



IMF Working Paper

Investment Objectives of Sovereign Wealth Funds—A Shifting Paradigm

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IMF Working Paper

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Abstract

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While SWF investment objectives to some extent reflect inherent characteristics, notable differences in strategic asset allocation (SAA) exist even amongst SWFs of similar types. Even so, this paper shows that the global crisis may have changed SWF's asset allocations in ways that may not be ideal or justified in all cases and that a review of investment objectives may be warranted. It also argues for regular macro-risk assessments for the sovereign, the continued importance of SWFs as a stabilizer in international capital markets, as well as the active role they could play in international regulatory reform.

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I. Introduction

1. Sovereign Wealth Funds (SWFs) were severely hit by the global financial crisis.

With increased public scrutiny over hefty losses incurred during the crisis, many SWFs have reviewed existing investment practices. This paper examines the ways in which different types of SWFs approach their investment objectives, describes the impact of the crisis on SWF performance, reviews the extent to which portfolios have been reallocated, and draws lessons about how and why the investment behavior of SWFs has changed. Looking forward, it also considers additional issues that may need to factor more prominently in SWF's investment strategies, including macro-stabilization and asset-liability management considerations, as well as forthcoming adjustments to the global regulatory environment.

II. Classification of SWFs and its Implications

2. SWFs are typically categorized as stabilization funds, savings funds, pension reserve funds, or reserve investment corporations (Table 1).²

The majority of established SWFs are either savings funds for future generations or fiscal stabilization funds. There are only a handful of pension reserve funds (Australia's Future Fund, Chile's Pension Reserve Fund (Chile-PRF), Ireland's National Pensions Reserve Fund, New Zealand's Superannuation Fund, and the Russia Federation's National Wealth Fund (Russia-NWF)) operating today, and even fewer reserve investment corporations (China Investment Corporation (CIC), Korea Investment Corporation (KIC), and Government Investment Corporation of Singapore (GIC)). Some SWFs have multiple objectives (e.g., State Oil Fund of Azerbaijan, Kuwait Investment Authority, and Norway's Government Pension Fund-Global), and a number of countries also have more than one SWF with different objectives, including Chile, the Russian Federation, and Singapore.

3. The different types of SWFs have important differences in their investment objectives and behavior. A reserve investment corporation, for example, will need to consider the possible repercussions of balance of payments risks, and will want to hold a portion of its portfolio in liquid assets. The SWF's type and its objectives will also influence its investment horizon. For instance, savings SWFs are expected to have longer investment horizons than stabilization SWFs, whereas pension reserve funds can derive their investment horizons from the timing of the future anticipated liabilities falling due, which can be decades in the future.

4. SWFs' investment objectives may also be influenced by the source of their funds and may take into consideration other assets and liabilities on the wider government balance sheet.

² See, for example, IMF (2007, 2008); and Hammer, Kunzel, and Petrova (2008).

Table 1. Sovereign Wealth Fund Classification

Source	Year established	Country	Policy Purpose			
			Macro stabilization	Saving	Pension reserve	Reserve investment
Oil and Natural Gas	1953	Kuwait	Kuwait Investment Authority, General Reserve Fund	Kuwait Investment Authority, Future Generations Fund		
	1976	Canada		Alberta Heritage Savings Trust Fund		
	1976	United Arab Emirates		Abu Dhabi Investment Authority		
	1976	United States		Alaska Permanent Fund		
	1980	Oman		State General Reserve Fund		
	1983	Brunei Darussalam		Brunei Investment Agency		
	1996	Norway	Government Pension Fund-Global	Government Pension Fund-Global	Government Pension Fund-Global	
	1999	Azerbaijan	State Oil Fund	State Oil Fund		
	2000	Iran, Islamic Republic of	Oil Stabilization Fund			
	2000	Mexico	Oil Revenues Stabilization Fund			
	2000	Qatar		Qatar Investment Authority		
	2000	Trinidad and Tobago	Heritage and Stabilization Fund	Heritage and Stabilization Fund		
	2001	Kazakhstan	National Fund			
	2002	Equatorial Guinea		Fund for Future Generations of Equatorial Guinea		
	2004	São Tomé and Príncipe		National Oil Account		
	2005	Timor-Leste	Petroleum Fund	Petroleum Fund		
	2006	Bahrain	The Future Generations Reserve Fund	The Future Generations Reserve Fund		
	2006	Libya		Libyan Investment Authority		
2008	Russian Federation	Reserve Fund		National Wealth Fund		
Other Commodity	1956	Kiribati		Kiribati, Revenue Equalization Fund		
	1996	Botswana		Botswana, Pula Fund		
	2006	Chile			Pension Reserve Fund	
	2007	Chile	Economic and Social Stabilization Fund (ESSF)			
Fiscal Surpluses	1974	Singapore		Singapore, Temasek		
	1981	Singapore				Government of Singapore Investment Corporation
	1993	Malaysia		Khazanah Nasional BHD		
	2000	Ireland			Ireland, National Pensions Reserve Fund	
	2001	New Zealand			New Zealand Superannuation Fund	
	2004	Australia			Australia, Future Fund	
2005	Korea, Republic of				Korea Investment Corporation	
FX Reserves	1981	Singapore				Government of Singapore Investment Corporation
	2005	Korea, Republic of				Korea Investment Corporation
	2007	China				China Investment Corporation

Source: Authors' compilation.

III. Theoretical Considerations behind SWFs' Strategic Asset Allocations

5. The type of SWF, its investment horizon and funding source, and other balance sheet characteristics should all affect its strategic asset allocation (SAA).³ This section discusses some stylized theoretical underpinnings for SWFs' SAAs. The section that follows compares the actual asset allocations of several SWFs with these underpinnings and discusses other factors that may be driving asset allocations.

³ See also, for example, Das, Lu, Mulder, and Sy (2009) for more information.

A. Investment Horizon and SAA

6. **The investment horizon is a critical factor for any investor in determining the SAA.**

A long investment horizon is traditionally associated with the ability to take more risk. Usually, risk is defined as the probability of a loss or underperformance relative to a reference asset, such as T-bill or a government bond, over a given horizon. The traditional SAA literature suggests that, on longer horizons, equities are less volatile than short-term instruments because of the re-investment risks associated with short-term investments. In addition, historical data suggest a fairly consistent equity return premium over longer horizons.⁴ Hence, a larger share in equities for investors with long investment horizons is appropriate.

7. **Another factor associated with investors with long investment horizons is the ability to invest in illiquid assets to enjoy the illiquidity premium.** For many asset classes, such as infrastructure, real estate, and private equity, it may take a long time and a lot of planning to exit the investment without unduly affecting that asset's price. Therefore, only SWFs with truly long horizons (i.e., those that are very unlikely to have to divest in a hurry) would be expected to venture into these asset classes, which, for the purposes of this paper, are classified as "alternative assets."

8. **Conversely, investors with short or very uncertain investment horizons, such as stabilization SWFs, would be expected to have a larger share of their investment portfolios in cash and relatively liquid bonds to be able to meet potential and sometimes unexpected outflows without incurring large losses in the process.** In that sense, the SAAs of stabilization funds should be very similar to those of central bank reserve managers. Such SWFs could potentially have some allocation to equities—allowing a part of the portfolio to be longer term—but should acknowledge the associated risk of having to divest these assets at fire sale prices when the liquidity requirement kicks in.⁵

B. Funding Source and SAA

9. **Whether the source of the funds should affect the SAA depends, to a certain extent, on the type of SWF.** For instance, for stabilization and savings SWFs that derive their funds from a commodity this question seems self-evident. If a country's income is dependent on one (or even a few) real assets, it would be natural according to portfolio theory to diversify this dependency by investing in financial assets that have a negative or low correlation with the real

⁴ There are also some contrarian views on whether stocks outperform over the long run. See, for example, Bodie (1995); and Bernstein (1996).

⁵ A few reserve managers also invest in equities (e.g., Hong Kong SAR, the Netherlands, and Switzerland), which may be a reflection of their multiple objectives (e.g., a savings objective, too).

asset.⁶ Thus, for instance, SWFs funded from oil resources would need to take oil price risk, cycles, and assets in the ground into consideration when determining their SAAs.⁷ Alternatively, a small country could outright hedge the commodity price risk.⁸

10. In general, if a stabilization SWF is sourced from fiscal surpluses, its investment objectives are likely to be influenced by the dynamics of the government budget. SWFs sourced from international reserves may also be influenced by the dynamics of private capital flows and the composition of private external debt—just as international reserves are—depending on the institutional arrangement and the funding and withdrawal rules of the SWF.⁹ Finally, the original source of pension reserve funds is unlikely to enter into the SAA process, which is more likely to be driven by the investment horizon and the nature of the liabilities.

11. Additionally, the vulnerability of other assets and liabilities of the wider balance sheet may also need to be taken into consideration when determining an SWF’s SAA. Thus, for instance, countries with more than one SWF, or those that are considering establishing additional SWFs, may want to take the SAAs of their other funds into account when allocating their SAA.

IV. Comparison of SWFs’ Observed Asset Allocations

12. Given the scarcity of data on SWFs’ targeted SAAs, we focus the analysis on observed asset allocations. For this purpose, we categorize assets into four classes: cash, fixed income, equities, and alternative assets.¹⁰ However, the available data do not capture sectoral distribution within asset class for the whole sample, precluding the analysis of the funding source as a factor in the actual asset allocation, e.g., commodity-funded SWFs may choose certain asset classes that are natural hedges for commodity prices.

⁶ See Brown, Papaioannou, and Petrova (2010), and Scherer and Gintschel (2008).

⁷ However, there is little evidence of countries explicitly taking into account the assets in the ground (and uncertainty about the amount, the timing of extraction, and other factors) in their optimization models when deriving their SAAs.

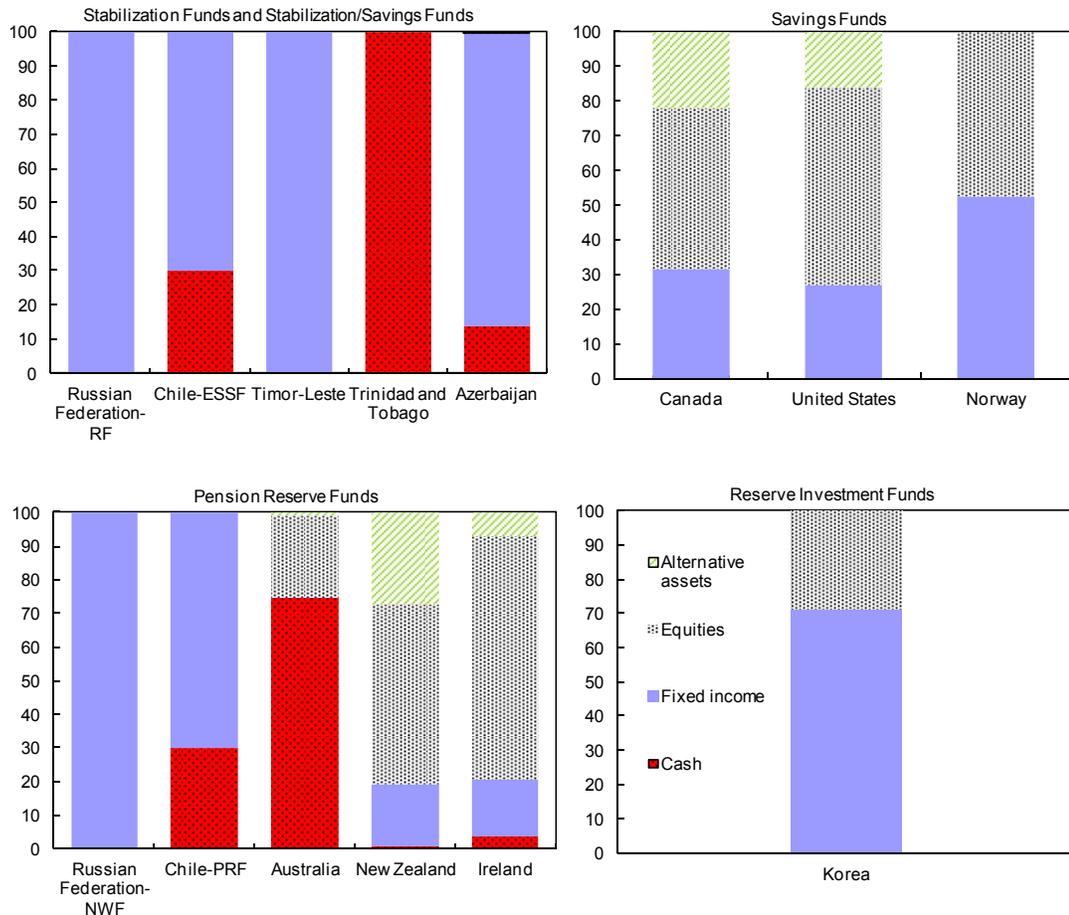
⁸ For example, in Mexico the hedging volume corresponds to the amount of revenue that the national oil company (PEMEX) transfers to the budget, and the option premiums are paid out of the stabilization SWF. This cushions the outlays that have to be made from the SWF in downturns, and reduces the windfall revenues in upturns, thereby smoothing the profile of the revenue flows over the cycle.

⁹ For example, the Government of Singapore Investment Corporation states that its resources may be called upon during times of crisis (<http://www.ifswf.org/members-info.htm#sin>).

¹⁰ Cash includes current accounts and other cash-equivalent instruments; debt securities include bills, notes, and bonds of the treasury, and corporate bonds; equities comprise domestic and global stocks, including those of both developed and emerging markets; all other assets are classified as “alternative assets,” including private equity, hedge funds, property, commodities, infrastructure, forests, and so forth. Although some potentially liquid asset classes are captured, the latter class could be seen as a proxy for illiquid assets.

13. Some notable patterns in the asset allocations of different types of SWFs emerge, broadly along the lines discussed in the previous section (Figure 1). For instance, whereas savings funds have varying proportions of equities in their portfolios, debt (fixed income) and cash figure prominently in SWFs with stabilization objectives. SWFs with stabilization objectives usually do not invest in alternative assets. Most pension reserve funds also have some equity exposure, as do reserve investment corporations.

Figure 1. SWF Asset Allocation, 2007



Source: SWF websites and authors' calculations.

Note: Norway classified as savings fund. Australia's asset allocation was as of January 2008. For some SWFs, cash may be included in fixed income.

14. At the same time, notable differences can be detected in observed asset allocations of SWFs with the same types of objectives. As discussed above, this may be due to idiosyncratic reasons, including the investment horizon, the funding source, or other asset or liability considerations of the broader sovereign balance sheet (including multiple objectives of the SWFs or the interaction of multiple SWFs of the same country).

15. Other practical considerations are at play, too. Varying views on relative performance of asset classes over different horizons are likely to be one of these considerations, especially given uncertainties about the "true" investment horizon. For example, the likelihood

of a shortfall of real equity returns over bond returns is very much horizon-dependent—in many countries the equity risk premium has been negative over 20- and even 50-year horizons.¹¹ Another important consideration is the SWF's ability to tolerate large unrealized losses within the investment horizon, which could depend on institutional factors and the financial literacy of the owner and the public. SWFs with small assets under management or funding inflows—relative to potential withdrawals—need to have a larger share of liquid assets to accommodate liquidity needs.

16. The amount of unexploited resources may also help explain differences. For instance, countries with nearly depleted natural resources are more concerned about conserving their financial resources, which would be reflected in their SWFs' investment strategies.

17. Other factors matter as well, including the maturity of the fund (i.e., how long it has been in operation) and its level of sophistication. Recently established SWFs—such as Australia's Future Fund, Chile's SWFs, and China's CIC—or those undergoing legal and institutional changes may not have been able to implement their SAAs fully. In such cases, the actual asset allocation and its changes may not be reflective of the targeted SAA.

18. As a consequence, even though SWFs may appear to be similar with regard to their type and funding, some notable patterns can be discerned between different types of SWFs, and intrinsic SAAs may be quite different even among similar funds. At the same time, given the specific circumstances and investment objectives of individual SWFs, one may ask whether market developments should affect the basic underlying SAA of these funds, and under what circumstances a fundamental realignment of their investment portfolios may, or may not, be warranted. These issues are explored in detail below.

V. Unraveling of the Crisis

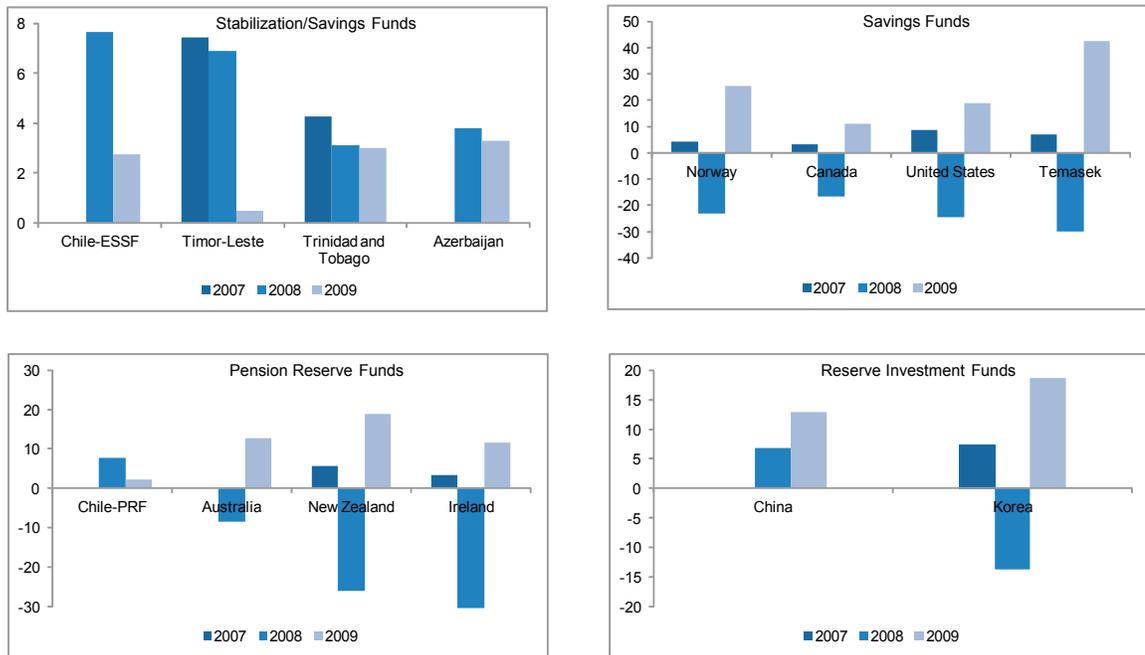
19. The global financial crisis affected SWFs worldwide. The sharp downturn in asset prices, particularly prices for equity and alternative investments, resulted in large losses for many SWFs (Figure 2) especially those with longer investment horizons. In some cases, the losses reached 30 percent of the portfolio values for 2008, thereby impairing SWFs' long-term returns as well.

20. These losses have sparked domestic debates on SWFs' investment strategies. Some have been criticized for entering the equity market at the wrong time, some blamed for a lack of insight for investing in financial institutions at the early stage of the crisis and suffering heavy losses, and others reproached for investing abroad when their support for domestic markets was highly needed. These criticisms have put SWFs' investment outlooks and strategies under increased scrutiny and their managers under pressure to avoid further losses.

¹¹ See, for example, Dimson, Marsh, and Staunton (2003).

Figure 2. SWF Returns, 2007–2009

(In percent)



Source: SWF websites and authors' calculations.

Note: Norway classified as savings fund. The 2009 return of Singapore-Temasek is the annual return from April 2009 to March 2010.

21. Moreover, the crisis has led some SWFs to take prominent roles in financing government operations, as per their mandate. For instance, stabilization funds have been drawn upon to finance rising fiscal deficits, as per their mandate, and some of them have also supported stimulus packages to prop up economic activity. Rising sovereign or quasi-sovereign liabilities can be expected to weigh on demand for SWF resources for some time to come.

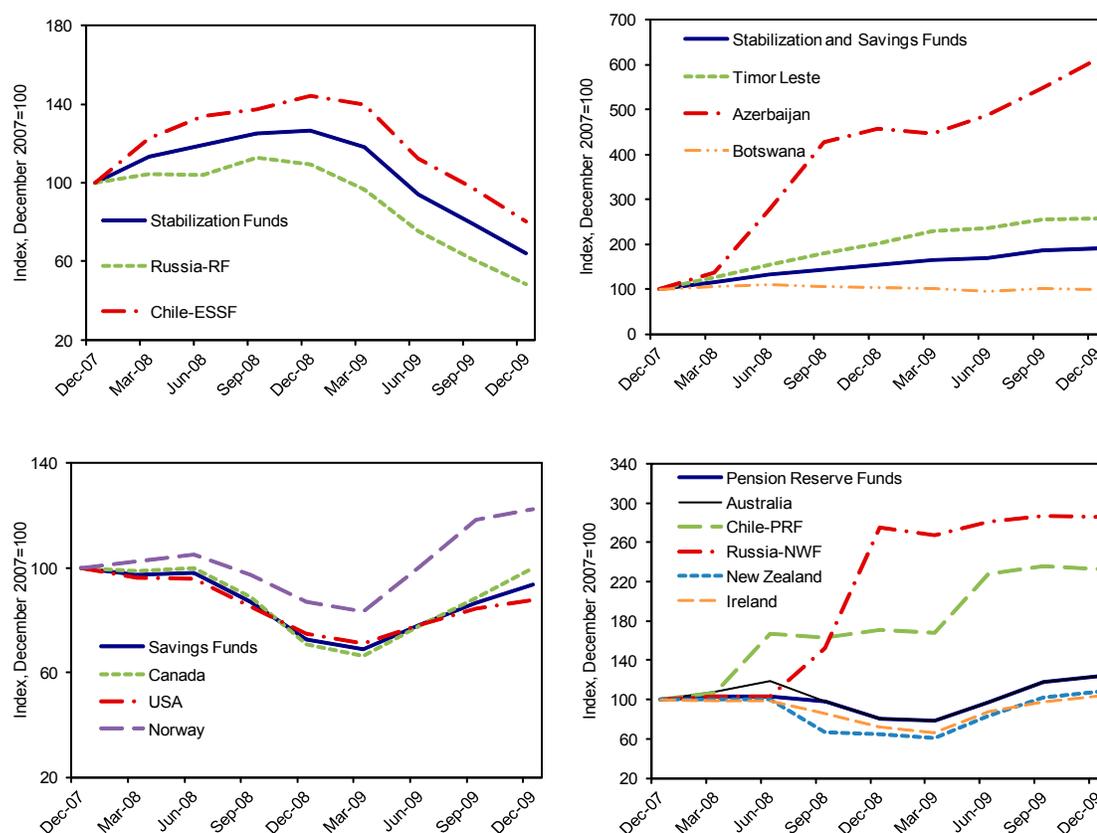
22. Some SWFs have also taken on new roles, beyond their original mandates. For example, several countries have used SWF resources to support domestic banks or corporations through the banking system. Some SWFs have provided liquidity to the banking system by depositing their assets in domestic banks, and others have helped with bank recapitalization. SWF assets have also been earmarked in some countries to support deposit insurance schemes and some SWFs have purchased domestic stocks to boost markets and investor confidence.

23. The heavy demands on SWF resources and the uncertainty in the economic environment have led many SWFs to take a more cautious approach toward investing. SWFs are wary about supporting further bail-outs of distressed companies, as a result of the

heavy unrealized or realized losses some experienced after investing in financial institutions in developed countries.¹² Nonetheless, as financial market conditions started to improve in early 2009, some SWFs achieved record profits (Figure 2).

24. These developments are reflected also in the dynamics of SWFs' assets under management during the crisis (Figure 3). The value of stabilization fund assets remained on a steady growth path until the end of 2008, when it became evident that the implications of the crisis for domestic liquidity and fiscal conditions would be greater than originally anticipated. These funds declined by about 50 percent between the end-2008 and end-2009 after withdrawals. Pension reserve funds and savings funds suffered equity valuation losses during the period September 2008 through March 2009, but have since recovered. Finally, SWFs with both stabilization and savings objectives—which are mostly invested in fixed-income assets—have weathered the crisis relatively unscathed.

Figure 3. SWF Assets under Management, December 2007–December 2009



Source: SWF websites and authors' calculations.
Note: Norway classified as savings fund.

¹² See Financial Dynamics (2009).

25. The implications of the crisis for asset allocations going forward will be fund-specific, and some of the driving factors are discussed below.

VI. Crisis Implication for Strategic Asset Allocation

26. The crisis has affected SWFs' asset allocations in different ways (Figure 4). Several SWFs with stabilization objectives have reduced their shares of cash holdings either because of the use of cash resources (Chile-ESSF), or because of moving to fixed income (Trinidad and Tobago). Alaska Permanent Fund and Ireland National Pension Reserve Fund have increased the share of their cash holdings.¹³ SWFs with previous investment in alternative assets have increased their investments in such assets, presumably with a view to further diversifying their portfolios. The KIC has introduced alternative assets investment and increased their equity shares. Notwithstanding the impact of the crisis, some SWFs have also continued with the implementation of previously approved SAAs—for example, Norway has increased equity shares, and the Australian Future Fund has introduced fixed-income and increased equity and alternative assets investments in its portfolio. In the case of Norway, the continuous implementation of the SAA helped it to benefit greatly from the rebound of risk assets since early 2009.

27. Geographic reallocation also seems to be occurring. Confidence in emerging markets' recovery prospects, along with concerns about advanced economies, has prompted some SWFs to tilt their investments toward these markets. For example, Singapore's Temasek reportedly plans to focus on emerging markets in Asia, Brazil, and the Russian Federation and reduce emphasis on OECD countries (from one-third to one-fifth of assets).¹⁴ Norway's SWF has also increased its operations in Asia and plans to open an office in Singapore after opening one in Shanghai.¹⁵

28. These shifts are fund-specific and reflect individual circumstances. In some cases, SWFs with longer-term mandates have encountered unexpected liquidity needs, thereby effectively shortening their investment horizons. In some cases, increased scrutiny and pressure to minimize future losses may have contributed to shifts to relatively more conservative investment positions whereas some SWFs may have concluded that the market provided them with opportunities for upside value, even over the medium-term.

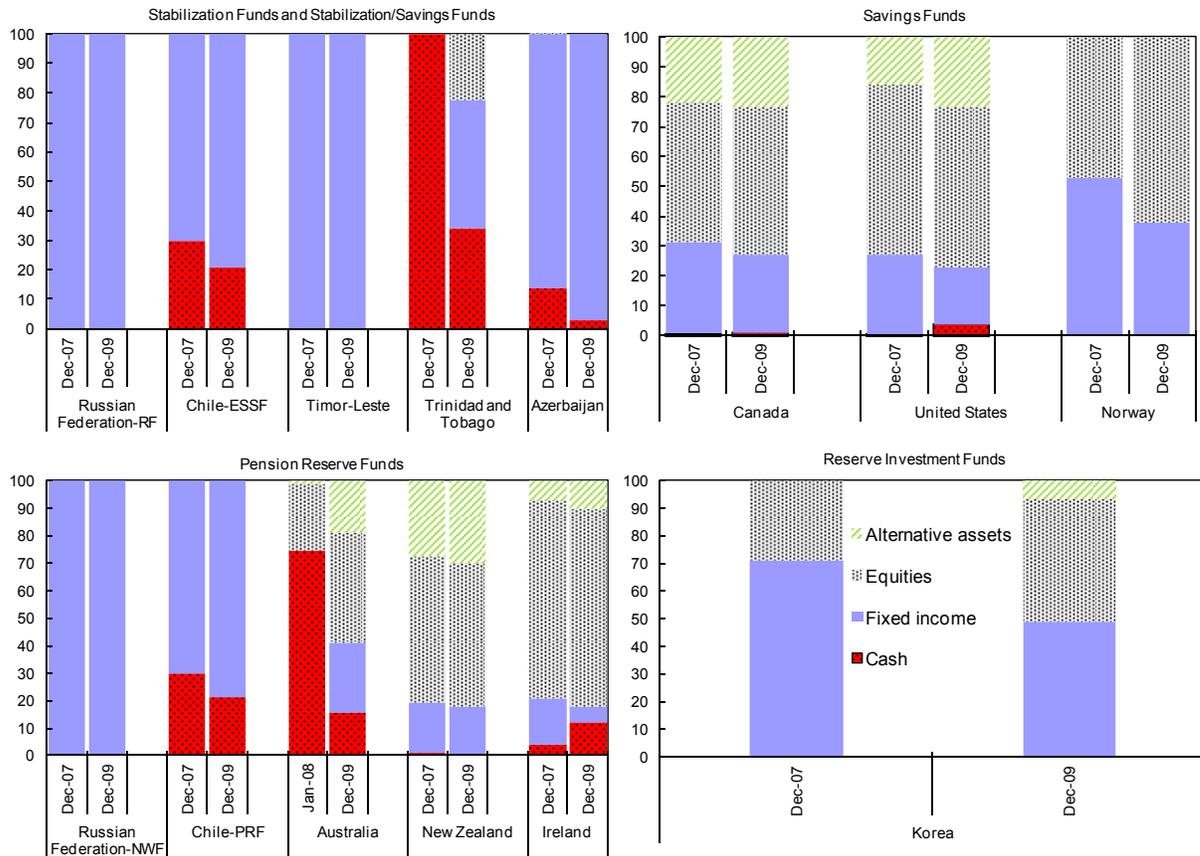
29. Changes in their domestic economic and financial environments may have caused some SWFs to temporarily deviate from their original mandates. To address such concerns, some SWFs are thoroughly reviewing their investment strategies and risk management frameworks. These reviews involve clarifying SWF objectives, potential liquidity needs, and related investment horizons and risks.

¹³ Ireland National Pension Reserve Fund was directed to invest in the preferred shares issued by two Irish banks for recapitalization purposes are classified as equity investments in Figure 4.

¹⁴ See Temasek's website.

¹⁵ See Norges Bank Investment Management's website.

Figure 4. SWF Asset Allocation, 2007 vs. 2009



Source: SWF websites and authors' calculations.

Note: Norway classified as savings fund. For some SWFs, cash may be included in fixed income.

30. Some SWFs are re-examining the traditional asset class-based approach to SAA and have started to use, or are considering using, a risk factor-based approach. The Board of the Alaska Permanent Fund, for example, decided to choose an approach to asset allocation “that is a good fit for the goal of building an all-weather portfolio” and decided to group investments by their risk and return profiles, and by the market condition or liability that each group is intended to address.¹⁶

31. Still, in many cases a profound change in an SWF’s SAA may not be justified. Instead, SWFs may need to improve their communication strategies and put more effort into educating stakeholders about their operations and risks. In the case of savings-type SWFs, this direction requires that owners and other stakeholders understand the likelihood of encountering

¹⁶ See Alaska Permanent Fund Corporation, 2009, *Asset Allocation*. Available via the Internet <http://www.apfc.org/home/Content/investments/assetAllocation2009.cfm>

short-term losses and have the ability to tolerate them. This may be easier to achieve in an environment of overall political and economic stability, with well-engrained frameworks for medium- and long-term planning, and good crisis management planning and coordination.

VII. Policy Challenges Ahead

A. Sovereign Financing

32. More generally, the crisis demonstrates the importance of conducting regular macro-level risk assessments and weighing carefully the sovereign's financing options, both in normal times and during financial stress.

33. First, having thorough reserve adequacy assessments and stress testing the foreign exchange liquidity needs when setting SWF objectives can prevent having to suffer losses in crisis situations. This is particularly relevant for countries establishing SWFs with long investment horizons, because having to sell assets under stress could be extremely costly, especially when the assets have been allocated to cover specific liabilities.¹⁷

34. Second, automatically using SWF assets to cover liquidity needs may not be the best strategy; issuing debt may be a cheaper option. In some cases, an assessment can be made beforehand whether borrowing is feasible and would be cost-effective in times of stress. This needs to consider that in times of stress, the cost of issuing debt may be higher or debt issuance may not be feasible. Going a step further, if a country has excellent debt management capacity, a commensurate credit rating, and deep and liquid local markets, establishing a large-scale stabilization fund may not be necessary in the first place; though for some countries, if the SWF can effectively sterilize large receipts that are cyclical, it may still be a good macro management tool.

35. By the same token, the government can lower the cost of macro stabilization by issuing more debt even without having a financing need when times are good and investor risk appetite is strong, to either finance an existing stabilization fund or establish a new one. When financing is needed during downturns, the government would not have to issue at high cost, but would draw down the stabilization fund. Such an approach can also have positive externalities, and if the SWF is properly set up, can help with developing local debt markets.

B. Regulatory Environment

36. International financial markets are likely to face increased regulation and demands for greater transparency and accountability, which may affect SWFs' cross-border operations. Increased regulation in the financial sector, for example, may alter the relative

¹⁷ For example, pension reserve SWFs that have been drawn down or reallocated to finance public interventions during the crisis may have to be recapitalized eventually, or the government may need to avail itself of other resources to meet the associated liabilities as they fall due. See IMF (2009).

attractiveness of some asset classes or industries in which SWFs invest. More directly, new transparency and disclosure requirements for financial institutions and investment vehicles or regulations could generate similar demands on SWFs.

37. At the same time, SWFs have actively participated in the discussion on the evolving global regulatory environment.¹⁸ Since the regulatory environment could potentially affect their operations and the value of their investments, SWFs are eager to see well-targeted and good quality financial regulation that is unlikely to inflict unintended consequences.

38. SWFs have also shown considerable interest in interested in promoting good corporate governance principles. Some SWFs have chosen to do this through active shareholder involvement, while some have chosen to take a less active approach to exercising their ownership rights and therefore are more reliant on recipient country governments promoting good corporate governance principles and monitoring their effective implementation.

VIII. Conclusion

39. The SAAs of SWFs reflect their inherent characteristics, notably including the type of SWF and its funding source. At the same time, differences among similar-type SWFs are evident, resulting from differences in views about the investment horizon and asset class performance, the size of the SWF, the ability to tolerate losses, the amount of untapped funding sources, and the maturity and sophistication of the SWF.

40. The crisis has affected SWFs' SAAs in different ways, with some SWFs increasing liquidity, and others opting for more conservative or less conservative portfolios depending on individual country circumstances. Still others have taken on new roles beyond their original mandates. The shift, however, may not be ideal or justified in all cases, and some SWFs are thoroughly reviewing their investment strategies and risk management frameworks. SWFs may also need to enhance their communication strategies to ensure consistency of their SAAs with their fundamental investment objectives.

41. More generally, the crisis demonstrates the importance of macro-stability risk assessment and careful consideration of the financing options of the sovereign both in normal times and during financial stress. Thorough reserve adequacy and liquidity assessments are needed, as are cost-risk assessments of funding sovereign asset and liability operations.

42. Looking ahead, the scope for SWFs' stabilizing role in international capital markets will remain substantial. Despite their losses during the crisis and greater domestic focus, SWFs' relative size and influence in the global market will remain large. Furthermore, SWFs' longer-term investment strategies relative to most other investors will continue to play an important stabilizing role in the global economy.

¹⁸ See International Forum of Sovereign Wealth Funds (2009 and 2010).

43. Regulatory considerations also will become increasingly important to SWFs, as changes to the international regulatory environment are developed in response to the crisis. In this regard, active involvement by SWFs in the period ahead will be required.

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