrate how a phased strategy would have reduced historically the probability of loss of the endowment in the initial years. While such calculations can help inform the decision process, it is important to recognize that back-testing has also well known limitations—for example, it depends on particular historical circumstances and relationships, which may not be stable over time, and it therefore does not necessarily provide a robust guide for present market conditions. These caveats should be kept in mind when assessing the following results.

4. **To draw on a relatively wide range of experiences, back-testing is undertaken for several historical time periods.** Performance is assessed over overlapping 5 year periods for an immediately and fully funded portfolio (lump sum) and for a portfolio funded quarterly over 1 through 5 years. The analysis is conducted over 3 different periods, with data limitations driving the respective asset choices:

Drobtz, W., (2011), “Dollar-Cost Averaging and Prospect Theory Investors: An Explanation for a Popular Investment Strategy,” *Journal of Behavioral Finance*, Vol. 12-1, pp. 41–52.

⁴ See Wessels, D., (2008), “The Investment Allocation Decision: Evaluating Phasing-In Strategies,” DRW Investment Research.

- ✓ *Period since 1998*: The proposed SAA of the conservatively diversified portfolio is used for a first set of simulations, covering the period since 1998;
- ✓ *Period since 1987*: Given data limitations prior to 1998, a simplified allocation of the SAA is used covering the last 25 years. It includes 40 percent in developed-market sovereign bonds, 25 percent in U.S. corporate bonds, and 35 percent in developed equities; and
- ✓ *Period since 1920*: A much longer time frame is considered in Box AIII.1, using data for the U.S. market since 1920.

Results

5. **The analysis confirms earlier studies that phasing reduces volatility and the frequency of loss, but at the cost of lower returns during the transition period.** This is true for risky assets, such as equities, and also, albeit to a lesser degree, at the SAA level. Using the data since 1987, the volatility of equities over 5-year periods decreases from about 6.5 percent to about 4.4 percent (Table AIII.1).⁵ However, this lower risk has an opportunity cost: on average, at the portfolio level, returns fell by about 0.3 percent for each additional year of phasing, as un-invested cash is placed in low yielding instruments (assumed to consist of 3-month deposits). The risk reduction of phasing is also noticeable over the shorter and more recent 1998–2012 period, during which equities experienced two sharp bear markets. The results also lend support to the view that the benefits of phasing are more pronounced if it takes place over an extended period. For example, at the portfolio level, the Sharpe ratio (often considered a measure of “efficiency”) declines until the phasing period is extended to at least 3 years (Table AIII.2).

6. **Phasing benefits were historically less evident for fixed income instruments.** Over the period since 1987, phasing over longer intervals tended to reduce somewhat the return volatility of government and corporate bonds (Table AIII.1). For the more detailed data used since 1998, the phasing-related reduction in volatility was most evident for inflation-linked and the more volatile corporate and emerging market bonds; but phasing offered no substantive volatility reduction for developed-market sovereign bonds (Table AIII.2).

7. **Overall, the analysis lends support to the view that phasing can limit risks at the portfolio level—but it is important to keep in mind the limitations of this analysis.** One important limitation is that it abstracts from current asset valuations and is based on particular historical periods. While the analysis seeks to mitigate these concerns by reviewing

⁵ Equity returns over 12-month periods are typically characterized by a standard deviation of returns of about 18 percent. Readings are lower in annualized terms over 5-year overlapping periods as the dispersion of returns is smoothed out.

several historical episodes, the long bull run in developed bond markets dominates the back-testing results for both the period since 1987 and the years since 1998. With current valuations in these markets at historical highs, there are risks of substantive losses if valuations revert to historically more normal levels. As discussed further in Section II.D of the main text, this could strengthen the case for phasing-in the initial investment of fixed income instruments, even if the above back-testing results (based on historical data) do not point to clear benefits of such an approach in this asset class.

Table AIII.1. Performance Matrix over the Period 1987–2012
(annualized terms over 5 years)

	Mean Return	Min Return	Max Return	St. Deviation	Sharpe Ratio
Portfolio					
Lump-sum investment	7.8	0.7	13.3	2.8	1.5
Phasing over 4 quarters	7.5	0.6	11.5	2.7	1.4
Phasing over 8 quarters	7.1	0.1	10.7	2.5	1.3
Phasing over 12 quarters	6.8	-0.2	10.7	2.4	1.2
Phasing over 16 quarters	6.5	-0.6	10.5	2.3	1.2
Phasing over 20 quarters	6.2	-0.7	10.1	2.1	1.2
Government Bonds					
Lump-sum investment	7.6	2.5	13.8	2.5	1.3
Phasing over 4 quarters	7.4	2.7	12.7	2.4	1.2
Phasing over 8 quarters	7.1	2.4	12.2	2.4	1.2
Phasing over 12 quarters	6.8	2.4	12.0	2.3	1.1
Phasing over 16 quarters	6.5	2.7	11.4	2.2	1.1
Phasing over 20 quarters	6.1	2.8	10.7	2.0	1.1
Corporate Bonds					
Lump-sum investment	7.7	0.3	12.9	2.4	1.9
Phasing over 4 quarters	7.5	0.0	12.6	2.4	1.7
Phasing over 8 quarters	7.2	-0.4	12.2	2.4	1.6
Phasing over 12 quarters	6.9	-0.3	12.1	2.3	1.5
Phasing over 16 quarters	6.6	-0.3	11.5	2.2	1.4
Phasing over 20 quarters	6.2	-0.3	10.8	2.1	1.4
Mature Equities					
Lump-sum investment	7.4	-5.3	20.2	6.5	0.5
Phasing over 4 quarters	7.0	-5.0	19.1	6.4	0.5
Phasing over 8 quarters	6.6	-6.3	17.7	6.1	0.4
Phasing over 12 quarters	6.4	-6.8	16.5	5.7	0.4
Phasing over 16 quarters	6.2	-7.6	15.3	5.1	0.4
Phasing over 20 quarters	6.0	-7.4	14.1	4.4	0.4

Table AIII.2. Performance Matrix over the Period 1998–2012
(annualized terms over 5 years)

	Mean Return	Min Return	Max Return	St. Deviation	Sharpe Ratio
Portfolio					
Lump-sum investment	7.3	1.1	14.0	2.9	1.3
Phasing over 4 quarters	7.0	0.9	12.6	2.9	1.3
Phasing over 8 quarters	6.5	0.1	11.0	2.8	1.2
Phasing over 12 quarters	6.2	-0.5	9.7	2.6	1.1
Phasing over 16 quarters	5.9	-1.1	9.4	2.3	1.1
Phasing over 20 quarters	5.5	-1.2	8.5	2.0	1.1
Government Bonds					
Lump-sum investment	6.6	2.5	9.3	1.4	1.8
Phasing over 4 quarters	6.5	2.7	9.6	1.5	1.7
Phasing over 8 quarters	6.2	2.4	9.9	1.6	1.6
Phasing over 12 quarters	6.0	2.4	9.8	1.6	1.5
Phasing over 16 quarters	5.6	2.7	9.0	1.5	1.6
Phasing over 20 quarters	5.3	2.8	8.1	1.3	1.6
Corporate Bonds					
Lump-sum investment	6.5	1.0	9.5	1.9	1.6
Phasing over 4 quarters	6.3	0.9	9.8	1.9	1.5
Phasing over 8 quarters	6.0	0.3	9.7	2.0	1.4
Phasing over 12 quarters	5.7	0.3	9.5	1.9	1.3
Phasing over 16 quarters	5.5	0.2	8.6	1.8	1.3
Phasing over 20 quarters	5.1	0.0	7.9	1.6	1.3
Inflation Linked Bonds					
Lump-sum investment	8.0	2.7	11.5	2.4	1.9
Phasing over 4 quarters	7.6	2.4	11.6	2.4	1.8
Phasing over 8 quarters	7.1	1.9	11.8	2.4	1.6
Phasing over 12 quarters	6.7	1.7	11.5	2.2	1.6
Phasing over 16 quarters	6.3	1.5	10.5	2.0	1.6
Phasing over 20 quarters	5.8	1.2	9.4	1.8	1.6
Mature Equities					
Lump-sum investment	3.4	-5.3	19.9	6.0	0.1
Phasing over 4 quarters	3.1	-5.0	18.3	6.1	0.0
Phasing over 8 quarters	2.9	-6.3	15.6	6.0	0.0
Phasing over 12 quarters	3.1	-6.8	13.9	5.7	0.0
Phasing over 16 quarters	3.3	-7.6	12.5	5.1	0.1
Phasing over 20 quarters	3.3	-7.4	11.1	4.3	0.1
Emerging Market Equities					
Lump-sum investment	12.6	-10.1	40.3	12.1	0.8
Phasing over 4 quarters	12.2	-6.8	38.3	11.1	0.8
Phasing over 8 quarters	11.5	-3.1	33.7	10.0	0.8
Phasing over 12 quarters	10.8	-4.3	30.4	9.0	0.8
Phasing over 16 quarters	10.1	-3.3	27.2	8.0	0.9
Phasing over 20 quarters	9.2	-3.8	24.5	6.9	0.9
Emerging Market Bonds					
Lump-sum investment	10.8	3.1	18.7	3.4	2.1
Phasing over 4 quarters	10.3	3.9	15.5	3.1	2.2
Phasing over 8 quarters	9.7	3.0	14.0	2.7	2.4
Phasing over 12 quarters	9.0	2.1	12.6	2.4	2.3
Phasing over 16 quarters	8.2	1.4	12.0	2.3	2.1
Phasing over 20 quarters	7.4	0.9	11.2	2.0	2.1
REITs					
Lump-sum investment	9.7	-9.4	24.3	9.3	0.7
Phasing over 4 quarters	9.1	-9.9	23.5	9.2	0.7
Phasing over 8 quarters	8.6	-11.3	22.3	8.8	0.6
Phasing over 12 quarters	8.3	-12.6	20.0	8.1	0.7
Phasing over 16 quarters	7.9	-13.5	17.9	7.3	0.7
Phasing over 20 quarters	7.3	-12.7	16.0	6.2	0.7

Box AIII.1. Impact of Phasing on Asset and Portfolio Returns in the U.S. Market (1920–2012)

To avoid the pitfalls of historically limited data samples, additional analysis was carried out on the U.S. market over the period since 1920. The main results remain unchanged over this much longer time span: phasing results in a moderately lower frequency of loss but at the cost of lower returns. These results are illustrated in the charts below: a phased strategy is characterized by a more concentrated distribution of returns, but with a mean slightly shifted to the left.

Smoothed Distribution of Returns
(Lump Sum, in blue, and 5 Year Phasing, in red, 1920–2012)

