The Management of China's International Reserves:
China and a SWF Scoreboard

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China's international reserves as of the end of June 2007 were $1.3 trillion, virtually all of which were in foreign exchange. At the end of 2006, China's foreign exchange reserves were $1,066 billion, or 40 percent of China's GDP. In 1992, reserves were $19.4 billion, 4 percent of GDP. They crossed the $100 billion line in 1996, the $200 billion line in 2001, and the $500 billion line in 2004.[1] See figure 1.

In 2003, the PBoC established the Central Huijin Investment Company, a type of sovereign wealth fund (SWF), with $67.5 billion of its foreign exchange reserves to recapitalize four state-owned banks. On September 29, 2007, the Chinese authorities established the China Investment Corporation (CIC). It will absorb the Central Huijin Investment Company and China Jianyin Investment Limited, and the CIC will have initial capital of $200 billion.

The major issue addressed in this paper is the future accountability and transparency of the CIC. I present results of research on 32 SWF of 28 countries in the form of a scoreboard on their structure, governance, transparency and accountability, and

* Doug Dowson provided tenacious assistance in the research underlying this paper as well as dedication to the preparation of this presentation of the results of that research.
[1] China's foreign exchange reserves reached 10 percent of GDP in 1995, 20 percent of GDP in 2003, and 30 percent of GDP one year later.

behavioral rules. The Central Huijin Investment Company scores substantially below the average for all the funds. Because of the actual and potential size of its new CIC and China's growing importance in the international financial system, the Chinese authorities should seek to place the CIC at the top of the league of SWF and they should work with other countries to establish a set of best practices for all sovereign wealth funds using the scoreboard presented in this paper as a point of departure.

China is not the only country with large foreign exchange reserves. Table 1 this the countries with the ten largest holding of foreign exchange reserves as of the end of 2006 along with the holdings of five other countries with large sovereign wealth funds that are not among the top ten reserve holders.[2] China's foreign exchange reserves now exceed 40 percent of GDP; at least four other countries share the same distinction. China also has not experienced the largest percentage increase in reserves since 2001; Russia has recorded a larger increase from a lower base.

Finally, China is not the only country whose rapid rise in reserves since 2001 was associated with large cumulative current account surpluses. However, for the majority of the 11 countries listed in the table with surpluses on average over the past five years of more than 5 percent of GDP (last column), those surpluses were associated with substantial earnings from natural-resource-based exports. In addition, China had

[2] Sovereign wealth funds for these purposes are (normally) separate pools of (generally) international assets owned and managed (directly or indirectly) by government to achieve various economic objectives, such as stabilization of the macro economy or contributing to a process of saving and intergenerational wealth transfer. The IMF (2007b) in its September 2007 *Global Financial Stability Report* provides a taxonomy of sovereign wealth funds and a discussion of some of the fiscal issues that they raise, but the report fails to identify or address any of the major issues that SWF raise for the international financial system; see Truman (2007). Conspicuously missing from the list in table 1 is Saudi Arabia despite the fact that as of August 2007 the Saudi Arabian Monetary Agency reporting holdings of $27.0 billion in foreign exchange reserves, $205.7 billion of other international securities on its balance sheet, and $51.3 billion in holdings on behalf of other government entities that are not on its balance sheet. The IMF (2007b), nevertheless, includes Saudi Arabia as an example of a country with a SWF despite its apparent lack of such a structure.

significant capital account surpluses during this period as indicated by the difference between the figures in the last two columns of the table. However, that distinction was shared with Taiwan, Korea, India and Brazil. In the case of the four countries listed at the bottom of the table, large current account surpluses were on balance recycled via net capital outflows that were not recorded as increases in reserves but at least in part involved governments and their sovereign wealth funds.[3]

The literature on the demand for international reserves and the appropriate level of international reserves dates back to the 1960s (Frankel and Jovanovic 1981, Hamada and Ueda 1977, Heller 1966, Heller and Knight 1979). In the wake of the 175 percent increase in the foreign exchange reserve holdings since 2001 by all countries through May 2007 and the 230 percent increase over that period in holdings excluding the traditional industrial countries, this literature has experienced resurgence (Flood and Marion 2002, Jeanne 2007, and Jeanne and Jarncière 2006). Rules of thumb have been developed for reserves in terms of (a) months of imports of goods and services, (b) as a ratio to short-term debt immediately coming due or in total, to total external debt of the government or country, or to external obligations, (c) as a ratio to GDP or to some measure of the money supply, or (d) combinations of the above.

Theoretical and empirical analyses also have sought to explain the behavior of countries in building up their reserves and to determine the appropriate cutoff for "excess" reserves (Aizenman 2007, Aizenman and Lee 2005, Aizenman, Lee and Rhee 2004, Aizenman an Marion 2003, Garcia and Soto 2006, IMF 2003, and Jeanne 2007). My reading of this literature is that (a) there is no consensus on the optimal level of

[3] Those countries also have substantially lower official reserves as a ratio to GDP than does China. For the last five countries listed in the table, their foreign exchange reserves plus SWF amount to at least 100 percent of GDP.

foreign exchange reserves and (b) it follows that there is no consensus about the level at which foreign exchange reserves become excessive. One simple explanation for these negative results is that because countries have continued to add to their international reserves, and it is assumed that these decisions are rational within the context of the models employed, more reserves are found to be better. As in flipping coins, there is always a small probability that the bank will be broken, or that "more than adequate reserves" may be insufficient.

A more prosaic explanation is that for most countries the level of reserves is a by-product of other economic and financial policies, in effect the residual. This explanation, in my view, is the best characterization for what has happened in China: China's exchange rate policy has failed to adjust to changes in China's development progress with the result that it has turned mercantilist, as is discussed in other papers at this conference.

Slightly more than a decade ago, before the outbreak of the Asian financial crises, Governor Dai Xianglong of the People's Bank of China (PBoC) used the steady accumulation of China's foreign exchange reserves as one of his prominent talking points to demonstrate that China deserved a place in the first rank of nations. For example, when China's reserves passed the $100 billion mark in 1996, he cited this fact in conversations with Federal Reserve and (showing a lack of appreciation of the independence of central banks) with US Treasury officials as justification for why China should be given a seat on the board of the Bank of International Settlements, to which his successor, Governor Zhou Xiaochuan, was elected in 2006 in his personal capacity.

Subsequently, as China developed an ever-wider current account surplus after 2001 and its surplus on the non-reserve financial account continued, at least until 2006, it became clear that the continued accumulation of China's foreign exchange reserves was intimately connected with its exchange rate policy and with capital inflows responding to the incentives created by that policy. As a practical matter, despite various efforts by the Chinese authorities to disguise the accumulation of foreign exchange reserves via the creation of special purpose vehicles and to manipulate controls on capital outflows to promote recycling through the private sector, China is destined to continue to rack up huge annual increases in foreign exchange reserves as long as one can reasonably project.[4] With reserves including its SWF easily in excess of $1.5 trillion by the end of 2007, even a modest annual return of 5 percent implies an annual increase in reserves of $75 billion, more than the stock of foreign exchange reserves of all but 11 countries as of the end of 2006.

Some authors such as Caballero, Farhi and Gourinchas (2007) and Mendoza, Quadrini, and Ríos-Rull (2007) attempt to explain the accumulation of foreign exchange reserves by countries such as China in terms of the weaknesses of their domestic financial systems and the strength of financial systems and the rule of law in other countries through which their private sectors choose to intermediate its savings. This analysis is built on a flimsy empirical base and fails to distinguish between actions by the private sector and the public sector.

[4] The recognition of this reality in no way detracts from the view that the continued accumulation of foreign exchange reserves by China and other countries should be used as a test of their intent in increasing the flexibility of their currencies. It does suggest that the analysis should be conducted net of earnings on existing reserves which not only add to the existing stock but also boost the current account surplus.

Dooley, Folkerts-Landau, and Garber in their writings on Bretton Woods II (Dooley et al 2007) are more imaginative. They implicitly assume that the government of China knows better than its citizens how to manage China's financial investments. For them, the government is the only relevant actor and its aim is to provide collateral in the form of foreign exchange reserves for foreign direct investment in China. In my view, these are rationalizations not explanations; none pass the test of common sense. [5]

Nevertheless, a few countries such as Chile and Mexico (Ortiz 2007 and Jadresic 2007) have undertaken efforts to examine the optimal level of their foreign exchange reserves, and as a result those countries have implemented policies to limit their accumulation. As described in Bakker (2007) and Bakker and van Herpt (2007), a number of European countries have taken steps to reduce their foreign exchange reserve holdings or to hedge them into local currency. This is a response to the exchange risk associated with those holdings as well as to pressures by their fiscal authorities to increase the return on foreign exchange holdings and pressures on central banks managing those holdings to limit the asymmetric risks involved. In many cases, the central bank absorbs capital losses at the same time that it is mandated to pass on positive returns to the fiscal authorities.

[5] For example, the fact base on which the Bretton Woods II boys base their analysis is essentially non existent. To cite four examples: (1) in recent years, external financing has accounted for less than 5 percent of fixed investment in China and similarly for other Asian countries; (2) all the US government asset seizures they cite were motivated by political, not private financial, considerations (The use of the Iranian assets to pay off non-American commercial or personal non-commercial claims are exceptions to prove the rule, as they were driven by US domestic politics.); (3) countries are slowly diversifying away from the US dollar (Based on IMF COFER data, the dollar's value share in the reserves of developing countries declined by 10.5 percentage points from the end of 2001 to the end of 2006, and the quantity share declined by 4.6 percentage points.); and (4) the Bretton Woods II system in Asia today, as a explanation of exchange rate policies, consists of greater China, Malaysia, and Singapore because the Korean won, the Thai baht, the Indonesian rupiah, and the Philippine peso have appreciated substantially. For the won, baht and rupiah, the real effective appreciation since the dollar's peak in February 2002 through August 2007 was larger than that of the euro.

A slightly more pragmatic view of international reserves distinguishes between reserves held for liquidity purposes and reserves held as longer-term investments. Often the tranche of longer term investments is split between the reserve holdings of the monetary authorities – the central bank and/or the finance ministries – and reserves held in a sovereign wealth fund or the equivalent.[6] This strand of the literature recognizes, at the level of the government of a country, the continuum of purposes in holding international assets ranging from managing exchange rates and meeting short-term external financial obligations to investing for the long term. Working out the associated arrangements in practice is more difficult because the foreign exchange reserves are normally held on the books of the central bank, at least in developing countries, while it is more rational that policies governing longer-term investments should be set by the government and associated returns and losses accrue to the fiscal authorities.[7]

The basic question facing countries like China with their huge hoards of foreign exchange reserves is: once they are there, what does a country's government do with them? One approach is to limit their further accumulation, net of earnings on the existing stock, by adopting a currency policy directed at appreciation and flexibility supported by macroeconomic and microeconomic policies directed at maintaining sustainable growth and price stability. This is a major theme of other papers presented at this conference.

A second approach, in particular for a developing country such as China, where the accumulation of foreign exchange reserves does not reflect the conversion of wealth

[6] As noted in appendix table A1, the later distinction is not always made in practice.

[7] It is of note that in Canada, Japan, and the United Kingdom the great bulk of foreign exchange reserve holdings are on the books of the finance ministry rather than the central bank. In the United States, they are split essentially evenly between the Federal Reserve and the exchange stabilization fund of the US Treasury.

in the form of non-renewable resources underground into wealth in the form of financial assets above ground, is to try to use the foreign exchange reserves for domestic "development" purposes. This approach is understandable but very problematic. If China is to use its foreign exchange reserves to finance domestic investment or government expenditures, not only does it have to halt the gross and net accumulation of reserves, but also it has to reverse the accumulation of reserves in order to repatriate the principal into domestic financial resources. The former requires economic and financial policies to be recalibrated; the latter requires the reversal of economic and financial policies.

China has implemented and India is in the process of implementing the indirect use of foreign exchange reserves to support domestic policies.[8] In the Chinese case, an amount of foreign exchange reserves, estimated at $67.5 billion, has been used since 2003 to fund the Central Huijin Investment Company which in turn helped to fund the recapitalization of four of the major government-owned banks. According to published reports, the new China Investment Corporation will absorb the Central Huijin Investment Company and is expected to make similar investments in the Agricultural Bank of China

[8] Several years ago Montek Ahluwalia, Deputy Chairman of India's Planning Commission, raised the issue of how India's growing foreign exchange reserves could be used in a non-inflationary way to finance domestic expenditure. Press reports suggested that the idea would be to borrow abroad against India's foreign exchange reserves as collateral in order to finance investment in domestic infrastructure. However, to do so India (without recalibrating its macroeconomic policies in the direction of current account deficits) would have to convert the foreign exchange into domestic currency which either expands the money supply and lowers interest rates or requires the central bank to purchase the foreign exchange with domestic currency and sterilize the monetary effects via sales of government debt. In effect, the infrastructure investment has been financed by an increase in government debt in the hands of the public. Nevertheless, the government of India has continued to pursue some variant of the idea; see Report of the Committee on Infrastructure (2007). Indian finance minister Chidambaram explained at the Peterson Institute on September 25, 2007 that foreign exchange reserves would be used to finance the import content of infrastructure investments in India. However, there is little difference between the government buying foreign exchange to finance imports from the central bank and buying it in the private market as long as the central bank pegs the exchange rate.

and the China Development Bank. Thus, about two thirds of the initial $200 billion in CIC investments nominally will be domestic.[9]

This approach to the use of foreign exchange reserves is problematic, first, because it is unclear where the exchange risk lies. Second, except in the limiting case where the banks involved have foreign-currency-denominated liabilities that they were otherwise unable to hedge, for the capital injections to be useful to the banks they have to be converted into domestic currency. To the extent that the Central Huijin Investment Company absorbed the exchange risk and to the extent that the banks converted the foreign currency into domestic currency, the foreign exchange is returned to the books of the PBoC. The general public really does not know what has happened. This situation illustrates a fundamental issue with the management of large, official holdings of cross-border assets: the importance of transparency. Moreover, the diversion of resources from a SWF for domestic investment purposes in the absence of a high degree of transparency and accountability provided opportunities for corruption.

A third approach is to use the accumulated foreign exchange holdings to meet China's external economic or political objectives. For example, China may make loans to African countries.[10] Alternatively, China could make direct investments in foreign countries. These investments might be funded indirectly out of foreign exchange reserves or via a sovereign wealth fund, or via the equivalent, to which the foreign

[9] Even though the investments will be domestic, given that they are financed out of foreign exchange, the underlying international assets either have to be sold in the market or managed by someone. China is not the only country where the SWF invests domestically as well as internationally. Singapore's Temasek, Russia's Stabilization Fund, and of course the Alaska Permanent Fund and the Alberta Heritage Savings Trust Fund, among others, do so as well.

[10] Such an operation could take the form of recycling: the government or a government-owned entity makes a loan to a foreign borrower denominated in foreign currency and it purchases the foreign currency from the central bank (directly or indirectly) to fund the loan.

exchange has been effectively transferred.[11] The investments may be for economic purposes or for political purposes, illustrating an additional ambiguity as well as an issue for China vis-à-vis its own citizens and for China vis-à-vis the international community.

Fundamentally, the preferable approach to the management of "excess" foreign exchange reserves is to apply strict economic and financial criteria, and to maximize their return over a relevant horizon subject to whatever constraints may be imposed for risk management purposes, or as close to such an approach as is possible.[12] As Lawrence Summers (2006, 2007a and 2007) has argued with his characteristic force and eloquence, to do anything else amounts to financial malpractice. More concretely, he has pointed out that for a country like China, the difference of 100 basis points on average over time on its holdings of cross-border financial assets, with foreign exchange reserves at 50 percent of GDP by the end of 2007, amounts to half a percentage point of GDP per year. Such calculations apply regardless of whether the cross-border assets are held in the central bank as foreign exchange reserves, are held in a sovereign wealth fund (or the equivalent), or are held in some looser structure on the books of some government agency.

China faces major issues with respect to the management of its foreign exchange reserves. China is the elephant in the international financial system not only with respect to its exchange rate policies and in its outsized current account surplus, but also in its

[11] See the previous footnote. According to published reports, China's new sovereign wealth fund, the China Investment Company (CIC) also involves multiple contortions in connection with the allocation of exchange risk when foreign exchange is transferred from the PBoC. Students of the independence of central banks were amused that the government of China in mobilizing some of the domestic resources to fund the CIC evaded the spirit but not the letter of its law by "selling" 600 billion yuan in bonds to the state-owned Agricultural Bank of China. The PBoC, in turn, made an "open market purchase" of those bonds in effect to fund the purchase of foreign exchange from the PBoC to provide initial resources for the CIC.

[12] Technically, the return to be maximized should be net of the cost of any liabilities associated with the external assets.

outsized holdings of foreign assets in official hands. As far as is known, China has the largest stock of cross-border assets controlled by a government.[13] This fact alone means that the government of China's management of cross-border assets potentially raises major issues not only for China and its citizens but also for the international financial system. China is being held, will be held, and should be held to the highest standard of accountability and transparency in this area. The Chinese authorities may not like this fact, but as a citizen and former official of the country that was long characterized as the elephant in the international financial system, my advice is to get used to it!

The potential issues raised by China's management of its international assets are the following:

1. Concern that the investment policies of the CIC will be motivated by political or economic power considerations, which in turn will produce protectionist reactions in other countries.
2. Concern that in the implementation of its investment policies the CIC provokes a reaction of financial protectionism *even if* that reaction is *not* justified.
3. Concern that in the implementation of its investment policies the CIC contributes otherwise to uncertainty and turmoil in financial markets.
4. To the extent that the CIC uses intermediaries to execute its investment policies, concern about conflicts of interest with respect to those intermediaries.
5. Domestic concern about the political fallout from the CIC's investment decisions.

[13] It is possible that the United Arab Emirates has larger holdings, but we cannot confirm this from published information, and estimates suggest that its holdings are less that two-thirds China's approximately $1.5 trillion.

6. Finally, and again domestically, concern that the mismanagement of the external wealth of China is wasteful and adversely affects the country's economic, financial, and political stability.

Many of these concerns are hypothetical at this stage. All of them have political, economic and financial implications for the rest of the world and the global financial system, in particular because of the size and the potential scope of CIC's operations. This reinforces the centrality of these issues for the Chinese authorities. The rest of the world will hold China responsible for its actions to a greater degree than it would a country with much smaller holdings of cross-border assets. In other words, the Chinese authorities will be held accountable.

How might this be accomplished? Most governmental organizations promulgate laws, guidelines, and standards as the basis for their accountability, and use transparency to demonstrate that they have lived up to their commitments.

In Truman (2007) I advocated the establishment of a standard or a set of best practices for governmental cross-border investments in general and for sovereign wealth funds in particular. In the case of sovereign wealth funds, the set of best practices would cover four elements: (1) structure, (2) governance, (3) transparency and accountability, and (4) behavior. In my research, I have developed a scoreboard for 32 sovereign wealth funds of 28 countries including 25 different elements grouped in these four categories.[14] The construction of the scoreboard and the detailed results of our analysis are presented in the appendix.

[14] As a point of reference, we also scored the California Public Employees' Retirement System. CalPERS scores slightly lower than Norway's SWF at 21.75 the same as Timor-Leste's Petroleum Fund.

Table 2 summarizes the results of this exercise based on systematic, publicly available information about the SWFs. Out of a possible total of 25 points, the maximum recorded is 24 by New Zealand's Superannuation Fund followed closely at 23 by Norway's Government Pension Fund-Global.[15] The Abu Dhabi Investment Authority (ADIA) and its Investment Corporation (ADIC) in the United Arab Emirates record 0.5 point. The average is 10.27 points. Six of the largest SWF (see table A1) score at or below the average, including two of the three largest funds at the bottom of the table.[16]

As is displayed in table 2, the 32 funds fall into five groups of 5-8 funds each; the first and the third groups could be further subdivided as indicated. In the first three categories – structure, governance, and transparency and accountability – scores within the categories are correlated, but not perfectly, with overall scores. On balance, the scores are higher (relative to the potential maximum) in the structure category, lower in the governance and transparency and accountability categories, and most varied in the latter category.

Before proceeding to a discussion of the relevance of this exercise to China, three points of qualification are in order. First, the objective in presenting this scoreboard is to provide a benchmark, such as might be provided by a set of best practices. Second, the scoreboard is based upon public information that we were able to access principally using the Internet, as is appropriate today. To be useful in establishing accountability and transparency, information should be public, but we may not have accessed all the information available and necessarily applied judgment in some of our interpretations.

[15] Norway's SWF has not strictly followed its rules on the use of earnings from its SWF, does not provide the currency breakdown of its investments, and is not subject to a fully independent audit. New Zealand's SWF has no formal guideline governing the speed of adjustment of its investments.
[16] One of the two is the Government of Singapore's Investment Corporation. At the same time, Singapore's Temasek Holdings scores considerably above the average.

Third, any benchmark provides a basis for countries to assess their own practices and performance. Countries in different circumstances may conclude that particular elements are not relevant to their situations. However, the benchmark provides a reference point to assess and justify their decisions.

China's Central Huijin Investment Company has an overall score of 6.0, the same as Venezuela's National Development Fund. Both are well below the average.

To date, there is not enough public information about the China Investment Company to provide a score for that entity. However, based on what we know to date, it is not in the first two groups. The CIC's economic objective is not clear. CIC Chairman Lou Jiwei is reported to have said, "The purpose is to realize a maximization of long-term investment returns within an acceptable risk range." Chairman Lou's characterization is hardly operational, in particular in the context in which two thirds of the CIC's initial investment is to be domestic. One would want to know how the recipient banks are going to deploy the foreign currency assets they receive as well as what return the CIC will receive on its investments in those banks. More broadly, what is the strategy of the CIC for its other investments? The CIC does appear to have a detailed governance structure, but how it will operate and how it will relate to the actual managers of the investments remain to be clarified. Will it primarily be making direct investments like the stake in Blackstone or will it largely be investing in marketable instruments, such as bonds and equities? Will it follow guidelines for corporate responsibility to the extent that it holds voting shares or stakes? What assurances are there of domestic or international accountability and transparency? Will the CIC publish reports on its size and operations? Will it be subject to a published independent audit?

Why should any of these questions be important to the sovereign Chinese authorities? First as noted earlier, because of the potential size of the CIC and the country's foreign exchange reserves more generally, China's investments are the target of principal concern to the international financial system. Therefore, China is going to be held to the highest standard whether or not the authorities embrace that standard. China is sovereign within its own borders, but in the international financial context, in its investment policy as well as its exchange rate policy, China's sovereignty is constrained by the fact that it is not the only country whose interests are involved.

Second, the Chinese authorities should embrace some standard to justify their own operations to domestic and international critics. It follows that in their own interests the Chinese authorities should play a leadership role in developing the standard that should be applied.[17]

Third, unless China plays a leadership role in this area and can demonstrate that it is a good international financial citizen, it will risk protectionist reactions limiting its investments in other countries nominally seeking to defend their economic security interests.

Fourth, it is well known that there already have been controversies in China about official financial investments. One example is the Chinese investment in Blackstone through China Jianyin Investment Limited, which is to be transferred to the CIC. The value of that investment has declined substantially since it was first made. The decline has generated controversy and criticism within China. Presumably, the investment was part of an overall strategy and the strategy is expected to generate higher long-term

[17] At the same time the Chinese authorities should embrace greater transparency in the management of their international reserves more broadly as advocated in Truman and Wong (2006).

returns than investments in short-dated US treasury instruments, but there is increased risk and potential paper losses at least in the short run. This goes with the territory, but a clear investment strategy would help to blunt such criticism.

Another controversy surrounds the investments by Temasek, one of Singapore's sovereign wealth funds, in Chinese banks at share prices substantially discounted relative to prices paid in their initial public offerings. These transactions involved the sale of strategic stakes and often other foreign institutions also purchased stakes on similar terms. Nevertheless, the transactions have been criticized as sweetheart deals smacking of crony capitalism.

My conclusion is that the Chinese authorities, as they role out the structure, governance, transparency, and ground rules for the China Investment Corporation, have good reason to think hard about these issues for three basic reasons: the actual and potential size of the CIC, general anxiety around the world about anything that concerns China's economic development, and the reality that China is subject to multiple suspicions about its political and strategic objectives. They derive from the fact that the scope for true private enterprise in its economy is still minimal, and China is associated with economic espionage and the proliferation of strategic technologies (Graham and Marchick 2006).

My recommendation is that China should take the lead along with other countries with large sovereign wealth funds, or their equivalent, to develop a set of best practices for their operation. I offer my scoreboard exercise as a point of departure. Such an approach will facilitate the smooth management of China's outsized foreign exchange reserves respecting the interests of China as well as the global financial system.

Figure 1: China's Foreign Exchange Reserves (1992-2006)

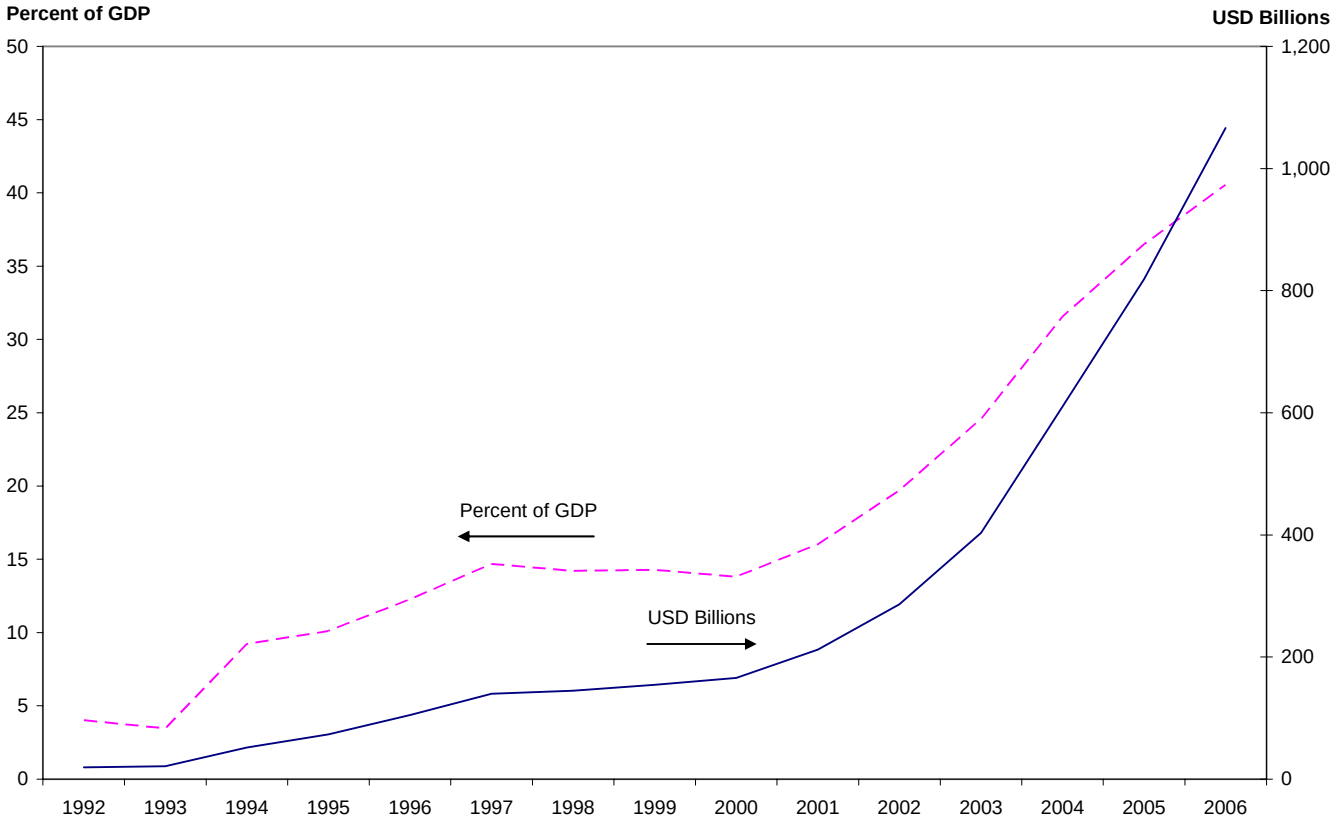

Table 1: Foreign Exchange Reserves and Current Account Balances

	Foreign Exchange Reserves				
	EOY 2006 (USD Billions)	Change 2001-2006 (Percent)	Share of GDP 2006 (Percent)	Reserves / GDP[1] 2002-2006 (Percent)	Current Account / GDP[2] 2002-2006 (Percent)
China[s]	1,066	403	41	8.6	5.5
Japan	875	126	20	2.2	3.5
Russia[sr]	295	807	30	8.4	9.7
Taiwan	266	118	75	8.9	7.1
Korea[sr]	238	133	27	3.9	1.9
India	170	276	19	3.7	-0.3
Singapore[sr]	136	81	103	11.3	22.5
Hong Kong	133	20	70	2.6	9.9
Brazil	86	139	8	1.4	1.0
Malaysia[s]	82	185	54	8.9	13.3
Algeria[s]	78	333	68	14.0	17.2
Norway[s]	56	153	17	2.6	14.3
United Arab Emirates[s]	28	98	16	2.4	12.3
Kuwait[s]	12	32	13	0.9	32.9
Qatar[s]	5	346	10	2.4	20.0

s = has one or more sovereign wealth funds, r = reserves include sovereign wealth fund in whole or in part

1. Sum of changes in reserves as a ratio to sum of total output.
2. Sum of current account balances as a ratio to sum of total output.

Table 2: Summary Scoreboard for Sovereign Wealth Funds

		Structure	Governance	Transparency & Accountability	Behavior	Total
New Zealand	Superannuation Fund	8.00	4.00	12.00	0.00	24.00
Norway	Government Pension Fund – Global	7.50	4.00	10.50	1.00	23.00
Timor-Leste	Petroleum Fund	8.00	2.00	11.75	0.00	21.75
Canada	Alberta Heritage Savings Trust Fund	7.50	3.00	9.00	0.00	19.50
United States	Alaska Permanent Fund	7.50	2.00	8.50	0.00	18.00
Australia	Future Fund	8.00	2.00	7.00	0.00	17.00
Azerbaijan	State Oil Fund of the Republic of Azerbaijan	5.00	2.00	9.50	0.00	16.50
Chile	Economic and Social Stabilization Fund	7.00	2.00	6.50	0.00	15.50
Botswana	Pula Fund	5.50	2.00	7.00	0.00	14.50
Kazakhstan	National Oil Fund	6.00	2.00	6.50	0.00	14.50
Singapore	Temasek Holdings	4.00	1.50	8.00	0.00	13.50
São Tomé and Príncipe	National Oil Account	8.00	2.00	2.25	0.00	12.25
Trinidad and Tobago	Heritage and Stabilization Fund	6.50	2.00	3.75	0.00	12.25
Kuwait	Kuwait Investment Authority	6.00	3.00	3.00	0.00	12.00
Malaysia	Khazanah Nasional	4.00	1.50	4.00	0.00	9.50
Russia	Stabilization Fund of the Russian Federation	4.00	2.00	3.50	0.00	9.50
Korea	Korea Investment Corporation	6.00	2.00	1.00	0.00	9.00
Kiribati	Revenue Equalization Reserve Fund	5.00	2.00	0.50	0.00	7.50
Mexico	Oil Income Stabilization Fund	5.00	0.00	2.00	0.00	7.00
China	Central Huijin Investment Company	5.50	0.00	0.50	0.00	6.00
Venezuela	National Development Fund	1.50	0.50	4.00	0.00	6.00
Iran	Oil Stabilization Fund	4.00	1.00	0.50	0.00	5.50
Venezuela	Macroeconomic Stabilization Fund	3.00	0.50	2.00	0.00	5.50
Oman	State General Reserve Fund	3.00	0.00	2.00	0.00	5.00
Sudan	Oil Revenue Stabilization Account	4.00	0.00	1.00	0.00	5.00
Algeria	Revenue Regulation Fund	3.00	1.00	0.50	0.00	4.50
United Arab Emirates	Istithmar	3.00	0.50	0.25	0.00	3.75
United Arab Emirates	Mubadala Development Company	3.00	0.50	0.00	0.00	3.50
Brunei	Brunei Investment Agency	1.00	0.50	1.00	0.00	2.50
Singapore	Government of Singapore Investment Corporation	1.50	0.00	0.75	0.00	2.25
Qatar	Qatar Investment Authority	2.00	0.00	0.00	0.00	2.00
United Arab Emirates	Abu Dhabi Investment Authority and Corporation	0.50	0.00	0.00	0.00	0.50
Total Possible Points		8.00	4.00	12.00	1.00	25.00
Average Number of Points		4.80	1.42	4.02	0.03	10.27
United States	California Public Employees' Retirement System	8.00	3.00	10.25	0.50	21.75

Appendix

A Scoreboard for Sovereign Wealth Funds

Sovereign wealth funds (SWF) or their near equivalent come in many forms, with a variety of objectives, in countries with a range of governmental structures. Consequently, comparisons among them are difficult. Nevertheless, it is possible to outline a core set of elements that are substantially relevant for all such entities whether the objective is short-term macro-economic stabilization, wealth transfer across generations, or a combination of objectives, which usually is the case. One can then evaluate each individual sovereign wealth fund on the extent to which those elements are associated with its structure and operation and, in the process, create a scoreboard.

This appendix presents the scoreboard that we have constructed.[18] It covers four basic categories: (1) structure, (2) governance, (3) transparency and accountability, and (4) behavior. Within each category we pose a set of yes/no questions. The total number of questions is 25. For two of the categories, we group questions in subcategories. We evaluate 32 SWFs in 28 countries (table A1), as well as the California Public Employees' Retirement System (CalPERS) as a reference point.[19]

For each of our 25 questions, the answer is yes for at least one SWF. If the answer is an unqualified yes, we score it as "1". If the answer is no, we score it as "0".

[18] Doug Dowson made many contributions to this study as noted on the first page of this paper. However, he deserves special mention for assembling the data on the sovereign wealth funds covered in this study that are used to construct this scoreboard.

[19] In our evaluation of SWFs, we include the funds of two sub-national units, the Alberta (Canada) Heritage Savings Trust Fund and Alaska (United States) Permanent Fund. (We might have included Wyoming's similar fund.) We also include two national pension funds, New Zealand's Superannuation Fund and Australia's Future Fund. We might have included the national pension funds of a number of other countries such as Ireland. We would not classify Norway's Government Pension Fund – Global as a "pension fund" despite the inclusion of that word in its title because at present earnings from the fund are used solely to finance Norway's general budget. For pension funds such as CalPERS, established by law and generally subject to restrictions under such a law, it is somewhat easier for the sovereign wealth fund to record a high score.

However, for many elements, we allow for partial scores of 0.25, 0.50, and 0.75, indicated by (p) in the descriptions below.

In collecting the answers to our questions we looked for sources of systematic, continuously available, public information. For some of our facts we relied on independent, published reports, for example by the IMF or World Bank. However, in general, we required that the SWF produce an ongoing flow of systematic information. Consequently, for some SWF more is known about them than is reflected in our scoring, but that information is anecdotal and occasional rather than systematic and regular. In our view, it is not sufficient that an individual SWF provides information in ad hoc interviews with the press as has been done, for example, by the Government of Singapore Investment Corporation and the Abu Dhabi Investment Authority. Although we have tried to be rigorous and systematic in our evaluation of each entity, some degree of subjectivity necessarily is present in our procedure.

The four categories are listed below with subcategories where relevant. The 25 elements are detailed with comments on some of them as appropriate. Table A2 provides the scores of the 32 funds on each element as well as subtotals for each category and the overall score for each SWF.

Structure (8)[20]

1. Is the SWF's **objective** clearly communicated? (p - 28)[21]

[20] The number in parentheses indicates the number of elements included in the category as well as the maximum number of points that can be recorded for each SWF in the category.

[21] The number in the parentheses, for some elements preceded by a "p", indicates the total number of points out of 32 (the number of funds) recorded in this category. In other words, the number summarizes the score of the SWF as a group on each element. The figure is also at the bottom of each column in table A2.

Fiscal Treatment (4).[22]

Fiscal Treatment is central to a SWF's role in the macro-economic stability of the country. This involves several components including how a SWF receives its resources, how its principal and earnings may be employed by the government, and whether the government follows those procedures. As detailed, for example, in IMF (2007a), basic principles of good public finance aimed at limiting pro-cyclical influences on fiscal policy are that the SWF not be used as a second budget, should be integrated with the overall budget of the government, and the government should not explicitly or implicitly borrow against resources building up in the SWF. In addition, clear rules and principles limit the potential scope for corruption in the use of the SWF for domestic purposes.

2. Is the **source of** the SWF's **funding** clearly specified? (p – 25.5)
3. Is nature of the subsequent **use** of the principal and earnings in the fund clearly stated? (p – 16)
4. Are these elements of fiscal treatment **integrated with** the **budget**? (p – 17.5) In some cases, the integration is looser than in others. For this element, as well as element #5, some SWF that have been recently established do not have an established record of compliance. In those cases, we gave the SWF full credit.
5. Are the **guidelines** for fiscal treatment generally **followed** without frequent adjustment? (p – 13)

Other Structural Elements (3)

6. Is the overall **investment strategy** clearly communicated? (p – 16.5)

[22] The number in parentheses indicates the number of elements included in the subcategory as well as the maximum number of points that can be recorded for each SWF in the subcategory.

7. Is the procedure for **changing the structure** clear? (p – 12) Where a SWF has been established by law, the procedure for changing many elements of the structure is clearer than when that is not the case.
8. Is the SWF **separate from** the country's **international reserves**? (25) If there is no separation between the SWF and international reserves, this creates ambiguity about the investment objectives of the SWF as well as about the management of the government's international reserves.

Governance (4)

9. Is the **role of the government** in setting the investment strategy of the SWF clearly established? (p – 16.5)
10. Is the **role of the manager** in executing the investment strategy clearly established? (p – 22.5)
11. Does the SWF have in place and publicly available **guidelines for corporate responsibility** that it follows? (p – 3.5)
12. Does the SWF have **ethical guidelines** that it follows? (3) It could reasonably be argued that the objectives of a SWF should be merely to implement its investment strategy and maximize financial returns subject to whatever risk management constraints that have been established. In this case, its "ethical guidelines" would involve ignoring ethical considerations, and we would score such a SWF with "1" even though we have not identified such an entity. However, in some cases, the SWF may implicitly limit its investments in certain instruments, entities, activities, or countries without a clearly articulated set of guidelines. In the absence of any information on this point, a SWF receives a "0" in our scoring.

Transparency and Accountability (12)

Reports (2).

Regular reporting is the core of accountability, and transparency is the core of accountability. Any SWF that does not provide some sort of regular public report on its activities will not score many points in this subcategory or for the category as a whole.

13. Does the SWF provide at least an **annual report** on its activities and results? (p – 13.25) In cases where there is an annual report, but it contains little or no information on the activities of the SWF, we give it a score of more than zero but less than 1. We also give partial credit (0.25), for example, for a report to a parliament that is not published.
14. Does the SWF provide **quarterly reports** on its activities? (p – 9.25) As with element #13, we allow for a partial score. We acknowledge that views differ on the desirability of quarterly financial reporting. Some argue that it promotes too much focus on short-term returns. In our view, the principal argument for quarterly reporting rests on transparency. The entity should be able to withstand the influence of excessive short-term emphasis given that it is not subject to the disciplines of the market.

Investments (7).

15. Do regular reports on the investments by the SWF include the **size of** the **fund**? (p – 21.5)? Where a SWF states that it is "at least" of a certain size, we give partial credit (0.25).
16. Do regular reports on the investments by the SWF include information on the **returns** it earns? (10) In a number of cases, reports indicate the overall increase

in the size of the fund without any distinction between the addition of new resources and earnings on resources previously incorporated in the fund. This practice receives no credit. Some reports on returns may provide an overall figure, perhaps translated into domestic currency, as well as additional detail, which one might think deserves extra credit, but we do not give extra credit.

17. Do regular reports on investments by the SWF include information on the **types** of investments? (p – 13.25) For example, in what sectors and in what instruments? A general description receives only partial credit.
18. Do regular reports on the investments by the SWF include information on the geographic **location** of investments? (p – 8) A listing of broad regions of the world receives only partial credit.
19. Do regular reports on the investments by the SWF include information on the **specific** investments? (p – 3.5) For example, which instruments, countries, and companies? In some cases, only "significant" investments are identified, receiving partial credit.
20. Do regular reports on the investments by the SWF include information on the **currency composition** of investments? (p – 7.5) Partial credit is given where a SWF provides information on broad groups of currencies.
21. Are the holders of investment **mandates** identified? (p – 4.5) The rationale is that by disclosing the holders of individual investment mandates the public both in the country and outside the country can check on the records, quality, and reliability of those intermediaries as well as limit the scope for sweetheart arrangements. To

receive full credit, a SWF must publish the names of each holder of a mandate. If it merely states that it grants mandates, we give it no credit.

Audits (3).

Regular audits, preferably independent as well as published, are a central element of accountability. For this reason, we have assigned a maximum of three points to this subcategory.

22. Is the SWF subjected to a **regular audit**? (p - 17)
23. Is the audit **published**? (7)
24. Is the audit **independent**? (p – 14) In some cases, SWF are subjected to regular audits that are published, but the auditing is internal to the SWF in whole or in part, which takes away some of the objectivity.

Behavior (1).

We have identified only one element in this category. One could imagine several other elements that might be included, for example, whether the SWF engages in short sales or the use of derivatives, which many SWF with moderately active investment strategies do in part and also disclose that fact. In addition, it might be desirable if the SWF consulted with the country of location for any large investment or disinvestment or with the country of issue of the currency involved. In an initial version of this scoreboard we included such an element, but because we were unable to find a SWF that followed such a practice, we dropped it from our scoring exercise.

25. Does the SWF indicate the nature and **speed of adjustment**? (p - 1) This is done only by the Norwegian Government Pension Fund-Global, as far as we could determine. The declared policy of that fund is to use new inflows to make

adjustments in its portfolio in light of market changes that move its existing portfolio away from its benchmarks, in other words, a policy of portfolio rebalancing. CalPERs states that it seeks to invest efficiently, bearing in mind the impact of management and transaction costs on the return on its assets, and we gave it partial credit.

Table A1: Sovereign Wealth Funds

Country	Name	Date established	Current size[a] (billions of US dollars)
United Arab Emirates			500 – 900[e]
	Abu Dhabi Investment Authority and Corporation	1976	(500 – 875[e])
	Mubadala Development Company	2002	(10[e])
	Istithmar	2003	(4[e])
Norway	Government Pension Fund – Global	1990	308
Singapore			208 – 438[er]
	Government of Singapore Investment Corporation	1981	(100 – 330[er])
	Temasek Holdings[b]	1974	(108)
Kuwait	Kuwait Investment Authority	1960	213
Russia	Stabilization Fund of the Russian Federation	2004	133[r]
China	Central Huijin Investment Company[b]	2003	68[e]
Qatar	Qatar Investment Authority	2005	50[e]
Australia	Future Fund[b]	2006	49
Algeria	Revenue Regulation Fund	2000	43
United States	Alaska Permanent Fund[b]	1976	38
Brunei	Brunei Investment Agency	1983	30[e]
Korea	Korea Investment Corporation	2005	20[r]
Malaysia	Khazanah Nasional[b]	1993	18
Kazakhstan	National Oil Fund	2000	18
Canada	Alberta Heritage Savings Trust Fund[b]	1976	16
Venezuela			16
	National Development Fund[c]	2005	(15)
	Macroeconomic Stabilization Fund	1998	(1)
Chile	Economic and Social Stabilization Fund	2006	10
New Zealand	Superannuation Fund[b]	2001	10
Iran	Oil Stabilization Fund	2000	9[e]
Botswana	Pula Fund	1997	6
Oman	State General Reserve Fund	1980	5[e]
Mexico	Oil Income Stabilization Fund	2000	3
Azerbaijan	State Oil Fund of the Republic of Azerbaijan	2000	2
Trinidad and Tobago	Heritage and Stabilization Fund	2007	1
Timor-Leste	Petroleum Fund	2005	1
Kiribati	Revenue Equalization Reserve Fund	1956	<1[e]
São Tomé and Príncipe	National Oil Account	2004	<1
Sudan	Oil Revenue Stabilization Account	2002	<1
Total[d]			2,091

e = estimate, r = some or all assets are included in reserves

a. Data are from the end of 2006 or the most recent date available.
b. A portion of the holdings is in domestic assets.
c. A portion of these holdings is intended for domestic investment.
d. Total uses the midpoint of the range of estimates.

Table A2: Scoreboard for Sovereign Wealth Funds		Structure								
			Fiscal Treatment							
		Objective	Source of Funding	Use of Fund	Integrated with Budget	Guidelines Followed	Investment Strategy	Changing the Structure	Separate from International Reserves	**Subtotal**
Algeria	Revenue Regulation Fund	1	1	0	0	0	0	0	1	**3**
Australia	Future Fund	1	1	1	1	1	1	1	1	**8**
Azerbaijan	State Oil Fund of the Republic of Azerbaijan	1	1	0.5	0.5	1	0	0	1	**5**
Botswana	Pula Fund	1	0.5	1	1	0	1	1	0	**5.5**
Brunei	Brunei Investment Agency	1	0	0	0	0	0	0	0	**1**
Canada	Alberta Heritage Savings Trust Fund	1	1	1	1	0.5	1	1	1	**7.5**
Chile	Economic and Social Stabilization Fund	1	1	1	0.5	1	0.5	1	1	**7**
China	Central Huijin Investment Company	0.5	1	1	1	1	0	0	1	**5.5**
Iran	Oil Stabilization Fund	1	1	1	0	0	0	0	1	**4**
Kazakhstan	National Oil Fund	1	1	1	0.5	0	1	0.5	1	**6**
Kiribati	Revenue Equalization Reserve Fund	1	1	1	1	0	0	1	0	**5**
Korea	Korea Investment Corporation	1	1	0	1	1	1	1	0	**6**
Kuwait	Kuwait Investment Authority	1	1	0	1	0	1	1	1	**6**
Malaysia	Khazanah Nasional	0.5	1	0	0	1	0.5	0	1	**4**
Mexico	Oil Income Stabilization Fund	1	1	0.5	1	0	0.5	0	1	**5**
New Zealand	Superannuation Fund	1	1	1	1	1	1	1	1	**8**
Norway	Government Pension Fund – Global	1	1	1	1	0.5	1	1	1	**7.5**
Oman	State General Reserve Fund	0.5	0.5	0.5	0.5	0	0	0	1	**3**
Qatar	Qatar Investment Authority	0.5	0.5	0	0	0	0	0	1	**2**
Russia	Stabilization Fund of the Russian Federation	1	1	0	1	1	0	0	0	**4**
São Tomé and Príncipe	National Oil Account	1	1	1	1	1	1	1	1	**8**
Singapore	Government of Singapore Investment Corporation	1	0.5	0	0	0	0	0	0	**1.5**
Singapore	Temasek Holdings	1	1	0	0	0	1	0	1	**4**
Sudan	Oil Revenue Stabilization Account	0.5	1	0.5	1	0	0	0	1	**4**
Timor-Leste	Petroleum Fund	1	1	1	1	1	1	1	1	**8**
Trinidad and Tobago	Heritage and Stabilization Fund	1	1	1	0.5	1	1	0	1	**6.5**
United Arab Emirates	Abu Dhabi Investment Authority and Corporation	0	0	0	0	0	0.5	0	0	**0.5**
United Arab Emirates	Istithmar	1	0.5	0	0	0	0.5	0	1	**3**
United Arab Emirates	Mubadala Development Company	1	0	0	0	0	1	0	1	**3**
United States	Alaska Permanent Fund	1	1	1	1	1	1	0.5	1	**7.5**
Venezuela	Macroeconomic Stabilization Fund	1	1	0	0	0	0	0	1	**3**
Venezuela	National Development Fund	0.5	0	0	0	0	0	0	1	**1.5**
Total[a]		28	25.5	16	17.5	13	16.5	12	25	**4.8**
United States	California Public Employees' Retirement System	1	1	1	1	1	1	1	1	**8**

a. For each category the value under subtotal represents the average for all funds.

Table A2: Scoreboard for Sovereign Wealth Funds (continued)		Governance					Transparency & Accountability				
							Reports		Investments		
		Role of Government	Role of Manager	Guidelines for Corporate Responsibility	Ethical Guidelines	**Subtotal**	Annual Report	Quarterly Report	Size of Fund	Returns	Types
Algeria	Revenue Regulation Fund	0	1	0	0	**1**	0	0	0.5	0	0
Australia	Future Fund	1	1	0	0	**2**	1	0	1	1	1
Azerbaijan	State Oil Fund of the Republic of Azerbaijan	1	1	0	0	**2**	1	1	1	1	1
Botswana	Pula Fund	1	1	0	0	**2**	1	1	1	1	1
Brunei	Brunei Investment Agency	0	0.5	0	0	**0.5**	0	0	0	0	0
Canada	Alberta Heritage Savings Trust Fund	1	1	1	0	**3**	1	1	1	1	1
Chile	Economic and Social Stabilization Fund	1	1	0	0	**2**	1	1	1	0	1
China	Central Huijin Investment Company	0	0	0	0	**0**	0	0	0	0	0.5
Iran	Oil Stabilization Fund	0	1	0	0	**1**	0	0	0.5	0	0
Kazakhstan	National Oil Fund	1	1	0	0	**2**	0.5	0.5	1	1	0.5
Kiribati	Revenue Equalization Reserve Fund	1	1	0	0	**2**	0	0	0.5	0	0
Korea	Korea Investment Corporation	1	1	0	0	**2**	0	0	1	0	0
Kuwait	Kuwait Investment Authority	1	1	0	1	**3**	0.5	0	0.5	0	0
Malaysia	Khazanah Nasional	0.5	1	0	0	**1.5**	0.5	0	1	0	0.5
Mexico	Oil Income Stabilization Fund	0	0	0	0	**0**	0	0	1	0	0
New Zealand	Superannuation Fund	1	1	1	1	**4**	1	1	1	1	1
Norway	Government Pension Fund – Global	1	1	1	1	**4**	1	1	1	1	1
Oman	State General Reserve Fund	0	0	0	0	**0**	0	0	0	0	0
Qatar	Qatar Investment Authority	0	0	0	0	**0**	0	0	0	0	0
Russia	Stabilization Fund of the Russian Federation	1	1	0	0	**2**	0	0	1	0	1
São Tomé and Príncipe	National Oil Account	1	1	0	0	**2**	0	0	0	0	0.25
Singapore	Government of Singapore Investment Corporation	0	0	0	0	**0**	0	0	0.25	0	0.5
Singapore	Temasek Holdings	0	1	0.5	0	**1.5**	1	0	1	1	0.5
Sudan	Oil Revenue Stabilization Account	0	0	0	0	**0**	0	0	1	0	0
Timor-Leste	Petroleum Fund	1	1	0	0	**2**	1	1	1	1	1
Trinidad and Tobago	Heritage and Stabilization Fund	1	1	0	0	**2**	0.5	0	1	0	0
United Arab Emirates	Abu Dhabi Investment Authority and Corporation	0	0	0	0	**0**	0	0	0	0	0
United Arab Emirates	Istithmar	0	0.5	0	0	**0.5**	0	0	0.25	0	0
United Arab Emirates	Mubadala Development Company	0	0.5	0	0	**0.5**	0	0	0	0	0
United States	Alaska Permanent Fund	1	1	0	0	**2**	1	1	1	1	1
Venezuela	Macroeconomic Stabilization Fund	0	0.5	0	0	**0.5**	0.25	0.25	1	0	0.5
Venezuela	National Development Fund	0	0.5	0	0	**0.5**	1	0.5	1	0	0
Total[a]		16.5	22.5	3.5	3	**1.4**	13.25	9.25	21.5	10	13.25
United States	California Public Employees' Retirement System	1	1	1	0	**3**	1	1	1	1	1

a. For each category the value under subtotal represents the average for all funds.

Table A2: Scoreboard for Sovereign Wealth Funds (continued)		Transparency & Accountability								Behavior	Grand Total
		Investments				Audit					
		Location	Specific	Currency Composition	Mandates	Regular	Published	Independent	**Subtotal**	**Speed of Adjustment**	
Algeria	Revenue Regulation Fund	0	0	0	0	0	0	0	**0.5**	**0**	**4.5**
Australia	Future Fund	0	0	0	0	1	1	1	**7**	**0**	**17**
Azerbaijan	State Oil Fund of the Republic of Azerbaijan	0.5	0	1	0	1	1	1	**9.5**	**0**	**16.5**
Botswana	Pula Fund	0	0	0	0	1	0	1	**7**	**0**	**14.5**
Brunei	Brunei Investment Agency	0	0	0	0	1	0	0	**1**	**0**	**2.5**
Canada	Alberta Heritage Savings Trust Fund	1	0	0	0	1	1	1	**9**	**0**	**19.5**
Chile	Economic and Social Stabilization Fund	0.5	0	1	1	0	0	0	**6.5**	**0**	**15.5**
China	Central Huijin Investment Company	0	0	0	0	0	0	0	**0.5**	**0**	**6**
Iran	Oil Stabilization Fund	0	0	0	0	0	0	0	**0.5**	**0**	**5.5**
Kazakhstan	National Oil Fund	0	0	0.5	0.5	1	0	1	**6.5**	**0**	**14.5**
Kiribati	Revenue Equalization Reserve Fund	0	0	0	0	0	0	0	**0.5**	**0**	**7.5**
Korea	Korea Investment Corporation	0	0	0	0	0	0	0	**1**	**0**	**9**
Kuwait	Kuwait Investment Authority	0	0	0	0	1	0	1	**3**	**0**	**12**
Malaysia	Khazanah Nasional	1	0	0	0	1	0	0	**4**	**0**	**9.5**
Mexico	Oil Income Stabilization Fund	0	0	1	0	0	0	0	**2**	**0**	**7**
New Zealand	Superannuation Fund	1	1	1	1	1	1	1	**12**	**0**	**24**
Norway	Government Pension Fund – Global	1	1	0	1	1	1	0.5	**10.5**	**1**	**23**
Oman	State General Reserve Fund	0	0	0	0	1	0	1	**2**	**0**	**5**
Qatar	Qatar Investment Authority	0	0	0	0	0	0	0	**0**	**0**	**2**
Russia	Stabilization Fund of the Russian Federation	0.5	0	1	0	0	0	0	**3.5**	**0**	**9.5**
São Tomé and Príncipe	National Oil Account	0	0	0	0	1	0	1	**2.25**	**0**	**12.25**
Singapore	Government of Singapore Investment Corporation	0	0	0	0	0	0	0	**0.75**	**0**	**2.25**
Singapore	Temasek Holdings	1	0.5	0	0	1	1	1	**8**	**0**	**13.5**
Sudan	Oil Revenue Stabilization Account	0	0	0	0	0	0	0	**1**	**0**	**5**
Timor-Leste	Petroleum Fund	1	1	1	0.75	1	1	1	**11.75**	**0**	**21.75**
Trinidad and Tobago	Heritage and Stabilization Fund	0	0	0	0.25	1	0	1	**3.75**	**0**	**12.25**
United Arab Emirates	Abu Dhabi Investment Authority and Corporation	0	0	0	0	0	0	0	**0**	**0**	**0.5**
United Arab Emirates	Istithmar	0	0	0	0	0	0	0	**0.25**	**0**	**3.75**
United Arab Emirates	Mubadala Development Company	0	0	0	0	0	0	0	**0**	**0**	**3.5**
United States	Alaska Permanent Fund	0.5	0	1	0	1	0	1	**8.5**	**0**	**18**
Venezuela	Macroeconomic Stabilization Fund	0	0	0	0	0	0	0	**2**	**0**	**5.5**
Venezuela	National Development Fund	0	0	0	0	1	0	0.5	**4**	**0**	**6**
Total[a]		8	3.5	7.5	4.5	17	7	14	**4.0**	**1**	**10.27**
United States	California Public Employees' Retirement System	0.25	0	1	1	1	1	1	**10.25**	**0.5**	**21.75**

a. For each category the value under subtotal represents the average for all funds.

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