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SOVEREIGN WEALTH FUNDS FOR MACROECONOMIC PURPOSES

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Abstract

Sovereign wealth funds (SWFs) have become more numerous after the turn of the century, but the largest ones have been set up by non-democratic countries in the Middle East and Asia. Norway´s large SWF is an exception. In democratic societies, SWFs have been established in Australia, New Zealand and Ireland to pre-fund pensions in response to expected population ageing. The management of Norway's Fund has been index-based, with only a very small role played by active management. In most other SWFs around the world, active management is much more important, and the cost of management is much higher than in Norway. The academic literature suggests that although active management could be worthwhile, many empirical studies do not support the belief that external active management generates excess after-fee returns. An empirical study of active management in Norges Bank finds that 70 percent of the (small) active management results from equity can be explained by other systematic risk factors than market risk. There is no strong consensus about how a global fund should diversify its assets among asset classes and currencies. We argue that SWFs could have positive macroeconomic effects in democratic welfare states if the government runs pension programs financed on a pay-as-you-go basis, and future population ageing is significant. Still, a SWF is hardly politically feasible if there is no broad agreement in the electorate and among political parties that fiscal surpluses and a SWF is worthwhile.

1. Introduction

After the turn of the century, the number of sovereign wealth funds (SWFs) in the world economy has grown rapidly. According to Truman (2012), nominal assets under management of SWFs (in US dollars) doubled from 2005 to 2007. The word "sovereign wealth fund" is very recent. It was coined by Andrew Rozanov (2005). Truman (2010) refers to SWFs as "large pools of government-owned funds that are invested in whole or in part outside their home country." A more precise definition is given by the *International Forum of Sovereign Wealth Funds*, established in 2009:

> "*SWFs are defined as special purpose investment funds or arrangements, owned by the general government. Created by the general government for macroeconomic purposes, SWFs hold, manage, or administer assets to achieve financial objectives, and employ a set of investment strategies which include investing in foreign assets. The SWFs are commonly established out of balance of payments surpluses, official foreign currency operations, the proceeds of privatizations, fiscal surpluses, and/or receipts of commodity exports. These exclude inter alia, foreign currency reserve assets held by monetary authorities for the traditional balance of payments or monetary policy purposes, state-owned enterprises in the traditional sense, government-employee pension funds, or assets managed for benefits of individuals*".

In this report, we take a closer look at the recent growth of SWFs around the world, and discuss reasons why some governments have set up SWFs, and how they organized, Particular emphasis is placed on the transparent SWFs in the four OECD countries Australia, Ireland, New Zealand and Norway. We also discuss important asset management issues and the Funds´ potential macroeconomic effects, as well as ethical and political constraints relevant for investment strategy of SWFs in democratic societies, drawing in particular on Norway's 15 years of experience with its SWF, managed by the Central Bank (Norges Bank).

2. The rise of Sovereign wealth funds

Table 1 lists the country origin of major SWFs in September 2012.[1] The total market value of all funds in Table 1 amounts to more than $5.1 trillion (including 18 small funds from other countries, with a total value of $47.4 billion). About 60 per cent of these assets are managed by funds which have been set up to invest fiscal revenues from oil and gas, including Norway's SWF.[2] Of the 26 countries in Table 1, China dominates, owning six (non-oil) funds which represent a total market value of almost $1.5 trillion (28.9 per cent of all the SWF assets in the world). In addition, China`s Central Bank owns huge foreign currency reserves. About 75 per cent of the SWF assets in Table 1 are owned by governments in Asia and the Middle East.

The oldest Middle East SWF is *Kuwait Investment Authority*, established in 1953. In September 2012, total assets under management were $296 billion. In 1974, the government of Singapore established *Temasek Holdings*, the size of which was $157.5 billion in September 2012.[3] Another relatively old (and huge) Middle East SWF is *Abu Dhabi Investment Authority* (1976), with assets under management equal to $627 billion in September 2012.

There are relatively few OECD-countries in Table 1. The oldest one is the US *Texas Permanent School Fund* (1854), having a market value of $25.2 billion in September 2012. A bigger US fund is *Alaska Permanent Fund* ($42.3 billion in 2012), established in 1976. In the same year, *Alberta's Heritage Fund* (another oil-based SWF) was established in Canada. Its assets amounted to $15.9 billion in 2012. Except for Norway, most SWFs in OECD countries are recent and fairly small compared to GDP.

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[1] Source: The homepage of the Sovereign Wealth Fund Institute. Some large government employee pension funds in Japan, Holland, Canada and the United States are not included in the definition of SWF referred to above, but are defined as SWFs by Truman (2010). Including those would have increased the total asset value in Table 1 by roughly $2 trillion.

[2] Norway's Fund changed its name from *The Government Petroleum Fund* to *The Government Pension Fund – Global* (GPFG) in 2006. The future returns from the Fund are not going to be linked to pension benefits, however, and high government revenues from the petroleum sector are still the main source of the fiscal surpluses that have been invested in the fund, see Section 3 below.

[3] The second SWF of Singapore, *Government of Singapore Investment Corporation* (established in 1981) is larger ($247.5 billion in September 2012).

Table 1 Country origin of major sovereign wealth funds (September 2012)

Country	Year started	Source	Assets ($ billion)
China (5 funds)	1993/1997/2000/07/07	non-commodity	1,482.7
UAE – Abu Dhabi (3 funds)	1976/1984/2002	oil	740.5
Norway	1996	oil	656.2
Saudi Arabia (2 funds)	n/a / 2008	oil	538.1
Singapore (2 funds)	1974/1981	non-commodity	405
Kuwait	1953	oil	296
Russia	2008	oil	149.7
Qatar	2005	oil	115
USA (6 funds)	1854/1958/74/85/2011	oil/minerals/non-comm.	90.7
Australia	2006	non-commodity	78.65
UAE - Dubai	2006	oil	70
Libya	2006	oil	65
Kazakhstan	2000	oil	61.8
Algeria	2000	oil	56.7
South Korea	2005	non-commodity	43
Malaysia	1993	non-commodity	34
Azerbaijan	1999	oil	32.7
Brunei	1983	oil	30
Iran	1999	oil	23
Chile (2 funds)	2006/2007	copper	20.4
Ireland	2001	non-commodity	17.5
Canada	1976	non-commodity	15.9
New Zealand	2003	non-commodity	15.5
France	2008	non-commodity	14[*]
Brazil	2008	non-commodity	11.3
East Timor	2005	oil	10.2
18 small funds from other countries			47.4
Total			5,120.5
Total oil-related			2,952.5

Source: Sovereign Wealth Fund Institute.

[*] This is the French government's 49 percent share. 51 percent of this fund is privately owned.

In addition to USA, Canada and Norway, the following seven OECD-countries have set up SWFs after the turn of the century: Mexico (2000)[4], Ireland (2001), New Zealand (2003), South Korea (2005), Australia (2006), Chile (2007) and France (2008).

3. Why do some governments set up SFWs?

Let us start with the group of oil rich countries in Table 1, where the governments own large shares of the oil and natural gas resources, and/or receive considerable petroleum tax revenues. The government petroleum revenues permit more government spending and tax cuts than otherwise, but since the petroleum resources are non-renewable, it would be shortsighted to spend the revenues (including tax cuts) on a current basis and risk excessive de-industrialization ((The"Dutch disease"), oil-price driven macroeconomic fluctuations, as well as a future government revenue shortfall when the natural resources are depleted.[5] In economic terms, the expected present value of the future government cash flow from the petroleum sector is a wealth that will gradually approach zero some time in the future. Assuming a positive long-term real rate of return on financial assets larger than the growth rate of the population, this wealth makes it feasible for the government to earn a permanent income per capita if the petroleum wealth is gradually transformed into a permanent SWF. Clearly, this strategy requires that a considerable share of the petroleum revenues are saved and invested in a SWF. The same logic applies to countries in which the government receives revenues from other non-renewable resources like minerals (for example Chile and Botswana), but this logic does not apply to government revenues from renewable natural resources such as hydroelectric power.

The considerable increase in the world oil price after year 2000 is one important factor that explains the rapid growth in the assets under management by oil-related SWFs during the last 12 years. Let us use Norway as an example. From the beginning of the 1980s until the banking crisis in 1991-1992, Norwegian governments had fiscal surpluses, which were used to pay back government debt that had been accumulated during the rapid build-up of the petroleum sector in the 1970s. The institutional framework for a SWF was established in 1990 without any political controversy, and in

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[4] Mexico is not visible in Table 1 because its SWF is among the 18 small funds at the bottom of Table 1. In 2012 the assets under management of Mexico's *Oil Revenues Stabilization Fund* amounted to $6 billion.

[5] Venezuela is an example of an oil-rich country that has spent most of its oil revenues on a current basis.

1997, the fund (*Government Pension Fund Global* (GPFG)) received its first allocation. According the rules of the fund, an allocation from the central government budget must be limited by the size of the fiscal surplus. In years of deficits, the size of the fund must be reduced accordingly. This would prevent the government from building up the SWF without a corresponding increase in the central government's stock of net financial assets, i.e. the possibility of financing a build-up of the fund financed by public borrowing was excluded. This rule would also increase the political cost of running fiscal deficits and "raiding the fund". The main idea behind the fund is to avoid excessive and non-sustainable government spending of petroleum revenues, which could have destroyed internationally competitive sectors (the "Dutch disease") and triggered oil-price driven macroeconomic instability. Such an economic policy would also affect future generations' welfare negatively.[6] Another purpose of the fund is to act as a future generations fund to meet the government's unfunded pension liabilities and other age-related government spending. As most other OECD countries, government spending is expected to increase substantially due to population ageing. The second purpose implies that the long-run per capita size of the Fund would become larger than the initial petroleum wealth under the sea bed.

In 2001 a new fiscal guideline was approved by the Norwegian Parliament, along with a new inflation targeting framework for monetary policy, again with little political opposition. The fiscal guideline stipulates that over the business cycle, the part of the government's total petroleum revenues to be spent (or used to cut taxes) in the next year's central government budget amounts to 4 percent of the asset value of GPFG at the beginning of the present year. This is a flexible fiscal rule that allows automatic fiscal stabilizers to work as well as permitting extraordinary fiscal expansion under

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[6] The Ministry of Finance adopted generational accounting in 1994. The first generational accounting study of Norway found a considerable generational fiscal gap, suggesting that present generations in 1992 paid far too little taxes to the government see Auerbach et al. (1993). This report probably overestimated the real gap because of the weak business cycle stand (and the corresponding automatic fiscal stabilizers) in 1992. In 1999, after years of fiscal austerity, a new study found a gap close to zero; see Steigum and Gjersem (1999). The Norwegian results are very sensitive to assumptions about future real interest rates and growth in total factor productivity (TFP). Due to the implicit assumption of steady state, the general accounting method implies – counter intuitively - that a permanent increase in the TFP growth rate would *increase* the generational fiscal gap. The realized TFP growth has in fact been significantly higher that assumed by the two studies referred to above. The estimated generational fiscal gaps reported by the Ministry of Finance after the turn of the century, based on a higher TFP growth rate, have been quite high, despite the high oil price. Another factor explaining this result is new population projections, which assume that Norwegians will live longer than what previous population projections had assumed.

emergency circumstances, such as during the great global recession in 2009. The number 4 is an estimate of the long-term percentage expected annual real rate of return of the GPFG. During 1998 – 2012, the real rate of return was 2.42 percent (geometric average), see Report to Parliament (2012).

Thanks to the high oil price after year 2000, the foreign assets managed by GPFG are now (November 2012) more than NOK 3.7 trillion, or more than NOK 740,000 (about $130,000) per capita. The Fund's investment strategy is set by the Government (The Ministry of Finance). It is managed by Norges Bank, which employs a staff of 315 people for this task (232 employees in Oslo and 83 in the offices in London, New York, Singapore and Shanghai)[7]. All investment returns are reinvested in the Fund, in addition to the annual allocations of fiscal surpluses that follow from the fiscal guideline.
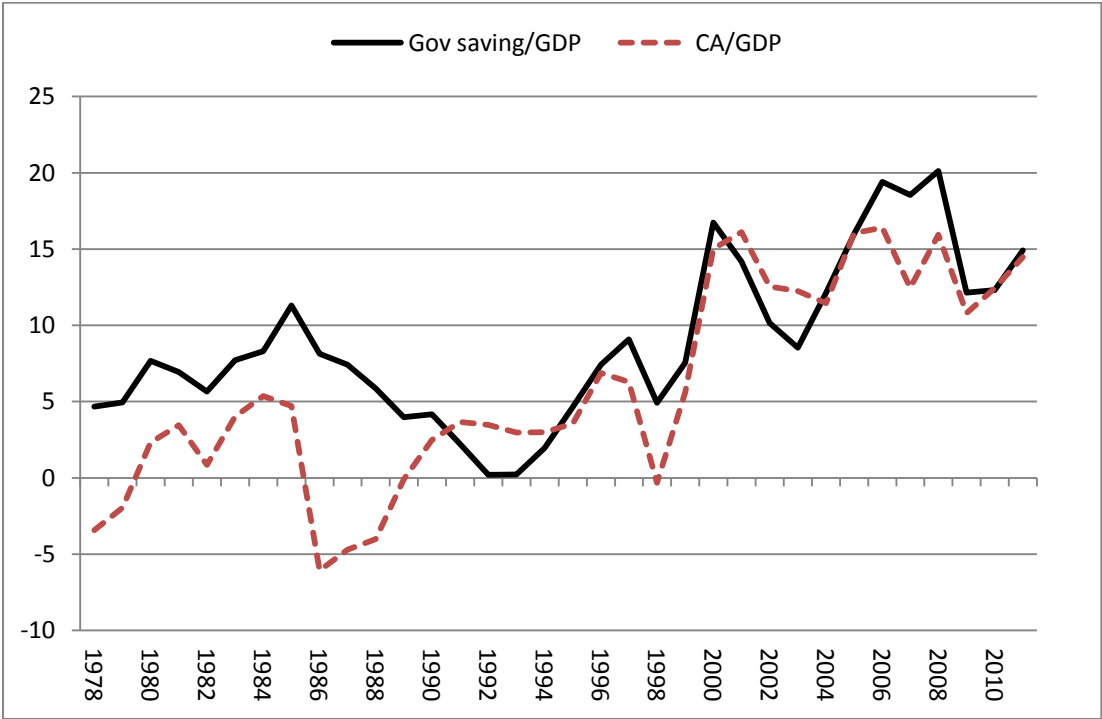
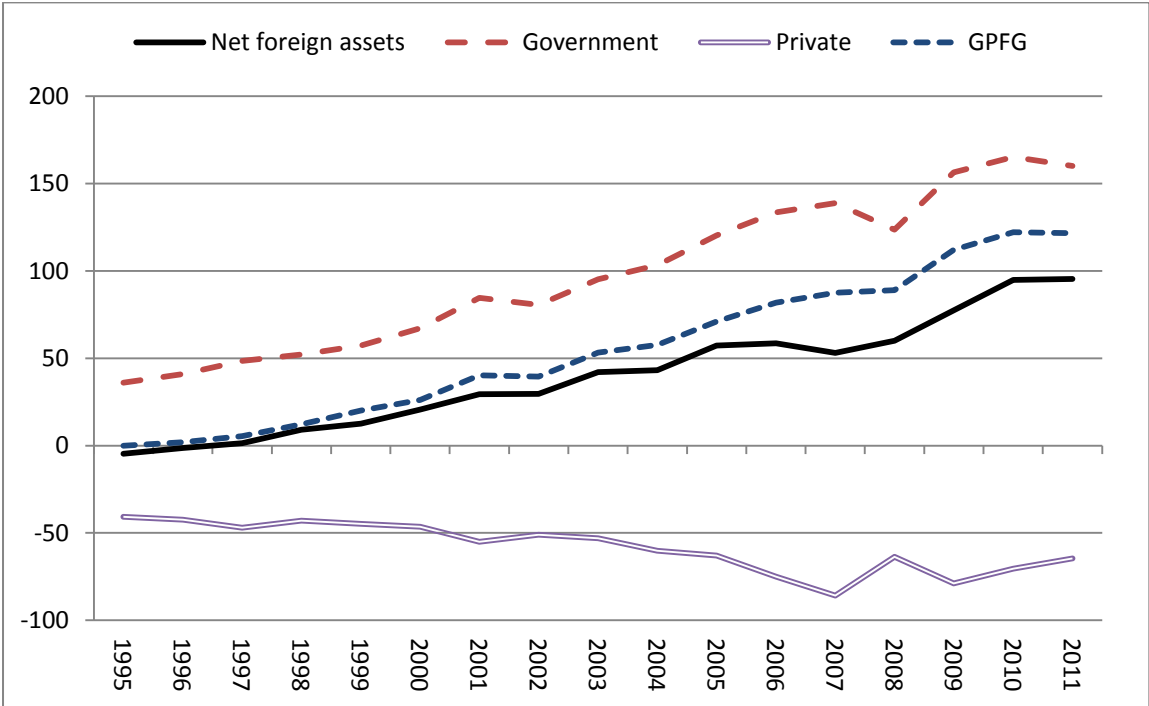
Source: National accounts. Statistics Norway.

Chart 1 Government saving and current account surplus (CA) in Norway, 1978 – 2011 (per cent of GDP).

Chart 1 shows that the high oil price - generated current account surpluses of Norway after the turn of the century were closely matched by correspondingly high government saving. In fact, while

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[7] Source: The Annual Report 2011. Norges Bank Investment Management, Oslo 2012.

the average current account surplus in percent of GDP was 13.8 percent per year in 2000-2011, average annual government saving was 14.6 percent of GDP during this period. The high correlation between Norwegian current account surpluses and government saving after 2000 can be explained by the fiscal guideline that governs the allocations to the GPFG.

By the end of year 2000, the assets under management of GPFG amounted to 26 per cent of GDP. During the next 11 years, the Fund's assets increased to 121 percent of GDP (end of 2011), see Chart 2.
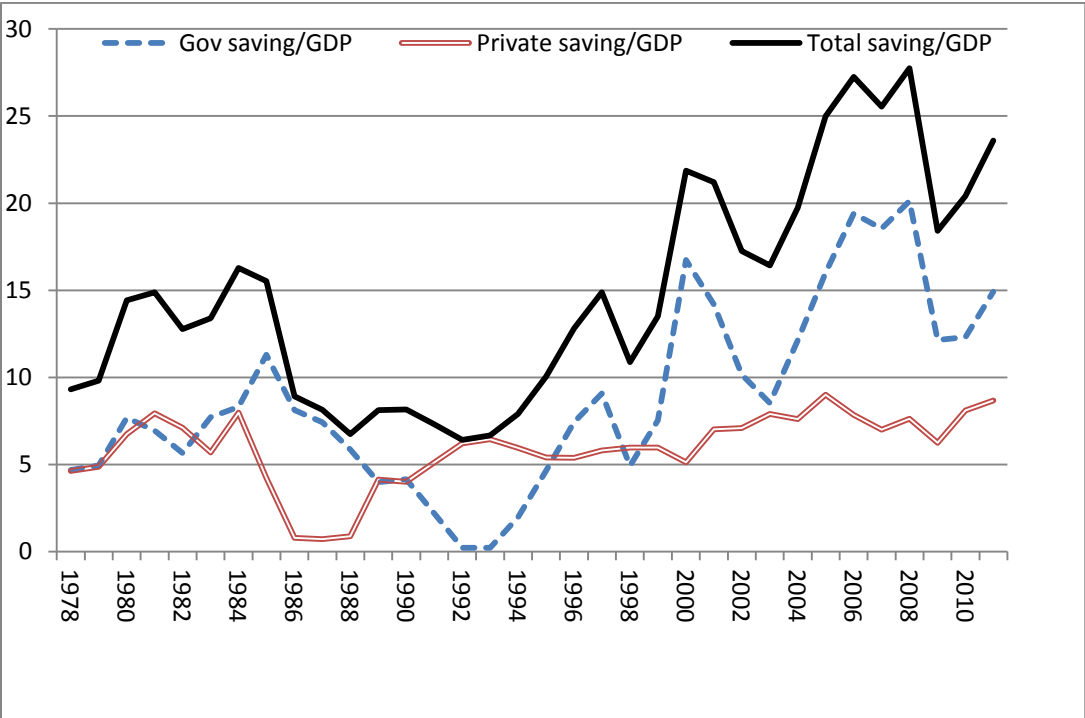

Source: National accounts (Statistics Norway) and The Ministry of Finance

Chart 2 Net foreign assets, government financial assets, private financial assets and assets under management by GPFG, 1995 – 2011 (end-of-year), per cent of GDP.

This chart also illustrates the growth of Norway's net foreign assets as well as the distribution of net financial assets between the government and the private (non-government) sector in the period 1995 - 2011. The private sector's net financial assets have always been negative, but the private net debt has not increased much in comparison with GDP after 2000. In addition to the SWF, the Norwegian government also holds considerable stakes in many large domestic companies, making the

net financial assets of the government substantially larger than the GPFG, compare the two upper graphs in Chart 2.[8]

Chart 3 shows that Norway's total saving is much more correlated with the government's saving than with private (non-government) saving, particularly after 2000. Again, the fiscal guideline explains why huge government saving due to a high oil price adds to total national saving. Private saving fluctuated a lot in the 1980s due to financial deregulation, and has increased somewhat (in percent of GDP) after the turn of the century.

Source: National accounts (Statistics Norway).

Chart 3 Norway's saving, 1978 – 2011 (percent of GDP)

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[8] In addition to GPFG, the Norwegian government also owns another fund (called *The Government Pension Fund Norway*), which invests 85 percent in Norwegian stock and bonds, and 15 percent in the Nordic countries (except Iceland). The assets under management of this fund were NOK129.5 billion ($23 billion) by the end of 2011. This is less than 4 percent of the size of the GPFG, but should also be considered a SWF according to the definition in Section 1. Many SWFs in Asia and the Middle East have channeled strategic equity stakes in large domestic companies and domestic portfolio investments in their SWFs. The Norwegian government has decided to manage such domestic equity investments completely separate from the two SFWs, however.

Looking specifically on the household saving rate, the average rate increased from 1.3 percent (of disposable income) in the 1980s, to 3.6 percent in the 1990s, and to 4.3 percent in the period 2000 – 2011. It is possible that the recent growth of the GPFG has made Norwegian consumers more confident that the Government will indeed deliver the promised pensions, health-, and other welfare services in the future. Such a confidence effect might partly explain Norwegian households' willingness to take on mortgage debt[9]. Since private saving also includes considerable net investment in housing as well as retained profits from the private business sector, the household sector debt build-up has not reduced the ratio of private saving in percent of GDP.

As explained above, the fiscal guideline is crucial for the strong increase in government saving and the high correlation between current account surpluses and the growth of Norway's SWF. In regard to the other large oil-related funds in Table 1, lack of transparency makes it difficult to know how the allocations to the funds are linked to petroleum revenues and fiscal policy. In the case of the *Alaska Permanent Fund*, however, the government of Alaska is free to finance fiscal deficits by borrowing, without running down the SWF, a possibility that is excluded by the Norwegian fiscal guideline. Baker, Besendorfer and Kotlikoff (2002) find that Alaska has the largest intertemporal state budget imbalance (the relative gap between the present value of projected expenditures and receipts) of all 50 US states. Therefore, there is probably not any link between the size of the *Alaska Permanent Fund* and the net financial assets by the government of Alaska.

We now turn to non-oil SWFs. Some of the largest non-oil SWFs in the world have been accumulated in China and Singapore see Table 1. Table 2 gives a more detailed picture of the 11 largest non-oil SWFs in the world. The table also reports the Truman (2010) "Scoreboard Index", which is a measure of accountability and transparency. The maximum index number is 100. The scoreboard index will be discussed in Section 6 below.

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[9] Total household debt is now above 200 percent of GDP, which makes Norway an outlier among OECD-countries. House prices are also historically very high. Norway's tax rules provide strong incentives to invest in housing rather than financial assets.

Table 2 Large non-commodity Sovereign Wealth Funds

Fund	Country Start year	Size ($bn.) Sept. 2012	Score-board Index[*]	Description
SAFE Investment Company	China 1997	567.9	n/a	Invests foreign exchange reserves in FDI and portfolio investments. Subsidiary in Hong Kong.
China Investment Corporation	China 2007	482	57	Invests both in state-owned dom. enterprises and banks, and foreign equity, bonds, real estate etc.
Hong Kong Exchange Fund	China 1993	293.3	70	Mostly foreign assets, both liquid US assets and portfolio investments in OECD countries.
Government of Singapore Investment Corporation	Singapore 1983	247.5	65	Invests foreign exchange reserves in portfolio investments, real estate and private equity.
Temasek Holdings	Singapore 1974	157.5	73	Active shareholder and investor in diverse industries, both domestic and foreign companies.
National Social Security Fund	China 2000	134.5	70	Mostly domestic investments in equity and a variety of financial assets. Also some foreign invest.
Future Fund	Australia 2006	78.2	80	Several goals: future pensions, infrastructure, health and hospitals, and education. Mostly domestic assets.
Korea Investment Corporation	Korea 2005	43	60	Invest foreign exchange reserves in stocks and bonds, currencies and derivatives.
Khazanah Nasional	Malaysia 1993	34	44	The fund has stakes in over 50 domestic companies, and it is responsible for strategic FDIs.
National Pensions Reserve Fund	Ireland 2001	17.5	86	Main goal: meet future costs of social welfare and public service pensions due to population ageing
New Zealand Super-annuation Fund	New Zeal. 2003	15.5	94	Objective: Fund future pensions to limit tax increases due to population ageing. Mostly foreign assets.

Source: Sovereign Wealth Fund Institute.

[*] Truman (2010).

Both China and Singapore have chosen very high government savings rates, the effects which have been high total saving and large current account surpluses. The alternative to SWFs would have been low-interest official currency reserves held by their central banks. In terms of expected long-term

returns, this option is inferior to investing in long-term assets such as stock, bonds and real estate.[10]

Decades before China ventured into SWFs, the government of Singapore established Temasek Holding (1974) and Government of Singapore Investment Corporation (1983). Both funds have invested a fair share in illiquid, long-term assets (both domestic and foreign), but they are not very transparent. Even less transparent are most of the Chinese SFWs.

We now take a closer look at the SWF in New Zealand, Australia and Ireland, the main goals of which are to pre-fund pensions in the light of population ageing. New Zealand's SWF (*New Zealand Superannuation Fund*) is particularly interesting because its institutional framework involves a high degree of transparency, accountability and political independence. All citizens are entitled to a government pension at the age of 65, and the population aged 65 years and over is expected to increase from 13 percent in 2009 to 25 percent by the late 2050s (Source: New Zealand Statistics). The Fund received its first allocation in 2003 and the assets under management amount to 11 percent of GDP in September 2012. The government will begin to withdraw money from the fund to help pay for pensions around 2029/2030. Until then, all investment income is going to be reinvested in the fund.

According to OECD (2005),

"*New Zealand has been successful in not only getting itself out of the deficit and debt spiral of the 1970s and 1980s, but also in putting in place a set of measures that have provided a role model for prudent management of public finances.*"

Through the Fiscal Responsibility Act of 1994, the government succeeded in reducing fiscal spending relative to GDP, as well as running structural budget surpluses. As a result, the central government's gross public debt declined from more than 60 percent of GDP in 1994 to 30 percent in 2000 and 18 percent in 2008. By 2006, the general government's net financial asset position was positive. In addition to reducing the burden of the public debt, considerable fiscal surpluses during the boom in 2003-2008 have been allocated to the SWF. During the boom, house prices and housing mortgage debt soared, financed by short-term inbound capital flows.

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[10] It is striking that the Japanese government has not yet been willing to invest some of its huge official foreign reserves in a SWF.

Two remarkable (and related) features of the New Zealand economy are the consistently negative household saving ratio and huge structural current account deficits. The household saving rate has been negative since 1993 and is among the lowest in the OECD. It fell even more during the housing boom in 2002 – 2008, fluctuating between -9 and -13 percent of private disposable income. The current account deficits since year 2000 are illustrated in Chart 4.
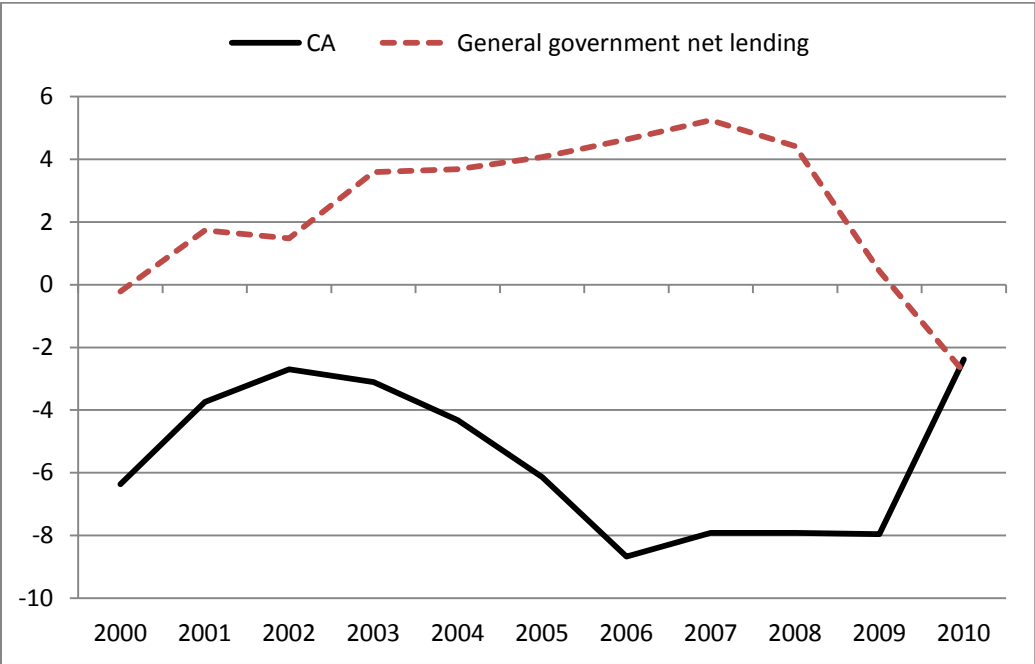

Source: Statistics New Zealand.

Chart 4 Current account surplus (CA) and net lending by the general government in New Zealand, 2000 – 2010 (percent of GDP).

During the boom, general government net lending fluctuated around 4 percent of GDP, but then became negative as a result of the recession. In 2008, house prices started to decline and the international economic crisis deteriorated New Zealand's terms-of-trade and aggregate demand. In 2009, the government temporarily suspended allocations to the fund due to the economic crisis and the corresponding fiscal deficits. New Zealand is one of very few countries (another is Australia, see below) that have built up a SWF at the same time as the country is a huge net capital importer. Still, it

is feasible for the government to smooth taxes though a SWF, but only if the government returns to fiscal surpluses to prevent an increase in the tax burden associated with the government debt.

In Australia, the government set up a SWF (The Future Fund) in 2006. The assets under management amount to $78.2 billion (September 2012). Its purpose "is to meet unfunded superannuation liabilities that will become payable during a period when an ageing population is likely to place significant pressure on Commonwealth finances." (Future Fund (2012)). Withdrawals from the fund is planned to start in 2020.

According to OECD (2008), "public finance is in less worrisome position in Australia than in many other OECD countries". This is both due to "less unfavorable demographic structure, but above all from the introduction in 1992 of the Superannuation Guarantee – a compulsory funded occupational pension scheme (only the first pillar (the Age Pension) operates on a pay-as-you-go basis), so that the direct budgetary impact of population ageing will be limited." The Superannuation Guarantee is not a SWF, however, compare the definition of SWFs in Section 1.
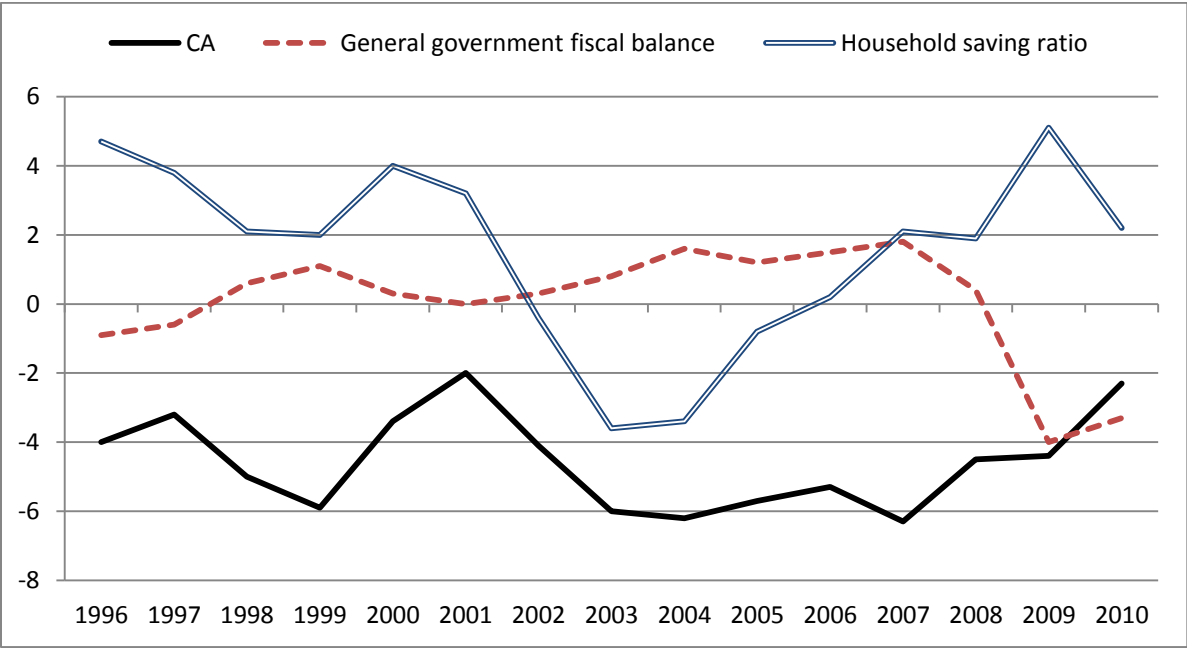
Source: OECD.

Chart 5 Current account surplus (percent of GDP), general government fiscal balance (percent of GDP) and household saving ratio (per cent of household disposable income) in Australia, 1996 – 2010.

The Australian gross public debt is low, and in 2007 the net financial assets of the general government were 7 percent of GDP in 2007. As in New Zealand, the economic crisis in 2008 triggered fiscal deficits, see Chart 5. This chart illustrates the fiscal balance of the general government as well as the current account deficits and the saving ratio of households in the period 1996 – 2001. Like New Zealand, Australia has run considerable current account deficits during the entire period. The household saving ratio has been low, but not as low as in New Zealand. During the boom in 2002 – 2006 the household saving ratio of Australian households was negative.

According to the government's fiscal consolidation plan, real federal expenditure would be limited to less than 2 percent a year until the return to a budgetary surplus of 1 percent of GDP. If this plan is followed, projections indicate a return to fiscal surplus by 2013.

In 2009, the Board of Guardians of the Future Fund also became responsible for three small so-called "nation-building funds" (The Building Australia Fund, the Education Investment Fund and the Health and Hospitals Fund). Payments from these funds are determined by the Government, and the assets are liquid. These funds have a different purpose from the Future Fund and their macroeconomic effects are probably quite small.

Ireland set up a SWF (National Pension Reserve Fund) in 2001 with a similar purpose as those in New Zealand and Australia. It was planned to invest fiscal surpluses of 1 percent of GDP in the fund each year, but the economic crisis in 2009 triggered legislative changes which forced the Fund to invest in Irish banks. The associated losses reduced the fund from 22.7 billion euro from 2010 to 13.4 billion euro in 2011. The new legislation gave the Ministry of Finance significant powers to direct the fund to make investments in Irish Government and Government-guaranteed securities.

In summary, we suggest the following broad categorization of the SWFs in Table 1:

1) Non-renewable resource funds (for example oil and mineral funds)

2) Foreign currency reserves based funds (Singapore's two funds and most of the Chinese funds)

3) Pensions reserve funds or "future generation funds" to meet population ageing (New Zealand, Australia and Ireland)

4) Funds mostly de-coupled from fiscal policy (for example the US SWFs and probably the Canadian fund)

Note however, that Norway's GPFG is a combination of an oil fund and a future generations fund to meet population ageing. It is likely that the funds in China and Singapore in reality are also partly future generation funds.

4. Investment strategies

Most SWFs diversify their asset portfolios among many asset classes and world regions for the purpose of reducing the risk of low realized portfolio returns. They also have a very long investment horizon and they are often not required to transfer wealth income back to the government in the medium run. This makes such funds well equipped to tolerate short-run volatility and illiquidity risk to a greater extent than private pension funds and university endowment funds. Therefore, many SWFs have comparative advantages that could potentially be exploited to harvest risk premia that require long verification periods.

This section deals with issues related to the investment universe, the role of active management, diversification of risk, the risk-return trade-off, other risk factors than systematic market risk and global asset allocation. In what follows, we will not discuss the funds in category 4 (see Section 3 above) because their macroeconomic effects are likely to be marginal.

Most of the large SWF in all the first 3 categories (which disclose information on their investment strategies) invest in a broad investment universe including listed equity, bonds (fixed income securities), real estate (property), private equity, infrastructure and other illiquid assets. Active management is the rule, and strategic investments in important sectors are not excluded in some funds. The investment strategy of Norway's GPFG is more conservative and passive (index-based), however, following global benchmark portfolios of listed equity (60 percent) and bonds (close to 40 percent), specified by the Ministry of Finance. The Ministry decided to gradually increase the equity share from 40 to 60 percent in 2007, based on advice from Norges Bank as well as an external Investment Strategy Council. The Fund has recently started to invest in real estate in Europe. No strategic investments are permitted and the maximum equity stake in any company is 10 percent. The scope for active management is also very limited. This investment strategy implies very low management costs, estimated to 8 basis points (0,08 percent of total assets) in the 2012 Annual Report of the Fund. In

comparison, the management costs 0,45 percent in New Zealand, 0,68 percent in Australia and 0,39 percent in Ireland.

Since the expected rate of return on listed equity generates an expected market risk premium (the equity premium), most SWFs invest a considerable share in listed equity. The choice between listed equity and fixed income securities involves a risk-return trade-off: Increasing the equity share in an investment portfolio increases the expected rate of return from the portfolio, but it also increases the risk of low realized portfolio returns. Historically, the average equity premium in the US had been so high as to be referred to as a "puzzle", but after 1996, the realized equity premium of GPFG has been close to zero. In other words, the GPFG has not yet generated higher realized returns than a portfolio of fixed-income securities only. Since the standard deviation of the equity risk premium is substantial, these observations do not statistically reject the hypothesis of a positive long-run equity risk premium of 2.5 percent, say.

In the academic finance literature, the efficient market hypothesis (EMH) has a strong standing. Traditionally, EMH meant that no public information could be used to predict excess returns. Using data up to 1970, Fama (1970) concluded that the empirical evidence supported EMH.[11] If EMH is correct, costly active management is inferior to inexpensive passive index management. However, later research has been developed to account for real world "frictions" such as agency conflicts, information costs, financing constraints etc., see Ang, Goetzmann and Schaefer (2009). Including such real frictions in the theory of security prices, gives an economic role of active managers in the pricing process. Grossman and Stiglitz (1976) analyzed a theoretical model in which acquisition of information was costly. Traders who invest in research are rewarded by speculative profits, and this trading activity also pushes asset prices towards their fundamental (non-friction) values. In this model, the markets are always in disequilibrium, but prices are moving towards equilibrium in the absence of new shocks, due to active research and speculations by active managers. In another paper, Ross (1976) developed the *Arbitrage Pricing Theory* with similar implications for the role of active managers, and

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[11] According to Ang, Goetzmann and Schaefer (2009), the literature distinguishes between three different levels of EMH: 1) weak form efficiency, 2) semi-strong form efficiency, and 3) strong form efficiency, where the form used above refers to semi-strong efficiency. Fama (1970) found that the evidence supported weak form and semi-strong form of market efficiency.

Shleifer and Vishny (1997) explored the possibility that disequilibrium could be so persistent that it became risky for arbitrageurs to try to exploit the mispricing, due to constraints on leverage (The market can stay irrational longer than you can stay solvent). Still another theoretical possibility is that active management generates excessive returns, but that the manager hired to invest captures the entire excess return:

> "*The most influential recent theory about this problem is Berk and Green's (2004) model of delegation. In their model, investors fail to earn positive risk-adjusted returns, even though their rationally invest with past successful managers. Their model allows some managers to be better than others and have talent above average, it rewards managers for information production, managers earn their fees, but the investment technology has diminishing returns to scale: fund flows push successful managers beyond optimal scale. Hence, in the Berk and Green model, prices may not be efficient, but the market for management services is. While there are gains for active management, these gains do not flow to principals (investors), they are captured entirely by agents (fund managers).*" (Ang, Goetzmann and Schaefer (2009, p. 31).

In conclusion, economic theory suggests that active management could be worthwhile, but that the answer must be left to empirical analysis.

In 2009, Norges Bank hired a group of three academic finance experts to survey the empirical literature of active management and evaluate the track record of Norges Bank's active management of the SWF, see Ang, Goetzmann and Schaefer (2009). Their analysis was based on the multi-risk-factor theory which we previously referred to as the *Arbitrage Pricing Theory*. This theory implies that an investor like Norges Bank will be compensated by higher expected returns for taking on the risk implied by various risk factors in addition to market risk. Examples of additional risk factors that are empirically relevant are the "small cap risk factor" (small companies have generated higher returns than large companies), volatility risk (many investors are willing to pay implicit " insurance premiums" to receive protection from high volatility) and the "value stocks versus growth stocks" risk (value stocks generate additional expected return compared to growth stocks).

The group argues that if the benchmark is a market-weighted portfolio of all traded securities, both theory and empirical evidence suggests that investors are compensated by exploiting other risk factors

than market risk: "In the presence of these multiple systematic risk factors, empirical tests overwhelmingly reject that the market portfolio is efficient and other static or time-varying combinations of assets result in higher reward-to-risk ratios." If "active management" is defined as deviations from the market portfolio, active management is therefore potentially useful in improving the performance of a SWF like GPFG. The expert group's empirical analysis finds that Norges Bank's active management (which historically has been very marginal) has in fact exploited such risk factors, and the group recommends that Norges Bank adopts a more systematic approach by bringing the exposures to systematic risk factors into the benchmark portfolio.

Empirical studies using information on managers and institutions have both looked at retail and non-retail funds, the latter being of more interest to SWFs. Since Norges Bank depends on many external managers, it is still of interest to consider the after-fee performance of investment intermediaries that are much smaller than the GPFG. The expert group concludes that on an after-fee risk adjusted basis, the average mutual fund underperforms a passive portfolio, but that some fund managers have succeeded in out-performing market benchmarks before fees: "However, the evidence does not support the conclusion that superior ability filters through to the ultimate investors in those funds."

From empirical studies of the non-retail sector, the expert group finds "little convincing evidence of superior risk-adjusted returns to private equity and venture capital." In regard to hedge funds, however, the group concludes that: "So far, the cumulated evidence suggests that hedge fund manager skill exists and that the rewards to that skill can be passed on to fund investors, depending upon a judicious manager selection process." A problem for a SWF, however, is that many hedge fund strategies are not scalable. The group refers to a recent study by Teoh (2009) of the size/performance relationship in the hedge funds industry, which finds "strong evidence of a convex (diminishing) relationship between size and risk-adjusted returns, consistent with capacity constraints."

The expert group's own empirical analysis of the results of active management by Norges Bank (relative to the performance of the benchmark portfolio of GPFG) in the period 1998 – 2009 concludes that there has not been any significant active outperformance during the entire period. However, it finds that the active management of the equity portion of the Fund has yielded 0.05 percent per month

on average during this period. For fixed income securities, the corresponding rate of return has been zero. Moreover, active management has an "almost trivially small impact on the overall risk of the Fund". Finding that about 70 percent of the (very small) equity return to active management is linked to systematic risk factors, "the contribution of active management to the overall return that is genuinely idiosyncratic is extremely small indeed."

An important question for investment strategy is the choice of asset allocation on currencies, countries and world regions. Most SWFs diversify significant parts of their assets by investing in many world regions, but there are considerable differences among transparent SFWs that provide such information. Due to deregulations of international capital flows and the process of globalization, the scope of international portfolio diversification has increased enormously during the last 20 – 25 years. As an illustration, the MSCI Global Equity Index was based on about 1,100 listed companies in 1989. By 2011, the number of companies in this index had increased to 14,600.

One obvious reason for the different investment strategies among SWFs is different investment mandates given by their respective governments. The Australian fund (The Future Fund), for example, has been given a mandate to earn a benchmark return in terms of Australian dollars ("…to receive an average annual return of at least the consumer price index plus 4.5% to 5.5% per annum over the long term with an acceptable but not excessive level of risk".) This mandate will clearly give incentives to invest in Australia and to hedge currency risk associated with global investments. In contrast, the investment mandate of Norway's Fund (the GPFG) states that the relevant gauge is the future international purchasing power of the Fund, an implication of which is that the value of the Fund in Norwegian kroner is irrelevant and hedging of currency risk is not necessary.

Table 3 illustrates the difference between the annual percentage returns and standard deviations of the MSCI Global Index depending on the currency. In the period 2000 – 2009, returns in NOK were *lower* and standard deviations *higher* than the corresponding numbers measured in local currencies. For example, the average annual rate of return from US equity fell from -1.3 (16.2) to -4.6 (17.0) when shifting from US dollars to Norwegian kroner. It therefore makes a significant difference for GPFG that the investment mandate expresses that the international purchasing power of the Fund is what matters, and not its value expressed in Norwegian kroner.

Table 3 Realized nominal rates of equity return and standard deviations (in parentheses) in USA and Europe, 1970 – 2011 (percent per year)

Time period	MSCI USA (USD)	MSCI Europe (local currencies)	MSCI USA (NOK)	MSCI Europe (NOK)
1970 – 2011	9.5 (15.7)	9.6 (15.5)	9.0 (17.5)	9.6 (15.7)
2000 - 2009	-1.3 (16.2)	0.0 (17.1)	-4.5 (17.0)	-0.9 (17.0)

Source: MSCI and Report to the Parliament (2012).

Still, the composition of the international purchasing power of the Fund among different currencies matters. From the start, the Fund was significantly over-weighted in European stocks and bonds (compared to market capitalization weights) because Norway's imports from Europe are much larger than imports from other world regions. Before 2012, Europe's share of bonds and equity in the benchmark portfolio were 60 and 54 percent respectively. The idea was that currency risk would be lower if currencies of the investment returns correspond to the currencies of future imports.

This argument assumes persistent deviations from purchasing power parities. To what extent such deviations are empirically important in the long run is uncertain. Moreover, modern corporations operate in many world regions and their economic activities are not confined to the country of the stock exchange where they are listed. Another argument against linking portfolio weights too close to expected import shares is that Norway's GDP is more correlated with Europe's GDP than with the GDP in other world regions. This involves more risk than investing in low GDP-correlated countries like emerging markets. Furthermore, Europe's share of world GDP is trending downwards. In 2011, The Ministry of Finance therefore reduced Europe's portfolio weights from 60 to 40 per cent for bonds, and from 54 to 41 percent for listed equity.

The European debt crisis illustrates a problem with the world market portfolio of government bonds: The market weights of those countries that issue excessive amounts of government debt will

automatically go up. Following international best practice, The Ministry of Finance has decided to use GDP-weights as an alternative to market weights for government bonds.

5. Macroeconomic effects of SWFs in small open welfare states

The potential macroeconomic effects of a SWF are in most cases similar to government assets that are not defined as SWF according to the definition of the International Forum of SWFs, for example other pension funds than reserve funds and international reserves. In what follows, we will *not* consider an oil-rich country. We have already explained why the set up of a SWF to transform petroleum wealth under the ground to foreign financial assets, would improve economic welfare, see Section 3 above. Unfortunately, there exist no research studies that have estimated macroeconomic effects of SWFs. Our discussion of likely macroeconomic effects is therefore bound to be qualitative and suggestive. To sharpen the discussion, we focus our attention on potential macroeconomic effects of SWFs in democratic *welfare states*, which are also small, open economies that do not significantly influence world market real rates of interest.

A small open economy can escape the law of diminishing return to capital by investing in net foreign assets. A problem, however, is their risk exposure to international trade shocks and other national income shocks. Small open economies need a specialized sector producing internationally tradable goods and services. In practice it is not possible for a country to obtain insurance against trade shocks in global markets. In terms of the familiar understatement of economic theorists: The set of global insurance and capital markets is "incomplete". Therefore, the government's fiscal policy (together with monetary policy if the exchange rate is flexible) is potentially important for reducing the adverse effects of trade shocks; see Steigum and Thøgersen (2003).

In welfare states, tax wedges on labor income are relatively high, and the social costs of tax distortions are substantial. Moreover, the governments of welfare states fill an important role as provider of social insurance to its citizens.[12] Such welfare programs, like old age and disability

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[12] In the literature of politico-economic models with rational voting, the existence of income redistribution financed by distortionary taxes can be explained even in the absence of any social insurance benefits to households, see Meltzer and Richard (1981). Extending such a model to dynamic voting in an overlapping generations framework where households are risk-neutral, Hassler et al. (2003) found that welfare state

pension systems, are usually financed on a pay-as-you-go basis and are vulnerable to population ageing. Since the governments of welfare states run universal social insurance programs, it is essential that the governments themselves have a considerable permanent risk-bearing capacity.[13] The current debt crisis in Europe demonstrates the possibility that governments become financially weak and overburdened and cannot continue to fulfill their social insurance promises to their citizens.

Can accumulation of foreign assets in a SWF have positive macroeconomic effects for a government of a welfare state? In general, the objectives of the government's economic policy can be grouped into the following three categories:

1) Economic efficiency and sustainable economic growth
2) Macroeconomic stabilization
3) Income distribution and social insurance, including intergenerational equity and risk sharing among generations.

We will argue that a SWF could potentially be an instrument for the government to contribute positively, directly or indirectly, to all three objectives.

An example of the first objective is the tax rate smoothing effect of government asset accumulation. The combination of expected population ageing and unfunded government pension systems would otherwise necessitate higher tax rates on labor income in the future. A policy that keeps expected tax rates constant over time will reduce tax distortions and increase economic efficiency, see Barro (1979).

In regard to macroeconomic stabilization, a SWF makes it less risky for a government to increase aggregate demand through expansionary fiscal policy in the wake of adverse trade shocks or other income shocks. Examples are the economic policy in Australia, New Zealand and Norway

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policies and their effects on income distribution are persistent in the sense that shocks to income distribution that would have negative transitory effects on income distribution if policies were exogenous may lead to a permanent increase in the demand for redistributive policies. There are, however, multiple equilibria, suggesting that welfare state institutions are "intrinsically fragile".

[13] Thus, the precautionary savings motive is relevant for rational welfare state governments , see Auerbach and Hassett (2007).

during the great recession in 2009. All three countries have adopted flexible inflation targeting, and monetary policy (together with automatic fiscal stabilizers) is usually sufficient to reduce macroeconomic fluctuations related to aggregate demand shocks. In the economic crisis in 2009, however, monetary policy was not sufficient. In Norway, for example, the government put in place extraordinary fiscal stimulus policies. The expansionary monetary and fiscal policies in 2009 and 2010 even stopped and reversed a modest decline in housing prices, boosting consume confidence and aggregate demand. During the great international recession, Norway's unemployment rate only increased marginally. Of course, expansionary fiscal policy is possible without a SWF, but a SWF reduces the risk that a government could become financially to weak in a crisis situation.

From economic theory it is well known that in the absence of distortionary taxation, government debt or asset accumulation would not affect the size and composition of aggregate national wealth and intergenerational distribution if the hypotheses of "Ricardian equivalence" holds. Then private households in the aggregate make inverse savings and portfolio decisions that neutralize the effects of the SWF on the nation´s saving and assets. It is likely, however, that consumers in practice are insufficiently informed or concerned about the effects of fiscal policies beyond their own lifetimes to neutralize the build-up of a SWF in this way. Insufficient household capacity to borrow and other constraints would also prevent many households from sufficiently negative saving (or going short in equities in which the SWF invests). If a government builds up a SWF and thereby keeps labor income tax rates temporarily higher than otherwise, national wealth is likely to increase because workers will chose lower private consumption than otherwise. In the long run, a permanent SWF would permit permanently lower taxes, which would increase private wealth as well. Persson (1985) shows that in an overlapping generations model of a small open economy, an increase in government financial assets will *crowd in* private wealth in the long run. In other words, national wealth will eventually become larger than the isolated effect of the increase in government wealth. Thus, increased government wealth through a SWF is likely to increase the welfare of future generations, counteracting the negative effects of pay-as-you-go programs and population ageing.

A SWF could also contribute to better income risk sharing between generations in a way that private markets cannot do, see Gordon and Varian (1988).[14] They analyzed a simple non-Keynesian model of a closed economy where the government could transfer income between generations without investing in assets or selling bonds. Clearly, in a small open economy, a SWF could facilitate such social insurance programs. If one generation is negatively affected by an income shock, fiscal policy can redistribute income between generations by running down the SWF and smoothing the cost among many generations. In an open economy, the government can also strengthen its social insurance capacity by benefitting from international risk sharing, and thus make national income better insured against trade shocks and other income shocks. Recent contributions to the international risk-sharing literature have documented that the previous "home bias" in portfolios of stocks and bonds has declined substantially and international (consumption) risk sharing has increased in the last two decades, see Lane and Milesi-Ferretti (2008), Sørensen et al. (2007) and Bai and Zhang (2012). Fratzscher and Imbs (2009) find that low transaction cost financial assets in particular, like stock and bonds, have increased international risk sharing, see also Holinski, Kool and Muysken (2012).

We have argued that a small open welfare state could potentially benefit from a SWF. Another question is whether this is politically possible. To build up a SWF, a broad agreement among political parties appears to be necessary. If only one of two opposing parties wants a SWF in a democracy, the other party would deplete the Fund as soon as it won an election (and may also dismantle the welfare state as well). In Norway and other Nordic countries, the social insurance provided by the welfare state is very popular and no political party wants to dismantle it. Norwegian voters are generally in favor of the SWF and the fiscal guideline that makes it possible to run fiscal surpluses that are invested in the Fund. In politically more divided democracies, such a fiscal rule could be impossible to agree upon, and political competition would make it infeasible to establish a SWF.

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[14] Markets cannot allocate risk efficiently between any generations whenever the generations are not able to sign insurance contracts prior to the occurrence of the stochastic event.

6. Accountability and transparency: Political and ethical constraints

In a democracy, the SWF needs political legitimacy and must be accountable to the government and the general public. The investment strategy must be transparent and based on ethical ("responsible") investment practice.

Norway's SWF (GPFG) began to invest in listed equity in 1998, and from the start, the list of companies was published quarterly by Norges Bank. The list received a lot of attention in the media and among politicians in Parliament that were skeptical to the idea of a "capitalist" public fund that should merely focus on expected financial return and risk. The government responded to this critique by excluding from the benchmark portfolio companies the produced weapons such as anti-personnel land mines, cluster munitions and nuclear arms. Exclusion on the basis of human rights violations was also permitted. In 2004, new ethical guidelines for the GPFG and The Ethical Council were established. In addition to an exclusion mechanism, the new ethical guidelines also emphasized the role of "active ownership" as a tool for complying with the ethical obligations of the Fund. The ethical guidelines were evaluated in 2009. According to the White Paper (2012): "The evaluation resulted in a more comprehensive strategy for responsible investment practice."

Tools of active ownership include exercising shareholder voting rights, dialogue with management, collaboration with other shareholders, participation in international networks and organizations, input to regulatory authorities, contact with research institutions, and public communication of opinions and expectations. In 2011, the Bank voted in more than 11,300 general shareholder meetings, through an external voting platform.[15] Although Norges Bank cannot own more than 10 percent of any company according to its investment mandate, it is often one of the major shareholders in many companies, giving the Bank some potential influence on board compositions and nomination processes. In some few cases, Norges Bank uses legal action, such as litigation, as a tool in its active ownership structure.[16]

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[15] The voting platform issues voting instructions on behalf of the Bank. The instructions are sent from the electronic voting platform to Norges Bank's global custodian bank, which implements the voting in the general shareholder meetings, often assisted by local custodian banks or other representatives.

[16] "In 2010, the Bank and some German investors requested a German court to examine whether the board of directors of Porsche SE had exceeded its powers and exposed the company to excessive risk in its attempt to acquire control of Volkswagen AG. In 2011, there was no longer any basis for pursuing the request after the

According to the Ministry of Finance´s guidelines for observation and exclusion from the GPFG's investment universe, the criteria for exclusion are the nature of the products (tobacco and certain military weapons), selling weapons to specific countries, or "contribute to, or are themselves responsible for, grossly unethical activities." (such as corruption or causing "severe environmental damage") Up until now, the Ministry has excluded 55 companies, on the basis of advice from the Council of Ethics. Five companies have been allowed to return to the investment universe because their exclusions were not longer considered to be justified.

What about the financial costs to the Fund of the exclusions? An empirical study by Norges Bank compared the portfolios without and with the exclusions from August 2005 to November 2011. The results are reported in the White Paper (2012). During this period, the portfolio without exclusions was NOK 10.6 billion ($1.83 billion) *higher* than the portfolio with exclusions. It is mostly the exclusion of tobacco-producing companies that explains this difference.

Truman (2010) has suggested a scoreboard to assess the accountability and transparency of a number of SWFs. The score board consists of 33 elements grouped into the following four categories:

1) Structure of the fund, including its objectives, links to the government´s fiscal policy.

2) Governance of the fund, including the roles of the government, and whether the fund follows guidelines for corporate social responsibility.

3) Accountability and transparency of the fund in its investment strategy, investment activities, reporting, and audits.

4) Behavior of the fund in managing its portfolio and its risk management policies, including its use of leverage and derivatives.

Table 4 shows the results for the funds that we have previously listed in Table 1 and 2 above.

German investors negotiated a solution that resulted in Porsche paying an extraordinary dividend to the holders of preferred shares and undertaking to improve corporate governance." (White Paper (2012)).

Table 4 Transparency and accountability: The Truman scoreboard index (2009)

Country	Fund	Scoreboard index	Assets ($ billion)
Norway	Government Pension Fund Global	97	656.2
New Zealand	Superannuation Fund	94	15.5
United States	Alaska Permanent Fund	92	42.3
Ireland	National Pensions Reserve Fund	86	17.5
East Timor	Petroleum Fund	85	10.2
Australia	Future Fund	80	78.2
Azerbaijan	State Oil Fund	76	32.7
Canada	Alberta Heritage Savings Trust Fund	74	15.9
Singapore	Temasek Holdings	73	157.5
Chile	Economic and Social Stabilization Fund	70	14.7
China	National Social Security Fund	70	134.5
China (Hong Kong)	Exchange Fund	70	293.3
Chile	Pension Reserve Fund	68	5.7
Kazakhstan	National Fund	65	61.8
Singapore	Government of Singapore Investment Corp.	65	247.5
Kuwait	Kuwait Investment Authority	63	296
Korea	Korea Investment Corporation	60	43
UAE – Abu Dhabi	Mubadala Development Company	59	48.2
UEA – Abu Dhabi	Abu Dhabi Investment Authority	58[*]	627
China	China Investment Corporation	57	482
Russia	National Welfare Fund	55	149.7
Malaysia	Khazanah Nasional	44	34
Algeria	Revenue Regulation Fund	29	56.7
Iran	National Development Fund of Iran	29	40
UAE – Abu Dhabi	International Petroleum Investment Company	26	65.3
UAE	Investment Corporation of Dubai	21	70
Qatar	Qatar Investment Authority	15	115

Source: Truman (2010).

[*] "…the Abu Dhabi Investment Authority (ADIA) released its first-ever annual report on March 14, 2010 (ADIA 2010). Because of the size and importance of the ADIA, we rescored that SWF. Its overall score increased from 11 to 58,…" (Truman (2010), page 76.

As expected, the Funds from democratic countries receive the highest score.

The International working group of sovereign wealth funds (IWG) – under the aegis of IMF -

established in 2008 a code of conduct, called the Generally Accepted Principles and Practices (a set of

minimum best practices for SWFs, the so-called "Santiago Principles"). They consists of 30 principles

and sub-principles and are strongly influenced by the Truman scoreboard, but are somewhat watered down. For example, the Santiago principles are not ambitious with respect to public disclosure of an annual report stating the size of the fund or other information that are important for transparency. For more details, see Truman (2010).

7. Conclusions

Sovereign wealth funds (SWFs) have become more numerous after the turn of the century, but the largest ones have been built by non-democratic countries in the Middle East and Asia. Among democratic societies, Norway's oil-related fund is an exception. Smaller SWFs have been set up in Australia, New Zealand and Ireland to pre-fund pensions in response to expected population ageing.

The management of Norway's Fund has been index-based, with only a very small role played by active management. In most other SWFs around the world, active management is much more important, and the cost of management is much higher.

The academic literature suggests that although active management could be worthwhile, it does not lend unambiguous support to the common belief that active management generates excess risk-adjusted returns after management fees. An empirical study of active management in Norges Bank finds that 70 percent of the active management results can be explained by other systematic risk factors than market risk.

There are no strong consensus about how a global fund should diversify its assets among asset classes and currencies. This also depends on how the investment mandate is formulated. It makes a significant difference whether the mandate requires the investment returns to be measured in local currencies or the domestic currency. In recent years, there has been a shift from market weights to GDP-weights in portfolios of sovereign government bonds.

We argue that SWFs could have positive macroeconomic effects in democratic welfare states, particularly if the government runs pension programs financed on a pay-as-you-go basis, and future population ageing is significant. Still, a SWF is hardly politically feasible if there is no broad agreement in the electorate and among political parties that fiscal surpluses and a SWF is worthwhile.

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