SOVEREIGN WEALTH FUNDS: INVESTMENT OBJECTIVES AND ASSET ALLOCATION STRATEGIES

*Daniil Wagner**

Abstract

Sovereign Wealth Funds (SWFs) have steadily increased their importance in the global financial system in the last decade and especially during the financial crisis period. Although the objectives and investment strategies of SWFs are quite diverse, I propose to sort them into three main groups, depending on their sponsor countries' endowment with resources and investment objectives. I present case studies and empirical analyses that reflect SWF investment activities and try to elaborate on the special role of each SWF group. Special emphasis is given to the recent financial crisis, where SWFs also acted as bailout investors by injecting substantial capital into global financial institutions, filling a financing gap that other institutional investors could not close.**

Keywords: Sovereign Wealth Funds, Investment Strategies, Economic Transformation, Political Objectives, Asset Allocation, Financial Crisis

* Center for Banking and Finance, Justus-Liebig-University Giessen, Licher Str. 74, 35394 Giessen
E-mail: Daniil.Wagner@gmx.de

1. Introduction

Sovereign Wealth Funds (SWFs) have steadily gained importance in the global financial system over the last decade and especially during the financial crisis period. They currently have almost $6 trillion assets under management[1] which is more than the assets of Private Equity and Hedge Funds (HF) together. Although their roots go back to the 1950s, SWFs became the subject of greater public focus from 2006-2007. The main reason for this is the increase in SWF funding since 2000 and the successive increase of investments in listed companies. Currently, the SWF Institute[2] lists over 71 SWFs in 47 countries. Since 2011 eleven new funds have already been incepted.

The main conceptual contribution of this paper is the use of the SWF investment motives commonly cited in the literature (for example see Curzio and Miceli, 2012, p. 3), combined with the countries' different endowment levels of human capital and natural resources, which are both a prerequisite for economic development in order to yield three main SWF groups: (1) intergenerational wealth transformation, (2) strategic investment and (3) intergenerational wealth accumulation. The advantage of this classification is that it allows an almost non-ambiguous sorting of funds into the three

categories. In a second step I look at empirical questions and observations related to SWFs, such as the right investment strategy, or their role during the last financial crisis. Since most of the examples concern more than one SWF group, I try to emphasize the contribution of each group.

Although SWFs frequently appear in the media, and a growing number of academic publications deal with state investments in general, there is no consistent concept to define and classify an SWF. Thus, I present the SWF definition that I will use in the rest of this paper in the next subsection. Since the SWF funding sources (mainly oil and gas revenues) are an important requisite for presenting SWF investment objectives, this topic is covered in subsection 1.2. The next subsection summarizes the empirical evidence on the question of whether SWFs as large institutional investors are able to create value through their investments. Finally, the last subsection of this introduction is dedicated to the vital public discussion about SWFs, which has produced a remarkable reversal in opinion since 2007.

1.1 SWF Origins and Definition

For my further analysis I use the SWF definition provided by the SWF Institute. Accordingly, an SWF is a state-owned investment fund or entity that is established from privatization proceeds, governmental transfer payments, fiscal surpluses and/or revenues resulting from natural resource

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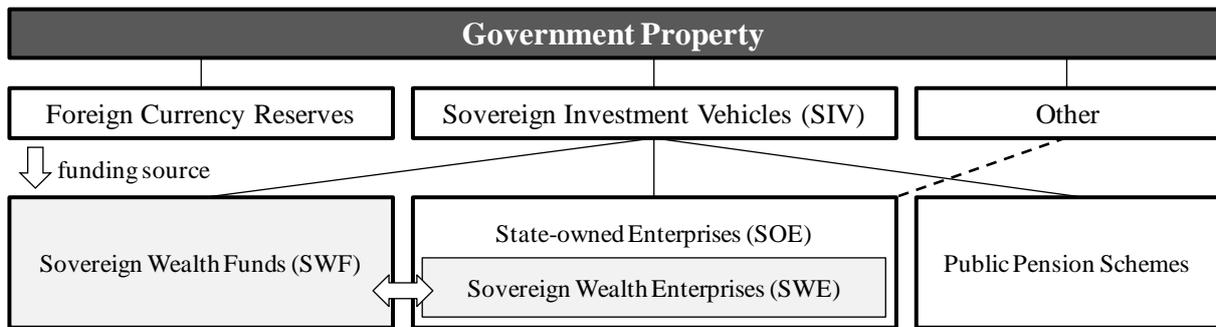[1] http://www.swfinstitute.org/fund-rankings; visited September 17, 2013.
[2] The SWF Institute is a global organization designed to study SWFs and other public investors.

extraction. This definition excludes foreign currency reserve assets held by monetary authorities for the traditional balance of payments or monetary policy purposes, state-owned enterprises (SOEs) in the traditional sense (for a further discussion of this investor type see Shapiro and Globerman, 2012), government-employee pension funds (funded by employee/employer contributions), or assets managed for the benefit of individuals (See http://www.swfinstitute.org/sovereign-wealth-fund/, visited September 17, 2013). Figure 1 shows the vehicles that are included in my analysis (highlighted grey) and their classification in the context of governmental property.

However, in practice there is controversy about whether a fund qualifies as an SWF or not. For example the Chinese SAFE Investment Company is included by the SWF Institute, but excluded by Dewenter et al., 2010, p. 257, fn. 6, because they ignore SAFE's foreign equity investments. Balding,

2012 criticizes the massive drawdowns of the Russian SWFs in order to balance the government budget, and doubts that the two funds match even broad SWF definitions because of this irresponsible, short-term oriented interference. Other funds, such as the Norwegian Government Pension Fund Global, have ambiguous names, because a traditional pension fund definition would imply private rather than public contributions and also the existence of explicit pension liabilities when employees reach retirement. In fact, the SWF Institute includes all these funds into their SWF list and I follow this approach. An example of an exclusion according to the above definition is the Romanian 'Fondul Proprietatea'. Even if its funding stems from the privatization of formerly state-owned Romanian companies, the fund is planned to be transferred to private ownership with the aim of compensating the victims of the Romanian communist regime.

Figure 1. Classification of different types of government property

This figure shows the classification of different types of government property. It is based on the methodology of the SWF Institute (www.swfinstitute.org). Sovereign Wealth Enterprises belong to and are controlled by Sovereign Wealth Funds, but can use different and less transparent investment strategies. State-owned Enterprises is the more general term, which includes also other activities than investment.

Historically, the first authority which is today classified as an SWF, was created in Kuwait in 1953 (Kuwait Investment Authority). Currently, the largest SWF is the Norwegian Government's Pension Fund Global, but the other Top 10 positions are dominated by funds from the Middle East and Asia (see Table 1). Figure 2 shows the development of total SWF
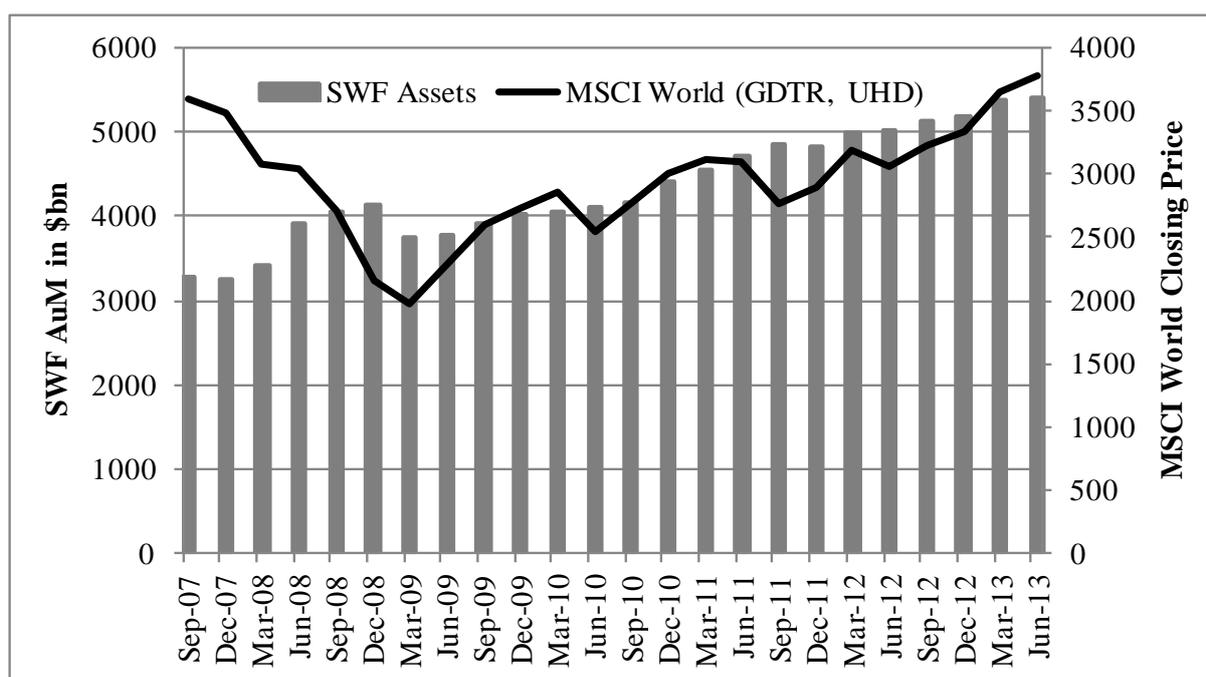
assets since September 2007 (left-hand scale) in comparison to the development of the MSCI World Index (right-hand scale). In contrast to the severe equity market decline caused by the financial crisis of 2007-2009, total SWF assets under management experienced only a small drop during this period.

Table 1. The Top 10 largest SWFs by assets under management

Rank	Country	SWF name	Assets ($bn)	Inception
1	Norway	Government Pension Fund - Global	715.9	1990
2	UAE - Abu Dhabi	Abu Dhabi Investment Authority	627.0	1976
3	China	SAFE Investment Company	567.9	1997
4	Saudi Arabia	SAMA (Foreign Holdings)	532.8	-
5	China	China Investment Corporation	482.0	2007
6	Kuwait	Kuwait Investment Authority	342.0	1953
7	China (Hong Kong)	Hong Kong Monetary Authority (Investment Portfolio)	298.7	1993
8	Singapore	Government of Singapore Investment Corporation	247.5	1981
9	Russia	National Welfare Fund	175.5	2008
10	China	National Social Security Fund	160.6	2000
All		Total oil and gas related	3,149.7	
		Total other	2,251.9	
		Total	**5,401.6**	

The table shows the Top 10 largest SWFs by assets under management. The source is SWF Institute and the numbers were updated June 2013. The Russian SWF includes the Oil Stabilization Fund of Russia. The value for the Chinese SAFE Investment Company is best guess estimation.

Figure 2. Development of total SWF assets since September 2007 (left-hand scale) in comparison to the development of the MSCI World Index (right-hand scale)

The figure shows the development of total SWF assets since September 2007 (left-hand scale) in comparison to the development of the MSCI World Index (right-hand scale). The source for SWF assets is the SWF Institute.

The relative size of an SWF compared to the whole economy can be quite substantial, especially for the older SWFs. In case of the Republic of Kiribati's Revenue Equalization Reserve Fund, SWF assets amount to three times the country's GDP (see Curzio and Miceli, 2010, p. 5). In this case, the SWF puts the country in a relatively comfortable position, because it represents a 'cushion' for future governmental funding gaps. Since the early 2000s African countries have increasingly incepted SWFs,

with the latest inception in Angola (WSJ Europe, 18.10.2012).

1.2. SWF Funding Sources

The increasing SWF capital inflows started in the early 2000s and were supported by high prices for natural resources (e.g. oil) and high economic growth in Emerging Markets (e.g. China) combined with relatively sound fiscal policy after the 1997 Asian

Crisis (e.g. Singapore and Malaysia). SWF funding can be differentiated into two main groups: commodity and non-commodity related sources. These two funding sources are closely related to an economy's endowment with natural, human and capital resources. Since oil and gas account for 59% of SWF funding (see SWF Institute, 2013) I first want to give further details on the nature and importance of commodity related funding and then turn to capital related funding sources where human capital plays a special role.

With the beginning of the 2007-2009 financial crisis the rise in commodity prices (especially oil) was temporarily stopped. The price for one barrel of Brent crude oil fell below $40 in December 2008.The oil price soared again afterwards and recovered up to $100 in the beginning of 2011. Although new extraction techniques (e.g. fracking) are boosting supply and therewith lowering prices, this is only a temporary effect. Thus, in the long run countries that are heavily dependent on oil revenues have to search for alternative income sources for the future. Libya and Algeria, where 90% of public revenues stem from oil and gas exports (Handelsblatt, 14.04.2011), are very pronounced examples. Alongside the intergenerational aspect oil and gas price fluctuations may also result in short or midterm funding gaps for governmental expenses. For instance the Russian economy may be prone to oil price deterioration (FAZ, 23.08.2012), since its young and relatively small SWFs do not provide a proper cushion for such destabilizing effects.

The second group of funding sources is related to the sponsor country's endowment with human and capital resources. An effective combination of these two resources enables sustainable economic growth and provides further potential for SWF funding via fiscal surpluses. An important role for this 'productive' wealth of nations plays human capital, that is embodied in labor, skills and knowledge (United Nations, 1997). There are two meanings of 'human capital'. The first emphasizes the labor force as a production factor, such as financial capital, land or machinery. The second views human capital as an investment option which can be improved by education and training. In a broad sense human capital includes knowledge that is embedded in an individual, an organization and/or a nation. There are examples of both meanings among SWF sponsor countries. For instance China's economic success was largely attributable to the availability of a cheap labor force. But demographic factors such as the one-child policy in China (Financial Times, 19.01.2013), or the aging population in developed economies can negatively affect a country's labor force. For countries like the United States, which have a good endowment with human capital in the sense of 'knowledge', such demographic threats are easier to overcome because they are able attract foreign workers.

1.3. SWFs and Value Creation

Transparency is a major concern about SWFs that affects markets. Thus, SWF targets or companies intending to invest together with SWF have to prepare for media and regulatory scrutiny, in particular if a country's strategic or security interests are involved (Butt et al. 2008). However, the latest research finds that transparency has been gradually improving since the development and implementation of the 'Santiago Principles' (These are a set of generally accepted principles and practices (GAPP) that aim to properly reflect SWF investment practices and objectives (for more details visit http://www.iwg-swf.org/pubs/eng/santiagoprinciples. pdf)) in 2008 (Maslakovic, 2013). In the remainder of this section I will assess the influence of SWF investment on their target companies from the view of shareholder value. I therefore present event study results of the financial and operating performance of SWF targets. In general, these studies find significant positive announcement returns (see Table 2). In any case, results for long-run financial and operating performance do not support a clear-cut significant influence of SWFs involvement. This means that neither positive nor negative long-run effects of SWF investment can be clearly documented. The scarce results for divestments show a significant negative announcement effect (see Dewenter et al., 2010 or Marie et al,. 2011).

Table 2. The table shows summarized event study results from different academic papers

	investment			divestment	
	short-term (CAR)	long-term (BHAR)	operating performance	short-term (CAR)	long-term (BHAR)
Chhaochharia/Laeven 2008	0.82%** [-2,+2]	-7.2% [3 years]	--	--	--
Dewenter et al. 2010 (JFE)	1.72%*** [-1,+1]	18.1% [3 years]	--	-1.37%** [-1, +1]	2.90% [1 year]
Knill et al. 2012 (JFI)	1.37%** [-1,0]	--	--	--	--
Kotter/Lel 2011 (JFE)	2.25%*** [-1,+1]	31.0%** [3 years]	no difference	--	--
Marie/Brunia/Westermann 2011	1.48%*** [-1,+1]	--	--	-1.24*** [-1,+1]	
Megginson et al. 2010	2.91%*** [-1,+1]	-0.65% [3 years][1]	-10.47%* ROE [3 years]	--	--
Sojli/Tham 2010	3.00%* [-1,+1]	16% p.a.[2]	no difference, but higher q	--	--
Sun/Hesse 2009	0.77%** [-2,+2]	--	--	-0.07% [-2,+2]	--
Fernandes 2009	--	--	+21.8% ROE [-1y,+3y]		
Bernstein et al. 2009	--	--	mixed evidence on P/E [1 year][3]	--	--

[1] calendar time AR

[2] for the whole period beginning 20 days before the SWF investment till the share falls below the 5% hurdle

[3] results on P/E depend on the involvement of external managers (increase) and politicians (decrease) in SWF investment strategy

*, ** and *** indicating statistical significance on the 10%, 5% and 1% level, respectively

In the following I will summarize the academic studies I believe are most relevant in this area. Dewenter et al., 2010 analyze the impact of SWF investments on firm values. They find significant positive returns from announcements of SWF investments and significant negative returns for divestments. They also provide empirical evidence that SWFs are often active investors. Kotter and Lel, 2011 examine SWF investment strategies and their effect on target firm valuation. SWFs prefer large and poorly performing firms facing financial difficulties. Investments have a positive announcement effect on the stock prices of target firms but no substantial effect on firm performance and governance in the long run. Transparent SWFs are more likely to invest in financially constrained firms and have a greater impact on target firm value than opaque SWFs. SWFs are similar to passive institutional investors in respect of target characteristics and performance. Knill et al., 2012a investigate the relationship between SWF investment and the return-to-risk performance of target firms. Target firm raw returns decline after SWF investment. Although risk also declines following SWF investment, compensation for risk declines over 5 years following acquisition. Firm volatility decomposition suggests that idiosyncratic risk is what mainly drives these impacts toward decline. In cases of foreign investment, SWF target firm performance most closely resembles that of other government-owned firms. These results are inconsistent with predictions of higher volatility and improved returns due to monitoring firm activities from the institutional investor literature. This suggests that SWFs may not provide some of the benefits that are offered by other institutional investors. Finally, for cross-border M&A activity Karolyi and Liao, 2010 find that SWF led acquirers are less likely to fail, but (positive) market reaction is statistically and economically much smaller. This result may be attributable to the fact that SWFs pursue acquirers with higher total assets and fewer financial constraints.

1.4. Political Concerns

SWFs received broad public attention only in recent years. Before this, they played a minor role and their early engagements in Daimler or Fiat/Ferrari via funds from the Middle East were regarded as passive, long-term investments that did not interfere with corporate strategy. As pointed out by Mietzner and Schiereck, 2011, p. 95, the Kuwait Investment Authority, that held a substantial stake in Daimler since 1974 (initial investment was 14% of shares), tolerated the merger with Chrysler in 1998, that dramatically destroyed shareholder wealth, without engaging in active monitoring activities. Starting in 2006 with the rise of Asian SWFs and the increase of SWF investments in public companies especially in

2007, SWFs received a broad coverage in the media and were picked up in the political debate.

The assessment of SWF transparency yields a very broad scope of results ranging from the very transparent Norway fund to the very opaque Algerian fund (as described by the Linaburg-Maduell Transparency Index obtained from the SWF Institute). Despite their predominantly passive role, their recent asset inflow and lack of transparency provoked a controversial discussion about the actual investment objectives and motives of SWFs. Politicians frequently raise concerns about political influence on companies targeted by foreign investors such as SWFs. For example, in July 2007 German Chancellor Merkel initiated a public discussion about introducing an obligation to obtain a permit for SWF investment in German companies (Die Zeit, 02.07.2007 and for a further discussion of German policy reaction see also Jost, 2012). Support for domestic companies is a popular political, especially during crisis times. For example Italy maintains an SWF that aims to support the growth of Italian strategic companies to compete globally.
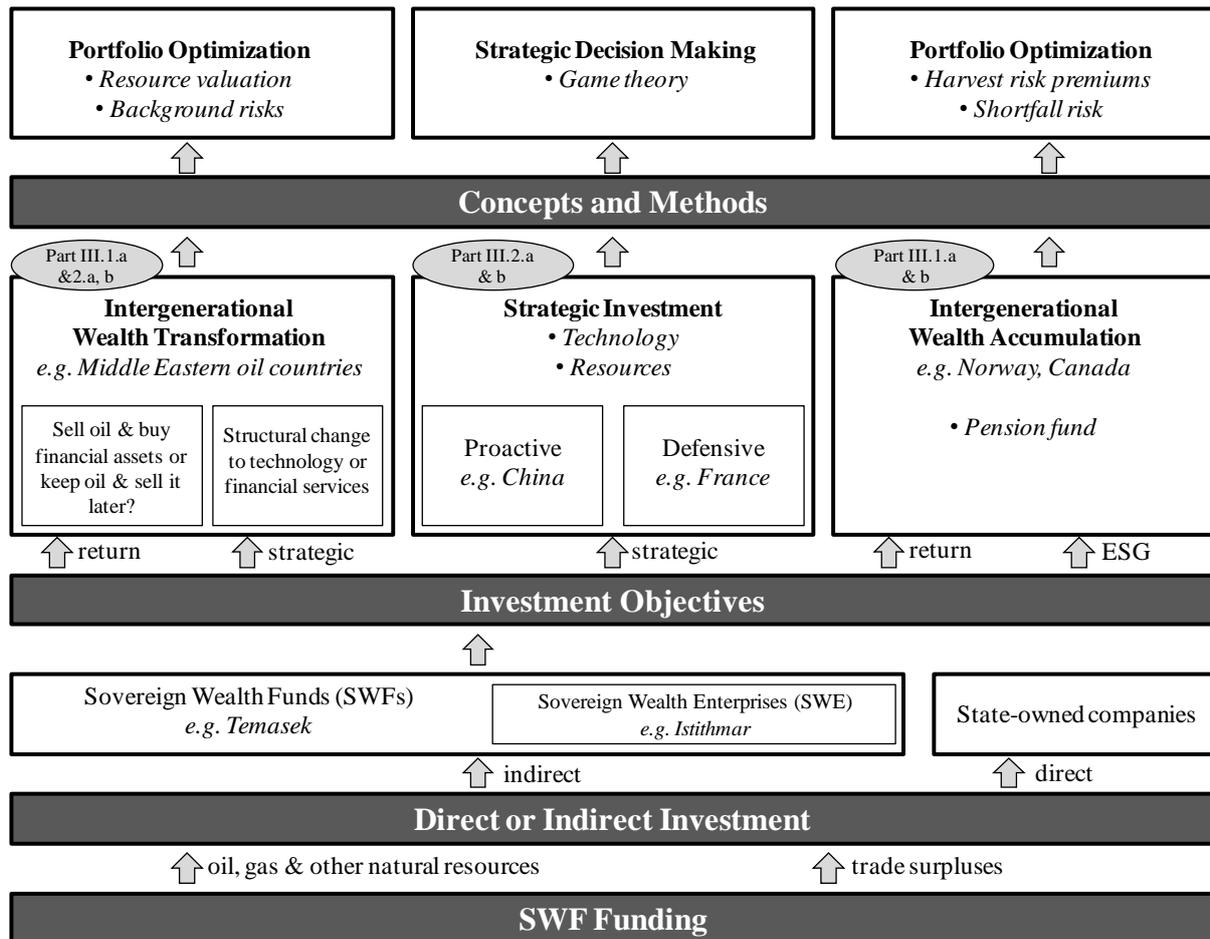
Recent developments included a change in public perception of SWFs from a 'foe' that transfers know-how to domestic industries, to a 'friend' that is able to inject capital in crisis times (see Part 3.2.b.). Another trend, especially in wealth transferring countries which are obliged to future generations, is sustainable investment. For example, Norway introduced a council on ethics for the Government Pension Fund Global in 2004. In succession a significant number of divestments due to ethical breaches were decided by the council. I present further details on Norway's divestment decisions in Part 3 of this paper together with other empirical examples. Unfortunately, there is not always a clear-cut empirical example for each group defined in Part 2. The selected examples mostly apply to more than one group. Where this is the case I try to emphasize the special role of each SWF group.

2. An Extended SWF Classification Approach

Based on the discussion of the funding sources in the previous section, the intention of this section is to develop an SWF classification that encompasses their common characteristics and investment objectives. SWF funding therefore represents the first level of the analysis (see Figure 3). The second question is whether a country should invest its assets directly or indirectly. In this context 'indirectly' would mean the use of an SWF while 'direct' investments could be conducted by any other state-owned company or authority. Both methods have pros and cons (see Das et al., 2009 for a discussion of policy and operational considerations for setting-up an SWF). Indirect investment via a fund structure facilitates the setting up of a proper investment process and the involvement of external asset managers. A separate fund structure is also easier to report and to disclose, which might increase transparency (Kern, 2007, p. 5). Direct investments would be better suited to more opportunistic single engagements. They are rarely advisable for a large scale of diversified portfolio holdings and state-of-the-art investment management strategies. An example of a direct investment is the recent 29% engagement of Qatar Solar, a holding company owned by one of Qatar's manifold government-backed investment vehicles, in the German solar technology firm Solarworld (Financial Times, 18.06.2013).

Figure 3. The figure shows the classification approach for SWFs based on their investment objectives and strategies

The question of direct or indirect investment is closely related to the SWF sponsor's investment objectives. The academic literature commonly provides four main motives (see for example Curzio and Miceli 2010, p. 3). The first is the transformation of wealth from natural resources to other income sources. The second is the conservation of surpluses from booming trade or natural resource exports for future generations. The third is smoothing of cyclical macroeconomic developments and shock absorption. Finally, the last motive is opportunistic investment stemming from industry political considerations, e.g. securing natural resources or a technology supply.

We expand these motives by combining them with the different country endowments discussed in the previous section. This yields three main objectives: intergenerational wealth transformation, strategic investment and intergenerational wealth accumulation (see Figure 3).

I regard cases where a country has significant resource revenues but a lack of human capital as cases of intergenerational wealth transformation. For instance, this is the case in most Middle Eastern oil countries. Additionally, the labor force is also limited due to an aging population. Generally, these countries have two options. Either they manage their assets

including the funding source in a portfolio context or they initiate a structural change of their economies. Examples of the latter case are the subsidies to new industrial sectors in Dubai (financial services) or the United Arab Emirates (tourism).

The second group of countries, those that use strategic investment, is characterized by scarce or moderate natural resources and pronounced existing or potential human capital in the sense of an unskilled labor force. The main task for these economies is to retain access to technology and/or natural resources. This is done by either using proactive or defensive strategies. A typical example of a proactive country is China, which is well endowed with natural resources but uses these to a large extent for their own booming industry production (e.g. rare earth). They are also well equipped with a labor force. So they are interested in securing access to both technology and resources. Other countries, which have fewer natural resources but more human capital, use defensive strategies. Examples include France and Italy, who incepted SWFs with the aim of conducting anchor investments in national core industries and companies to repel foreign 'invaders' (WSJ, 04.04.2011).

The third group is to some extent a mixture of the first and the second group. Accordingly, these

countries are well equipped with natural resources and also human capital, including knowledge. The most appropriate strategy for these countries is a portfolio strategy with financial assets. I call this 'intergenerational wealth accumulation'. Like the first group, they are committed to sustainable management of their exhaustible resources. Examples include Norway or Canada, who both run SWFs that are most comparable to a pension fund in structure, but without having explicit liabilities. In the next three subsections I will give further background from the academic literature for each of the three groups defined above.

2.1. *Intergenerational Wealth Transformation*

SWF sponsor countries that depend on revenues from natural resource extraction face the problem of having to decide the 'optimal' depletion of their resources. The academic debate goes back to Hotelling's, 1931 seminal contribution. He formulated the optimal decision between extracting resources and holding resources for future extraction as one where a profit maximizing producer will equate the return realized through holding resources for future extraction to the return available from extracting the resource and invest the net revenues earned from the sale in the capital market. Accordingly, the resource royalty (difference between price and marginal extraction cost) should rise at the rate of interest. This is commonly referred to as the 'Hotelling rule for efficient extraction' (e.g. see Reisen, 2008). While Hotelling's approach is only about the efficiency of depletion as represented by the resource royalty, over 30 years later Solow, 1974 introduced the concept of 'intergenerational equity'. Following this approach, earlier generations are entitled to draw down the resource pool in an optimal way as long as they optimally add to the stock of reproducible capital. This concept was developed further by Solow and Wan, 1976 and Hartwick, 1977 amongst others. An abstract solution for optimal extraction strategies at project/single company level is offered by Brennan and Schwartz, 1985. Conceptually, the price uncertainty of the natural resource may be regarded as a 'background risk' to the financial portfolio. Typical other background risks are, for example, the uncertainty about labor income or the terminal value of fixed assets such as housing, as well as uncertainty about future tax liabilities (Baptista, 2008). If there is more than one source of background risk, due to different sources that contribute to SWF funding for example, these risks may interact and have an additive or multiplicative effect (Franke et al., 2011).

But SWF sponsors also have to consider the downside of natural resource richness. A commonly cited problem is the 'Dutch disease'. This term was introduced 1977 by 'The Economist' in order to document the decline of the Dutch manufacturing sector after the start of extraction from a large natural gas field (The Economist, 09.09.2010). A few years later, Corden and Neary, 1982 provided the economic model for this observation. Gylfason, 2001 shows that natural resources imply serious crowding-out effects for human capital, thereby hampering economic growth. These negative effects become more pronounced the higher the resource dependence (e.g. in Algeria and Libya 90% of the budget revenues stem from oil and gas exports: Handelsblatt, 14.04.2011).

Given this background it seems consequential to regard SWFs as a logical means to preserve wealth for future generations and to smooth economic shocks caused by natural resource price volatility. According to Hart, 2010 revenue funds such as SWFs can help to avoid the problem of the Dutch disease. In any case, a caveat for this solution, which was first noted by Davis et al., 2001, and more recently repeated by Balin, 2009 and Kern, 2007, is the lack of empirical evidence for the effectiveness of SWFs regarding this issue. Furthermore, Balin, 2009 advocates diversifying the whole economy rather than only financial assets. However, the effectiveness of this latter option for 'transformation' countries still has to be investigated. Anecdotal evidence from Dubai (financial sector) and the U.A.E. (tourism) shows that this might also be a difficult undertaking.

2.2. Strategic Investment

Despite several waves of privatization passing through major market economies around the globe (see Megginson and Netter, 2001 for a general overview and Estrin et al., 2009 for an analysis of transition economies), state ownership is still a common phenomenon. For instance in Europe 22 out of the 100 largest listed companies are significantly owned by the state (Handelsblatt, 12.06.2013). There is strong empirical support for the theory that state ownership is associated with poor performance (Dewenter and Malatesta, 2001; La Porta and Lopez-de-Silanes, 1999). Since SWFs also act as foreign investors and may have additional objectives such as supporting political considerations, they are prone to political interference and agency conflicts (Kotter and Lel, 2011). This is especially true for this second group of funds. The weak legal standards and corruption present in many SWF countries could even increase the threat of adverse political influence on target firms. Knill et al., 2012b examine the role of bilateral political relations in SWF investment decisions and find that political relations play a role in SWF decision making: SWFs prefer to invest in countries with which the SWF sponsor nation has weaker political relations. This is inconsistent with the FDI and political relations literature and suggests that SWFs also have non-financial motives for investment decisions. Dewenter et al., 2010 give examples of network transactions, as well as

government favorable decisions, after SWF investment in a company. For example, six months after the China Investment Corporation (CIC) acquired 4.9% of Bank of East Asia's equity in November 2007, the bank won approval from the People's Bank of China to become the first foreign bank to issue debit cards in mainland China. China is commonly under suspicion of engaging in technology transfer. Some countries are seriously worried about this foreign influence, so that France and Italy have already incepted state investment funds to repel invaders (WSJ, 04.04.2011).

Nowadays, these concerns have to be put into a different perspective. One of the most important ambitions of our times is to guarantee the supply of natural resources for local industry. For example China's CIC backs this ambition by investing in natural resource extractors, utilities and infrastructure companies (BZ, 18.09.2012). India plans a state fund with similar objectives (FAZ, 25.04.2012). Germany has also discussed the introduction of a strategic resource fund, but with the participation of private sponsors (FTD, 25.04.2012). Even China, which is still interested in technology transfer, has tried to find cooperative solutions by allying with Blackrock (FTD, 26.04.2012) and giving foreign institutional investors, including SWFs, more leeway to invest in China (BZ, 20.12.2012).

2.3. Intergenerational Wealth Accumulation

As already mentioned, the most appropriate strategy for countries accumulating wealth through SWFs is a portfolio strategy with financial assets. Traditional portfolio theory would suggest international diversification rather than concentrated domestic portfolios to improve the portfolio's risk-return characteristics. But empirical research frequently detects a 'home bias' in private as well as in institutional portfolios (for an literature overview see Bessler and Wagner, 2007). SWFs are also prone to hold a higher proportion of domestic or home region assets than recommended by portfolio theory. Reasons for this may have to do with cultural ties or strategic considerations. But a 'local' or 'home' bias must not necessarily result in poor investments. For example, Temasek, who achieved an average annual shareholder return of 13% over the last ten years (WSJ, 05.-07.07.2013), uses its local expertise and invests about one third of its financial holdings in Asian banks (BZ, 05.05.2012). China's CIC also puts an emphasis on Asia (BZ, 18.01.2013).

As well as the diversification aspect, Dimson et al., 2002 advocate the importance of long-term investment premiums. Countries with sound budgets, healthy economies and no explicit liabilities (as in the case of Norway) are able to invest in the long term and capture risk premiums (Dimson et al., 2011a; Dimson et al., 2011b). These for example may stem

from illiquidity, equity, or currency exchange rate reversals (Credit Suisse, 2012). SWFs like Temasek do not have a redemption problem, as, for example, HFs or other mutual funds. This gives them the opportunity to invest countercyclically in the markets they regard as attractive (WSJ, 28.-30.06.2013). But adding the time dimension into the portfolio optimization problem introduces further complexity. The return on wealth accumulation must have a minimum threshold to ensure a sufficient future capital stock. This minimum return can be achieved by following different investment paths. The question is, how to alter the investment strategy (add or reduce risk) if the value of the SWF follows a lower or higher path. Conceptually, this question can be regarded as a dynamic investment accumulation plan (Bierwag, 1987).

Recent SWF investment trends include a growing responsibility in terms of environmental, social and governance criteria, but also a shift to real estate assets (WSJ, 12.03.2013) and a shift away from the Euro. Accordingly, Norway shifted from the Euro to US-Dollar assets (BZ, 03.07.2012) and as did China (WSJ, 08.06.2012). Other Asian funds tried generally to reduce their risk exposures in favor of cash holdings (WSJ, 01.08.2012).

3. Selected Case Studies and Empirical Evidence of SWF Activity

In this part I would like to give some empirical examples of SWF activity. These can be further categorized as general issues that affect SWF investment strategies and as issues that fall into the special sub-period of the recent financial crisis. The latter period is of special importance because it has coincided with the rise of SWFs since 2007 and was also characterized by remarkable SWF investment activity, especially in the financial sector. For each category I present two empirical examples that try to address the following questions:

(1a) What determines SWF asset allocation and are SWFs active or passive investors?

(1b) How do the costs of ESG investment capitalize on fund performance in the case of Norway's Government Pension Fund Global?

(2a) How SWFs and HFs invested during the recent financial crisis?

(2b) What was the success of SWF subprime crisis investments in financial service firms in hindsight?

3.1. SWF Investment Strategies

In contrast to central bank asset management, which is focused on reducing short-term downside risk, SWFs will maximize the expected utility of a representative domestic agent and will allocate more risky foreign assets (Aizenman and Glick, 2008). SWFs are also long-term investors that follow either a

strategic approach to ensure the supply of natural resources and technology or transfer wealth to future generations by transforming or accumulating assets. In the case of strategic investment the fund's strategy will be very opportunistic and will also involve opaque transactions using SWEs, so that it is barely possible to derive general suggestions about the investment process for this SWF group. The analytical methods that would be applicable in this case fall in the area of strategic decision making and it is difficult to derive general solutions without incorporating each country's particular features and utility functions into the model. This is different for wealth transforming and accumulating SWFs that use financial assets, and I would like to take a closer look at the applicable strategies. First, I want to present general asset allocation and investment issues and secondly, a specific issue applicable to the Norwegian SWF.

3.1.a. Asset Allocation and Active vs. Passive Investments

"An SWF is essentially a time machine for money. It is a mechanism for transferring wealth from the

present to the future [...]". This statement by Ang, 2012 is a concise characterization of wealth transforming SWFs. They use financial assets to invest their resource revenues to transfer wealth from the present to the future. In doing so it is advisable to put a special emphasis on the funding source, since their economies are not well diversified. In this context, they first have to decide how much of their natural resources they should extract in a certain period. Prices for natural resources were generally trending upwards the last decade, so that a strategy with a limited current extraction and a higher future extraction at higher prices could have been profitable. The downside of such a strategy is the high volatility of natural resource prices. As shown in Table 3, annual volatility as measured by the annualized monthly standard deviation of oil and gas returns in the period from 1994 till 2010, was 10.6% and 21.3%, respectively. Also, in the medium-term, new extraction techniques such as fracking can lower extraction costs and therewith lower prices. Thus, oil-exporting countries may want to hedge against oil price risk using an SWF (Beck and Fidora, 2008).

Table 3. Sample moments, (annualized) Sharpe ratios and Jarque-Bera statistics of the twelve assets considered in the empirical analysis

	HFI	MSCI W	MSCI EM	US Gov 10y	US BBB-A	NAREIT	GSCI	GOLD	GSCI ex E	OIL	GAS	COPPER
Mean	0.78%	0.65%	0.83%	0.49%	0.55%	0.95%	0.64%	0.73%	0.25%	1.54%	2.44%	1.15%
SD	2.22%	4.51%	7.08%	2.20%	1.70%	5.74%	6.52%	4.45%	3.86%	10.60%	21.25%	7.89%
Skew	-0.22	-0.79	-0.77	0.09	-1.17	-0.96	-0.40	0.22	-0.30	-0.34	0.99	-0.07
Kurt	5.38	4.61	4.85	4.62	9.34	10.44	4.45	5.01	5.98	4.10	5.86	5.72
Sharpe	0.82	0.31	0.28	0.38	0.61	0.43	0.21	0.37	0.00	0.42	0.36	0.39
JB	49.89***	43.51***	49.03***	22.63***	387.50***	501.46***	23.12***	36.18***	78.52***	14.16***	102.87***	63.17***

This table provides sample moments, (annualized) Sharpe ratios and Jarque-Bera statistics of the twelve assets considered in the empirical analysis. The time period covers the months from January 1994 to December 2010. 'Mean' denotes time-series mean of monthly returns while 'SD' denotes the associated standard deviation. 'Skew' and 'Kurt' represent the third and fourth moments of the return distribution. 'Sharpe' shows the Sharpe ratios of the respective asset classes assuming a risk-free interest rate of 3% per year and 'JB' is the Jarque-Bera statistic for testing normality of returns. ***, **, * indicating statistical significance at the 1%, 5%, and 10% level respectively.

Table 4. This table provides the correlation matrix for the asset classes considered in the analysis over the time period December 1993 to December 2010. Bold numbers indicate statistical significance on at least 10% level

	HFI	MSCI W	MSCI EM	US Gov 10y	US BBB-A	NAREIT	GSCI	GOLD	GSCI ex E	OIL	GAS	COPPER
HFI	1.00											
MSCI W	0.58	1.00										
MSCI EM	0.61	0.81	1.00									
US Gov 10y	-0.04	-0.18	-0.21	1.00								
US BBB-A	0.36	0.31	0.26	0.63	1.00							
NAREIT	0.32	0.57	0.48	-0.05	0.33	1.00						
GSCI	0.35	0.30	0.33	-0.06	0.18	0.18	1.00					
GOLD	0.16	0.08	0.22	0.19	0.25	0.11	0.24	1.00				
GSCI ex E	0.31	0.42	0.43	-0.06	0.24	0.31	0.49	0.36	1.00			
OIL	0.20	0.15	0.25	-0.12	0.12	0.03	0.73	0.18	0.22	1.00		
GAS	0.14	0.06	0.03	0.16	0.15	0.05	0.46	0.09	0.08	0.17	1.00	
COPPER	0.26	0.39	0.40	-0.21	0.10	0.23	0.40	0.25	0.55	0.31	0.00	1.00

On the other hand, asset management for wealth accumulating SWFs is more comparable to that of endowment funds. Both investor types share some common characteristics, such as the long-term perspective and the obligation to increase or at least to preserve the capital stock. But SWFs differ in terms of their exposure to funding risk, stemming from the price uncertainty of natural resources. To account for this dependency the SWF sponsor has two options: hedging or diversification. While the first option may be a good solution for a smaller country, the large natural resource extractors may have a problem finding the counterparts for their whole hedging demand. Thus, on a larger scale the diversification option should be the most suitable. In general, in this case it is possible to apply traditional portfolio theory and its extensions. To get a first impression of the diversification potential of each asset class the correlation coefficients for the different assets are usually calculated. Table 5 shows the correlation coefficients for major asset classes. The lower the asset's correlation coefficient the higher is its potential contribution to diversification. If we look at commodities such as oil or copper, the data in Table 4 suggests U.S. government bonds as the most uncorrelated asset (correlation coefficients are negative). Here is of course a caveat, since government bonds with the highest rating are currently very low yielding. The ongoing government debt crisis also showed that even bonds with the highest 'AAA' rating are no longer a 'safe haven'. Thus, other asset classes such as real estate or equities may be better alternatives.

But the subprime crisis 2007-2009 also challenged SWF managers. Although SWFs weathered this crisis comparatively well, they had to suffer losses and benchmark underperformance. With some time lag compared to other institutional investors such as mutual funds, this finally raised the question of passive or active asset management for SWFs. A prominent example is the controversy about the investment strategy of Norway's GPFG. While Ang et al., 2009 assessed the fund's active management strategy very critically the fund's management retained the old strategy and was backed by a strong recovery after the subprime crisis (The Economist, 04.02.2010). For now, this question will remain a source for future controversies between academics and asset management practitioners.

We want to end this section by describing some recent changes in SWF asset management strategies. First, since some financial crisis investments turned out to have serious detrimental effects on fund performance, SWF managers were considerably questioned about their investment decisions and monitoring activities. Their reaction involved a closer engagement in corporate governance activities. Examples are the supervisory board appointments of Qatari representatives at Volkswagen or the active involvement of Qatar Holdings in the preparation of

the Glencore/Xstrata M&A deal (Forbes, 12.09.2012). A second recent change in SWF management involves a growing ethical responsibility, so that I dedicate the next section to a case study of Norway's ethical investment approach.

3.1.b. The Cost of Sustainability: Norway's Ethical Investment Approach

Ethical and sustainable investment criteria has gained importance in the whole asset management industry. SWFs that engage in intergenerational wealth accumulation particularly consider these criteria because they have an obligation to the country's future generations and thus have to manage their assets in a sustainable way. A typical example of incorporating ESG criteria into SWF management is the Norwegian GPFG (Clark and Monk, 2010a). The fund was incepted in 1990 as the 'Petroleum Fund' and its goal was to earn the maximum income relative to a certain level of risk defined by the Norwegian Ministry of Finance. The fund is managed by Norges Bank Investment Management (NBIM) - a separate agency within the Norwegian central bank (Norges Bank). The fund has been allowed to invest in equities since 1998 and the allowable equity share was increased from 40 to 60% in 2007. Since 2002 the fund's management has been allowed to invest in non-government bonds and since April 2008 in real estate and private equity (Caner and Grennes, 2010). Norway introduced ethical guidelines for their investment decisions in 2004 (see Dimson et al., 2011). The Norwegian Ministry of Finance 'considers sound financial return over time to be conditional upon sustainable economic, environmental and social development, as well as well-functioning, legitimate and efficient markets' (Norwegian Ministry of Finance 2013). These guidelines are reviewed and updated regularly. Recently, the GPFG was publicly criticized for not doing enough to protect against human rights breaches in the fund's holding in South Korean steel maker POSCO, whose new steel plant in India would displace over 20,000 people (Reuters, 27.05.2013). The fund management's reaction to such negative events may encompass active ownership and exclusion of companies. In the following I want to focus on the latter and analyze the fund's divestments due to ethical breaches. In general, results on the financial benefit of ESG investments are mixed (see Kleine et al., 2013 for a recent meta-analysis of academic studies). According to the 'shunned-stock hypothesis' socially responsible stocks should have lower returns because ESG-driven investors expect lower financial compensation from these investments. Vice versa, 'sin stocks' should have higher returns because demand is lower and investors require a higher compensation for their investment. On the other hand, the 'errors-in-expectations hypothesis' says that socially responsible stocks should have higher returns because the market recognizes the

positive impact of ESG practices on expected future cash flows only with a time lag (see Derwall et al., 2010 for an overview of the theoretical academic discussion).
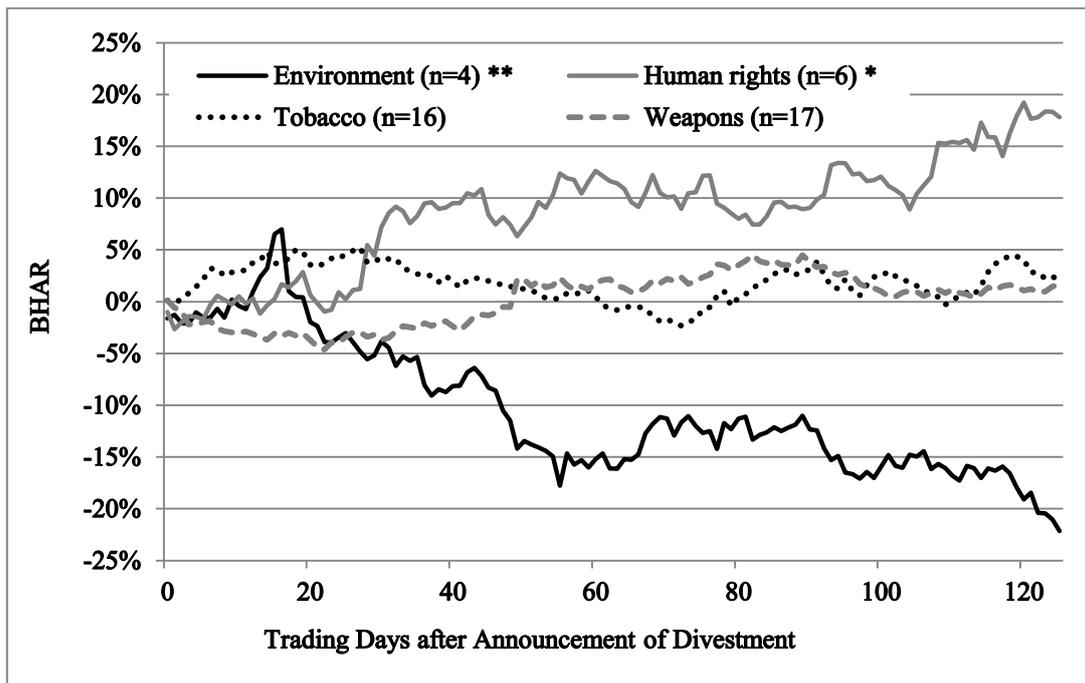
I want to analyze the impact of ESG criteria on stock performance from the perspective of Norway's GPFG. Its ethics committee has issued various divestment recommendations since 2004. I collected such divestments from various online sources especially the press releases and announcements of the Norwegian Ministry of Finance (www.regjeringen.no). The raw sample consists of 48 divestments from 2005 to 2012. Most of the divestment reasons are related to the production and maintenance of weapons and defense systems (19 events) followed by exits from tobacco related businesses (18 events). A minor share of events (11) relates to environmental and human rights abuses. Return data was obtained from Thomson Datastream. After matching the event companies with the return data around the announcement of the divestment, I obtained a clean sample of 43 events. For these

divestments I calculate buy-and-hold-abnormal-returns since the divestment recommendation:

$$BHAR = \frac{1}{N} \sum_{i=1}^{N} \left[\left(\prod_{t=1}^{T}(1 + R_{i,t}) \right) - \left(\prod_{t=1}^{T}(1 + R_{M,t}) \right) \right].$$

We group the companies according to the divestment reason into tobacco, weapons, environmental and human rights breaches. The results in Figure 4 show that the group involved in environmental issues had an abnormal negative performance of -22.2% after six months. Thus, the divestment decision turned out to be legitimate even in terms of financial performance, albeit it must be considered that the subgroup contains only four companies. In contrast, the group with human rights breaches outperformed by 17.8% after six months. But this subgroup is also rather small (six companies). The other two groups that are involved in tobacco and defense activities both have a slightly positive BHAR which is not significantly different from zero.

Figure 4. Buy-and-hold returns for the different Norwegian ESG divestment subgroups

This figure shows the buy-and-hold returns for the different Norwegian ESG divestment subgroups (environment, human rights, tobacco and weapons/defense). Event data was collected from various online sources. All return data is from Thomson Datastream. ***, **, * indicating statistical significance at the 1%, 5%, and 10% level respectively.

A tentative interpretation of this result would be that environmental damage often involves financial penalties that reflect in the company's future cash flows. On the other hand, human rights violations such as the relocation or displacement of natives from mining areas rarely have serious consequences for the company involved.

Though the fund is transparent and it is possible obtain portfolio holdings, from annual and semi-annual reports for example, the exact impact on the whole GPFG portfolio is still difficult to quantify, because the exact details for the sell transactions (total quantity sold, realized sell prices, transaction dates) are not available for the majority of events.

3.2. SWFs and the Recent Financial Crisis

According to Subacchi, 2012, the global financial crisis served as an opportunity to gain more insights into SWFs' investment strategies. I follow this approach and first analyze a broader sample and compare SWF investments with those of HFs (Section 3.2.a.). In a second step I focus on SWF investments in financial service firms because this sector was the predominant SWF target in this period (Subacchi, 2012).

3.2.a. Comparative Analysis of SWFs and Hedge Fund Investments

During the 2007-2009 financial crisis SWFs became prominent investors by investing large amounts of capital in listed firms and especially in financial service companies. In contrast to HFs, which experienced strong capital outflows, SWF funding was quiet stable. They were required to engage in national bailout in only a few cases, as in Ireland for example. For HFs the situation was different. Although, they could more than double their equity ownership from 2000 to the beginning of the 2007-2009 subprime crisis, this expansion period was followed by a sharp decline starting in August 2007 (Jiao, 2013). This raises the question of whether SWFs could bridge the gap with their investments.

Both, HFs and SWFs are often criticized for a lack of transparency (see for example Voss et al., 2009). But the myths developed from this opaque environment are not always true. For example recent empirical research does not support the often perceived negative effects of HF activism. According to Katelouzou, 2013 activist HFs do not have a pure short-term focus, which is something commonly criticized. HFs also seldom engage in equity decoupling, do not frequently seek control and in most cases are not hostile to the existing management. These refuted myths about the 'dark sides' of HFs are a second link between HFs and SWFs. The latter were also linked by the public to detrimental actions such as technology transfer, which was not supported by clear empirical evidence. Unlike SWFs, HFs commonly use leverage within their investment strategies (Aizenman and Glick, 2008). This may boost their investment capacity by up to $7 trillion (Voss et al., 2009), which would exceed the long-only assets managed by SWFs.

As in other comparative analyses of SWFs and mutual funds (Boubakri et al., 2011; Avendaño and Santiso, 2012) it is not only investment timing and performance but also the target firm characteristics and business environment that play an important role. In contrast to other institutional investors, SWFs tend to invest more in PE compared to public equity when the target nations' investor protection and bilateral political relations between the SWF country and the target's nation are weak (Johan et al., 2013). These results underline the findings of Knill et al., 2012b, but do not provide an explanation for the underlying motives.
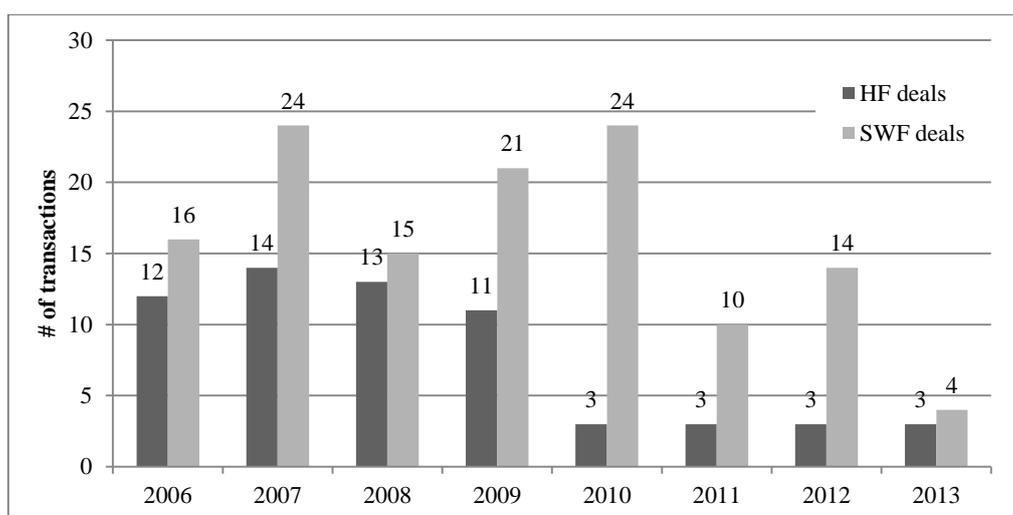
To obtain the data for my analysis I first identify SWF and HF investments by filtering the Thomson One M&A database. I selected all completed acquisitions where the target's status was 'public' and for which the SWF or hedge fund involvement flag was true. Then I restricted the sample to buy-side involvement of SWFs and HFs. While other studies that use the same data source for SWF data (e.g. Dewenter et al., 2010) start their SWF samples in the 1980s I include only events since 2006. There are two reasons for this. First, I want to focus on the financial crisis period. Secondly, the HF and SWF flags in Thomson One are assigned on a company, and not on a deal, level. When they were introduced, company records for HFs and SWFs were updated accordingly. Thus, deals involving these types of companies, including historical ones, can be filtered using these flags. Even though this means that no backfilling on deal level was required, the small number of deals before 2006 suggests that there might be a 'survivorship bias' where older deals with an involvement of inactive funds were not reclassified. So I start in 2006 in order to have non-crisis events before the crisis 2007-2009 and expand the analyzed period until the most recent events. Accordingly, I have post financial crisis and debt crisis events included in the sample that overall consists of 128 SWF and 62 HF investments. Return data was obtained from Thomson Datastream. After matching the return data for the analyzed period with the events I obtain a clean sample of 100 SWF and 52 HF investments. I used the total return price index and the Datastream local market index. Because of the high volatility and the existence of strong outliers the abnormal returns for each trading day are winsorized at the 5% level. Valuation effects in the short-term are determined by calculating cumulative abnormal returns (CARs):

$$CAR_t = \sum_{\tau=1}^{t} dAR_\tau$$

$$\text{with } AR_{i,t} = R_{i,t} - \left(\alpha_i + \beta_i \cdot R_{M,t}\right),$$

where dAR_τ is the daily average abnormal return of an equally-weighted portfolio of target firms in event-time, $AR_{i,t}$ is the abnormal return of security i in period t, $R_{i,t}$ is the security return, and $R_{M,t}$ is the market return. α_i and β_i are the coefficients from a market model regression. The estimation of the market model parameters is based on 130 daily returns in local currency from $t = -210$ to $t = -81$. The Datastream local market total return index was used as the proxy for the market.

Figure 5. The figure shows the annual distribution of SWF and HF investment events from January 1, 2006 to June 30, 2013. Deal data is from Thomson ONE

Table 5. Characteristics of the HF and the SWF raw sample

	HF sample	SWF sample
A. General deal characteristics		
total number of raw events	62	128
median stake acquired (%)	8.7	11.0
	(n=58)	(n=119)
median transaction value ($m)	98.7	396.3
	(n=23)	(n=91)
B. Regional distribution of events (% of events)		
Africa/Middle East/Central Asia	1.6	17.2
Americas	59.7	20.3
Asia-Pacific (ex-Central Asia)	8.1	39.8
Europe	24.2	21.9
Japan	6.5	0.8
C. Industry distribution of events (% of events)		
Agriculture, Forestry, and Fishing	1.6	0.0
Construction	1.6	0.8
Finance, Insurance, and Real Estate	12.9	39.1
Manufacturing	16.1	15.6
Mining	30.6	12.5
Public Administration	0.0	0.0
Retail Trade	11.3	3.9
Services	17.7	10.2
Transportation, Communications, Electric, Gas, and Sanitary Services	3.2	14.1
Wholesale Trade	4.8	3.9
D. Number of Events for SWF Groups	*#*	*percentage*
Intergenerational Wealth Transformation	50	39%
Strategic Investment	58	45%
Intergenerational Wealth Accumulation	20	16%

Shows the characteristics of the HF and the SWF raw sample. Regional and industry characteristics are from Thomson ONE. Industry classification is according to the first two digits of the SIC code. General deal characteristics are not always available for all companies in the sample. In these cases the median values are based on a smaller subset of companies. The number of companies in this subset is indicated in brackets below the corresponding figures

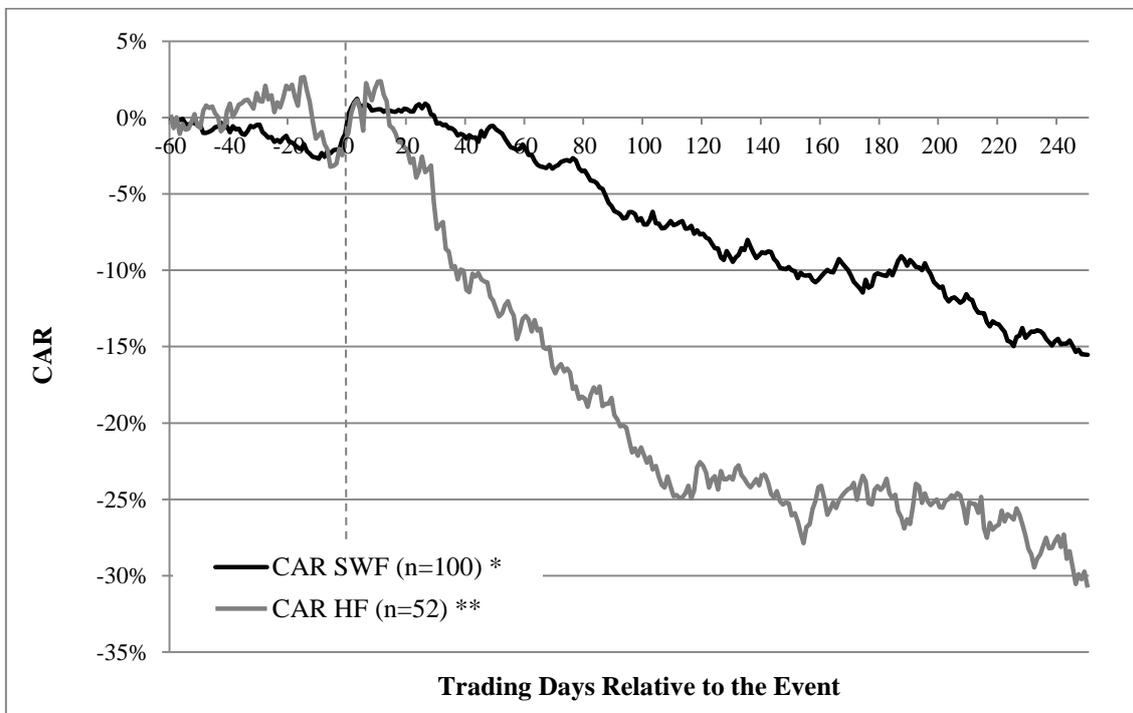As shown in Table 5 SWFs tend to acquire larger stakes in larger firms. Their geographical focus is Asia-Pacific, which is also the domicile of large SWFs such as Temasek. HFs prefer to invest in the

Americas and Europe. The industry focus of SWF investment is on finance, insurance and real estate, while HFs also like to invest in mining companies. From the annual distribution of events shown in Figure 5 we can see that from 2008 to 2010 SWFs increased the number of deals in the sample while HFs experienced a sharp decline.

Figure 6 shows the cumulated abnormal returns for the HF and the SWF sample. HF investments perform worse compared to SWFs over the analyzed period. The CAR over the whole 311 day window is -15.5% for SWFs and -30.8% for HFs. Both returns are statistically significant from zero. In contrast to other research there is no performance run-up for HFs before the investment as for example in Bessler et al., 2013, Fig. 2. Also, the HF investments in this small sample, which predominantly originates from a down market period, go along with serious shareholder wealth destruction. Even though SWF investments are also characterized by negative performance, this effect is less pronounced compared to HFs (half the amount). This is remarkably since the SWF sample also contains bailout investments that experienced high losses (see part 3.2.b.) (It hast to be noted, that in this sample, which was retrieved from an M&A database, only the bailout investments in voting securities are included while the 'typical' bailout investments predominantly were in non-voting securities). In the very short run the market reacts on SWF investment with an abnormal announcement return of about 2% in the three day window around the announcement date. This result is consistent with the event studies presented in Section 1.3.

Figure 6. The cumulated abnormal returns for HF and SWF investments

This figure shows the cumulated abnormal returns for HF and SWF investments. Event data was obtained from Thomson ONE. All return data is from Thomson Datastream. Because of the high volatility and the existence of strong outliers the abnormal returns for each trading day are winsorized at the 5% level. ***, **, * indicating the statistical significance of the CAR over the 311 trading day window at the 1%, 5%, and 10% level respectively

In contrast to Subacchi, 2012 who does not find general evidence that beside financial risk-return consideration SWFs generally seek to control and influence Western companies, the sample provides some evidence for higher SWF stakes of well above 10% in this recent period (median is about 11%). This was already mentioned by Balin, 2010 and may be explained by the significant SWF portfolio losses along with national government scrutiny. Anecdotal evidence from Volkswagen shows that SWFs are increasingly willing to capture a more active role within corporate governance (FAZ, 22.04.2010).

Albeit SWFs are driven by the desire to support their home economies, they seem to be aware of the negative bilateral effects of one-sided 'tunneling' activities. The following case study is a good example for this argument.

3.2.b. SWF Subprime Investments into Financial Service Firms

The 2007-2009 subprime crisis caused two changes in the ownership structure of financial service firms. The first is the consolidation of ownership and the
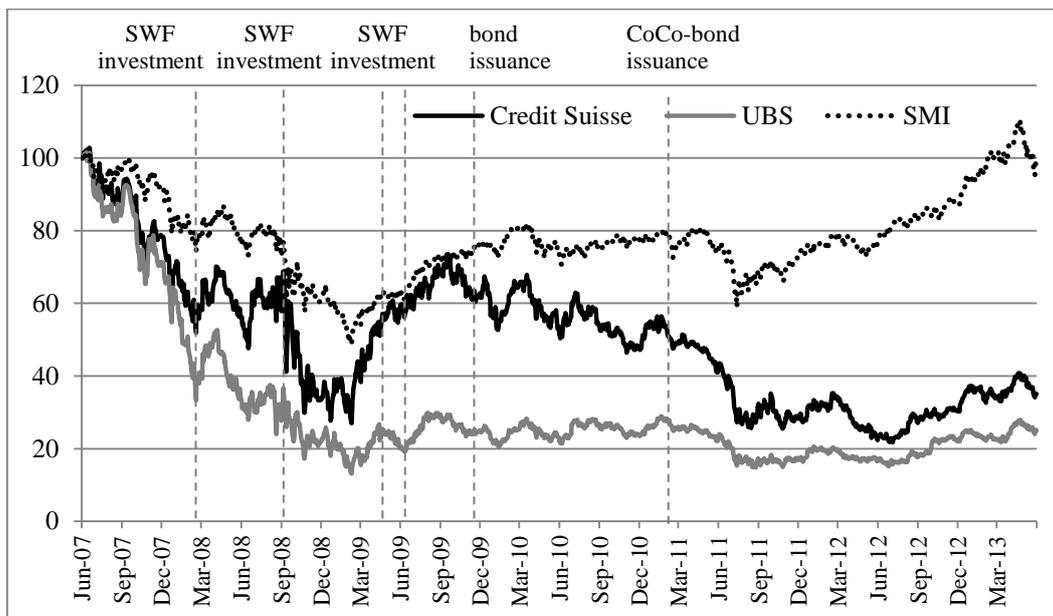
second refers to the investors, which turned out to be SWFs, the banks' home governments or a combination of both (Pistor, 2009). SWFs invested approximately $92bn in financial service companies (Kern, 2008), but lost up to $25bn book value in the meantime. The Government of Singapore Investment Corporation (GIC) alone lost 3.7bn Euro with their investment in the Swiss bank UBS (Handelsblatt, 02.02.2011). Libya had a decline of 98% of their investment value in a $1.3bn deal with Goldman in the time period from the first half of 2008 till February 2010. Amongst other things this deal included options to buy stocks of Citigroup, UniCredit, Santander and Allianz (WSJ, 31.05.2011). Kern, 2009 states the maximum imputed losses on SWF subprime investments between 60% and 96% against the initial acquisition price. In this section I want to shed some light on the motives and performance implications of these substantial investments during the crisis.

The banking sector has some distinguishing features which become even more important in crisis times. These features stem from the banks' business models and regulatory environment, which are different compared to other industries. As a consequence, bank loan portfolios bear asymmetric information about clients. The market thus has inferior knowledge compared to bank loan portfolio managers. This lack of information can produce adverse announcement effects for rival banking firms caused by external information from a single bank (Slovin et al., 1992). This produces spillover costs for

commercial and investment banking business. Bessler and Nohel, 2000 document information externalities and contagion effects related to dividend cuts by money-center banks. Cornett and Tehranian, 1994 and Cornett et al., 1998 investigate the difference between the stock price reaction following voluntary and involuntary capital increases initiated by regulatory capital requirements. Stock price declines after voluntary issues are significantly greater than those after involuntary issues.

Thus, issue and investor types can lead to a different perception by the market. Bertoni and Lugo, 2011 document a certification effect for SWF investments as measured by the targets' CDS premiums. Schweikhard and Tsesmelidakis, 2012 find a growing wedge between stock-implied default risk compared to CDS observations. This disconnection between the two markets for credit and equity prices can be attributed to the government interventions that generally focused on saving debt. An example of a crisis strategy that did not require government rescue is Swiss bank Credit Suisse (Basler Zeitung, 15.02.2011). As shown in Figure 7 the bank first used equity issuance to recapitalize until mid-2009. These capital injections were sponsored by the Qatari SWF which first made an anchor investment in the bank in March 2008. Following this the bank issued bonds including contingent convertibles ('CoCos'). Compared to rival UBS, this strategy combined with operating improvements lead to an outperformance (see Figure 7).

Figure 7. The figure shows the development of Credit Suisse's CDS premium and the stock price from July 2007 till June 2013. All data is from Thomson Reuters Datastream

Now I want to turn to a broader sample of bank recapitalization events during the crisis. Therefore I collected infusion events from various online sources

(corporate website press archives and newspaper websites) starting from the collapse of two Bear Stearns HFs on June 21, 2007 until the end of the

crisis in March 2009. I end up with 22 events from 14 individual banks. For these events I calculate the BHAR as described in section 2.1.b. I use the Datastream local market indices and alternatively the MSCI All Country World Index Diversified Financial Services in US-Dollars. All market data I obtained from Thomson Financial Datastream.

At the beginning of the subprime crisis in the second half of 2007 there was some hope that the Chinese Investment Corporation (CIC) and other large SWFs could regain global financial stability using their 'deep pockets'. But SWFs soon faced growing domestic pressure to justify their poorly performing investments (Clark and Monk, 2010b). As shown in Table 6 almost all crisis investments were underperforming after three years (750 trading days) as measured by the BHAR starting from the announcement day of the infusion. Only Temasek's investment in Standard Chartered and Russia's domestic investment in Sberbank outperformed the local stock market index. The latter infusion was a loan at 8% interest made by the National Welfare Fund.

Table 6. SWF subprime infusions in financial service institutions

Bank	ISIN	Announ-cement	Infusion type	Cross-border	Volume		BHAR after 750 trading days (against local stock market)	BHAR after 750 trading days (against USD industry index)	Investor
ICICI Bank	INE090A01013	12.07.2007	entrance investor	Yes	2.87	%	-24.35%	**36.14%**	Investment Corporation of Dubai
Barclays	GB0031348658	23.07.2007	entrance investor	Yes	2,005	m USD	-40.75%	-7.60%	Temasek (stake: 1.8%)
Bear Stearns*	US0739021089	22.10.2007	capital issuance	Yes	1,000	m USD	-71.90%	-35.06%	Citic (SOE)
Citigroup	US1729674242	26.11.2007	capital issuance	Yes	7,500	m USD	-74.20%	-37.27%	Abu Dhabi Investment Authority
UBS	CH0024899483	10.12.2007	capital issuance	Yes	13,000	m CHF	-47.04%	-5.47%	GIC & SAMA (stake: 1.5%)
Morgan Stanley	US6174464486	19.12.2007	capital issuance	Yes	5,000	m USD	-33.71%	**6.49%**	China Investment Corporation (stake: 9.9%)
Merrill Lynch*	US5901881087	24.12.2007	capital issuance	Yes	4,400	m USD	-67.79%	-29.82%	Temasek (stake: 9.4%)
Citigroup	US1729674242	15.01.2008	capital issuance	Yes	6,880	m USD	-76.17%	-33.85%	GIC (stake: 3.7%)
Merrill Lynch*	US5901881087	15.01.2008	capital issuance	Yes	2,000	m USD	-69.58%	-27.26%	Korea Investment Corporation
Citigroup	US1729674242	25.01.2008	capital issuance	Yes	3,000	m USD	-81.68%	-38.21%	Kuwait Investment Authority (stake: 1.6%)
Merrill Lynch*	US5901881087	25.01.2008	capital issuance	Yes	2,000	m USD	-78.83%	-35.36%	Kuwait Investment Authority (stake: 3%)
Standard Chartered	GB0004082847	28.01.2008	entrance investor	Yes	19.03	%	**21.45%**	**51.57%**	Temasek & SWEs (gradually since 03/2006)
Credit Suisse	CH0012138530	18.02.2008	entrance investor	Yes	603	m USD	-21.27%	**27.03%**	QIA (stake: 1%)
Merrill Lynch*	US5901881087	29.07.2008	capital issuance	Yes	2,000	m USD	-62.61%	-21.99%	Korea Investment Corporation
Credit Suisse	CH0012138530	16.10.2008	capital issuance	Yes	10,000	m CHF	-49.76%	**1.86%**	QIA
Sberbank	RU0009029540	17.10.2008	loan	No	19,110	m USD	**73.58%**	**206.24%**	National Welfare Fund (8% interest)
Unicredit	IT0004781412	23.10.2008	entrance investor	Yes	4.90	%	-41.15%	-25.16%	Libyan Investment Authority
Barclays	GB0031348658	31.10.2008	capital issuance	Yes	7,300	m GBP	-62.97%	**1.49%**	QIA (among other investors)
Qatar Int. Islamic Bank	QA0006929879	15.01.2009	entrance investor	No	10.00	%	-38.50%	**28.52%**	Qatar Investment Authority
Allied Irish Banks	IE0000197834	12.02.2009	capital issuance	No	3,500	m EUR	-118.00%	-118.39%	National Pensions Reserve Fund
Citigroup	US1729674242	27.02.2009	capital issuance	Yes	11.10	%	-58.06%	-32.43%	GIC (conversion of pref.)
Bank of Ireland	IE0030606259	27.03.2009	capital issuance	No	3,500	m EUR	-109.36%	-95.21%	National Pensions Reserve Fund

The table shows SWF subprime infusions in financial service institutions. The infusion events were hand-collected from various online sources (corporate website's press archives and news paper websites). Investments with positive performance after 750 trading days are marked with bold letters

*delisted

The worst performing investments were the recapitalizations of the troubled Irish banks by the National Pensions Reserve Fund. These were already the precursors of the next crisis, which this time sparked from debt-burdened Eurozone national governments. If I measure the abnormal performance against the MSCI financial service index and in US-dollars, the performance results improve, because the whole financial service industry was most affected during this crisis. Now approximately one third of the investments would have a positive BHAR. Among these are also Qatar's investments into Credit Suisse as well as CIC's infusion into U.S. investment bank Morgan Stanley. The early outperforming investment of the Investment Corporation of Dubai into Indian bank ICICI is in fact not a typical 'subprime infusion' and is rather a pure financial investment.

All in all, SWF engagements in financial service firms during the subprime crisis were a bad investment in financial terms. This indicates that SWFs were not properly compensated for providing large amounts of capital in this crisis period. However, the public attention significantly changed from 'foe' to 'friend', so that in the next crisis even heavily indebted Eurozone governments had hope of gaining new SWF investors from Asia or the Middle East (see the attempts of European leaders to bolster up the European bail-out fund ESFS; The Telegraph, 22.10.2011). As well as losses suffered by the SWFs there is one further drawback related to negative information effects for the banks, especially in the early period of the crisis. The involvement of formerly undesired investors in bank recapitalization signaled that the problem might be very serious and probably more serious than it actually was. The bottom line was that SWF capital alone would be not enough to rescue a large, internationally operating bank like Citigroup or UBS. There is also a conflict between the role of an SWF as an asset manager and a liquidity provider during crisis times (Subacchi, 2012). The majority of crisis investments were bought too early and did not turned out to be 'bargains' that experienced high capital appreciation. At least some individual SWFs, and this investor group as a whole, could gain reputational benefits (Kern, 2008).

4. Concluding Remarks

1. There is broad agreement that SWFs are important participants in the global financial system and will gain further importance in the future.
2. Definitions vary from source to source, so that is not an easy task to clearly define an SWF.
3. Rather than a solely geographic, funding source, or investment motive based classification, I propose a classification approach that combines the economies' endowment with resources (incl. human capital) with their investment motives.

4. Based on this combination of different SWF funding sources with their investment motives I classify SWFs by their investment objectives into three main groups: (1) intergenerational wealth transformation, (2) strategic investment and (3) intergenerational wealth accumulation.
5. In addition to risk-return optimization the first and the second SWF groups are also driven by strategic considerations. These could reflect in the expected investment returns. Thus, financial losses could be regarded as less harmful if there is a strategic benefit from this investment. For the third group ethical consideration may be part of the utility function.
6. The political debate about SWF cross-border investments received a remarkable reversal in opinion. This is mainly due to the bailout engagements of SWFs during the recent financial crisis and the recent efforts to improve SWF transparency (e.g. by the introduction of the 'Santiago Principles').
7. But SWF financial crisis investments also initiated a controversy in their home countries about the tolerable level of risk.
8. SWFs as long-term investors should actively engage in seeking investment premiums.
9. ESG factors gained importance as an important investment constraint.
10. During the recent financial crisis SWFs did not only experienced less capital outflows but also their investments lost less in value compared to HFs.
11. All in all, SWFs have several of distinguishing features that affect their portfolio construction, target selection, regulatory and governance environment. Due to their political dependency their strategy is often very opportunistic.

References

a. Academic Journals and Books

1. Aizenman, J. and Glick, R. (2008), "Sovereign Wealth Funds: Stylized Facts about their Determinants and Governance", Working Paper.
2. Ang, A. (2012), "Four Benchmarks of Sovereign Wealth Funds", in: Boton, P., Smama, F. and Stiglitz, J.E. (Eds.), *Sovereign Wealth Funds and Long-Term Investing*, Columbia University Press, New York, pp. 94-105.
3. Ang, A., Goetzmann, W.N. and Schaefer, S.M. (2009), "Evaluation of Active Management of the Norwegian Government Pension Fund - Global", Working Paper.
4. Avendaño, R. and Santiso, J. (2012), "Are Sovereign Wealth Fund Investments Politically Biased? A Comparison with Mutual Funds", in: Sauvant, K.P., Sachs, L.E. and Schmit Joungbloed, W.P.F. (Eds.), *Sovereign Investment – Concerns and Policy Reactions*, Oxford University Press, New York, pp. 221-257.
5. Balding, C. (2012), *Sovereign Wealth Funds - The New Intersection of Money & Politics*, Oxford University Press, New York.

6. Balin, B.J. (2009), "Sovereign Wealth Funds - A Critical Analysis", Working Paper.
7. Balin, B.J. (2010), "The Impact of the Global Economic Crisis on Sovereign Wealth Funds", in: *Asian-Pacific Economic Literature*, Vol. 24, pp. 1-8.
8. Baptista, A.M. (2008), "Optimal delegated portfolio management with background risk", in: *Journal of Banking & Finance,* Vol. 32, pp. 977-985.
9. Beck, R. and Fidora, M. (2008), "The Impact of Sovereign Wealth Funds on Global Financial Markets", IMF Occasional Paper No. 91.
10. Bernstein, S., Lerner, J. and Schoar, A. (2009), "The Investment Strategies of Sovereign Wealth Funds", Harvard Business School Working Paper.
11. Bertoni, F. and Lugo, S. (2012), "The Certification Effect of Sovereign Wealth Funds on the Credit Risk of Portfolio Companies", Working Paper.
12. Bessler, W. and Nohel, T. (2000), "Asymmetric Information, Dividend Reductions, and Contagion Effects in Bank Stock Returns", in: *Journal of Banking and Finance*, Vol. 24(2000), pp. 1831-1846.
13. Bessler, W., Drobetz, W. and Holler, J. (2013), "The Returns to Hedge Fund Investments in Germany", in: *European Financial Management*, forthcoming.
14. Bessler, W. and Wagner, D. (2007), "Home Bias", in: Thießen, F. (Ed.), *Enzyklopädisches Lexikon für das Geld-, Bank- und Börsenwesen*, Fritz Knapp Verlag, Frankfurt, 25 p.
15. Bierwag, G.O. (1987), *Duration Analysis - Managing Interest Rate Risk*, Ballinger Publishing Company, Cambridge/Mass.
16. Bortolotti, B., Fotak, V., Megginson, W.L. and Miracky, W. (2010), "Sovereign Wealth Fund Investment Patterns and Performance", FEEM Working Paper No. 22.2009.
17. Boubakri, N., Cosset, J.-C. and Samir, N. (2011), "Sovereign Wealth Fund Acquisitions: A Comparative Analysis with Mutual Funds", in: *International Finance Review*, Vol. 12, pp. 355-389.
18. Brennan, M.J. and Schwartz, E.S. (1985), "Evaluating Natural Resource Investments", in: *The Journal of Business*, Vol. 58, no. 2, pp. 135-157.
19. Butt, S., Shivdasani, A., Stendevad, C. and Wyman, A. (2008), "Sovereign Wealth Funds: A Growing Global Force in Corporate Finance", in: *Journal of Applied Corporate Finance*, Vol. 20 No. 1, pp. 73-83.
20. Caner, M. and Grennes, T. (2010), "Sovereign Wealth Funds: The Norwegian Experience", in: *The World Economy*, Vol. 33 No. 4, pp. 597-614.
21. Chhaochharia, V. and Laeven, L. (2008), "Sovereign Wealth Funds: Their Investment Strategies and Performance", Working Paper University of Miami.
22. Clark, G. L. and Monk, A. (2010a), "The Norwegian Government Pension Fund: Ethics over Efficiency", in: *Rotman International Journal of Pension Management*, Vol. 3 No. 1, pp. 14-19.
23. Clark, G. L. and Monk, A. (2010b), "Nation-State Legitimacy, Trade, and the China Investment Corporation", Working Paper.
24. Corden, W. M. and Neary, J.P. (1982), "Booming Sector and De-industrialisation in a Small Open Economy", in: *Economic Journal*, Vol. 92, pp. 825-848.
25. Cornett, M.M. and Tehranian, H. (1994), "An Examination of Voluntary Versus Involuntary Security Issuances by Commercial Banks", in: *Journal of Financial Economics*, Vol. 35 No. 1994, pp. 99-122.
26. Cornett, M.M., Mehran, H. and Tehranian, H. (1998), "Are Financial Markets Overly Optimistic about the Prospects of Firms That Issue Equity? Evidence from Voluntary versus Involuntary Equity Issuances by Banks"*,* in: *Journal of Finance*, Vol. 53 No. 6, pp. 2139-2159.
27. Credit Suisse (2012), "Credit Suisse Investment Returns Yearbook 2012", available online: https://www.credit-suisse.com/investment_banking/doc/cs_global_invest ment_ returns_yearbook.pdf.
28. Curzio, A.Q. and Miceli, V. (2010), *Sovereign Wealth Funds - A Complete Guide to State-Owned Investment Funds,* Harriman House, Petersfield.
29. Das, U. S., Lu, Y., Mulder, C. and Sy, A. (2009), "Setting up a Sovereign Wealth Fund: Some Policy and Operational Considerations", IMF Working Paper, No. 09/179.
30. Davis, J., Ossowski, R., Daniel, J. and Barnett, S. (2001), "Stabilization and Savings Funds for Nonrenewable Resources Experience and Fiscal Policy Implications", IMF Occasional Paper No. 205.
31. Dewenter, K. and Malatesta, P.H. (2001), "State-Owned and Privately Owned Firms: An Empirical Analysis of Profitability, Leverage, and Labour Intensity", in: *American Economic Review*, Vol. 91, pp. 320-334.
32. Dewenter, K.L., Han, X. and Malatesta, P.H. (2010), "Firm Values and Sovereign Wealth Fund Investments", in: *Journal of Financial Economics,* Vol. 2010 No. 98, pp. 256-278.
33. Dimson, E., Chambers, D. and Ilmanen, A. (2011), "The Norway Model", Working Paper.
34. Dimson, E., Ilmanen, A., Liljeblom, E. and Stephansen, O. (2011), "Investment Strategy and the Government Pension Fund Global", Strategy Council 2010.
35. Dimson, E., Marsh, P. and Staunton, M. (2002), *Triumph of the Optimists*, Princeton University Press, Princeton, NJ.
36. Fernandes, N.G. (2009), "Sovereign Wealth Funds: Investment Choices and Implications Around the World", EFA 2009 Bergen Meetings Paper.
37. Franke, G., Schlesinger, H. and Stapleton, R.C. (2011), "Risk Taking with Additive and Multiplicative Background Risks"*,* in: *Journal of Economic Theory*, Vol. 146, pp. 1547-1568.
38. Gylfason, T. (2001), Natural Resources, Education, and Economic Development, in: *European Economic Review,* Vol. 45, pp. 847-859.
39. Hart, J. (2010), "Revenue Funds Counteract the Determinants of Dutch Disease: Lessons from Western Australia", Working Paper.
40. Hartwick, J.M. (1977), "Intergenerational Equity and the Investing of Rents from Exhaustible Resources", in: *The American Economic Review,* Vol. 67 No. 5, pp. 972-974.
41. Hotelling, H. (1931), "The Economics of Exhaustible Resources", in: *Journal of Political Economy,* Vol. 39 No. 2, pp. 137-175.
42. Jiao, Y. (2013), "Hedge Funds and Equity Prices", in: *Review of Finance*, Vol. 17, pp. 1141-1177.
43. Johan, S., Knill, A. and Mauck, N. (2013), "Determinants of Sovereign Wealth Fund Investment in Private Equity vs Public Equity", in: *Journal of International Business Studies*, Vol. 44, pp. 155-172.

44. Jost, T. (2012), "Sovereign Wealth Funds and the German Policy Reaction", in: Sauvant, K.P., Sachs, L.E. and Schmit Joungbloed, W.P.F. (Eds.): *Sovereign Investment – Concerns and Policy Reactions*, Oxford University Press, New York, pp. 453-461.

45. Karolyi, A.G. and Liao, R.C. (2010), "What is Different about Government-Controlled Acquirers in Cross-Border Acquisitions?", FEEM Working Paper.

46. Katelouzou, D. (2013), "Myths and Realities of Hedge Fund Activism: Some Empirical Evidence", in: *Virginia Law & Business Review*, Vol. 7 No. 2, pp. 459-511.

47. Kern, S. (2007), "Sovereign Wealth Funds - State Investments on the Rise", DB Research Current Issues.

48. Kern, S. (2008), "SWFs and Foreign Investment Policies - An Update", DB Research Current Issues.

49. Kern, S. (2009), "Sovereign Wealth Funds - State Investments During the Financial Crisis", DB Research Presentation.

50. Kleine, J., Krautbauer, M. and Weller, T. (2013), "Nachhaltige Investments aus dem Blick der Wissenschaft" [Sustainable investments from the point of view of science], Steinbeis Research Center for Financial Services Working Paper.

51. Knill, A.M., Lee, B. and Mauck, N. (2012a), "Sovereign Wealth Fund Investment and the Return-to-risk Relation of Target Firms", in: *Journal of Financial Intermediation,* Vol. 21(2012), pp. 315-340.

52. Knill, A.M., Lee, B. and Mauck, N. (2012b), "Bilateral Political Relations and Sovereign Wealth Fund Investment", in: *Journal of Corporate Finance,* Vol. 18(2012), pp. 108-123.

53. Kotter, J. and Lel, U. (2011), "Friends or Foes? Target Selection Decisions of Sovereign Wealth Funds and their Consequences", in: *Journal of Financial Economics,* Vol. 101(2011), pp. 360-381.

54. La Porta, R. and Lopez-de-Silanes, F. (1999), "The Benefits of Privatization: Evidence from Mexico", in: *Quarterly Journal of Economics*, Vol. 114, pp. 1193-1242.

55. Marie, L., Brunia, N. and Westerman, W. (2011), "The Impact of Sovereign Wealth Fund Transactions on Firm Value", Working Paper University of Groningen.

56. Maslakovic, M. (2013), "Sovereign Wealth Funds", Financial Market Series, March 2013.

57. Megginson, W.L. and Netter, J.M. (2001), "From State to Market: A Survey of Empirical Studies on Privatization", in: *Journal of Economic Literature*, Vol. 39 No. 2, pp. 321-389.

58. Mietzner, M. and Schiereck, D. (2011), "Staatsfonds als Ankerinvestoren: Eine Note zum Einstieg von Aabar bei Daimler", in: *Perspektiven der Wirtschaftspolitik*, Vol. 12 No. 1, pp. 92-100.

59. Pistor, K. (2009), "Sovereign Wealth Funds, Banks and Governments in the Global Crisis: Towards a New Governance of Global Finance?" In: *European Business Organization Law Review*, Vol. 10, pp. 333-352.

60. Reisen, H. (2008), "How to Spend It: Sovereign Wealth Funds and the Wealth of Nations", OECD Development Centre Policy Insights No. 59.

61. Schweikhard, F.A. and Tsesmelidakis, Z. (2012), "The Impact of Government Interventions on CDS and Equity Markets", Working Paper.

62. Shapiro, D.M. and Globerman, S. (2012), "The International Activities and Impacts of State-Owned Enterprises", in: Sauvant, K.P., Sachs, L.E. and Schmit Joungbloed, W.P.F. (Eds.): *Sovereign Investment – Concerns and Policy Reactions*, Oxford University Press, New York, pp. 98-141.

63. Slovin, M.B., Sushka, M.E. and Polonchek, J.A. (1992), "Informational Externalities of Seasoned Equity Issues - Differences Between Banks and Industrial Firms", in: *Journal of Financial Economics,* Vol. 32(1992), pp. 87-101.

64. Sojli, E. and Tham, W.W. (2010), "The Impact of Foreign Government Investments: Sovereign Wealth Fund Investments in the U.S.", Erasmus University Working Paper.

65. Solow, R.M. (1974), Intergenerational Equity and Exhaustible Resources, in: *The Review of Economic Studies,* Vol. 41, pp. 29-45.

66. Solow, R.M. and F.Y. Wan (1976), "Extraction Costs in the Theory of Exhaustible Resources", in: *The Bell Journal of Economics,* Vol. 7 No. 2, pp. 359-370.

67. Subacchi, P. (2012), "Sovereign Wealth Funds and the Crisis: Investment Managers or Providers of Liquidity?" In: Sauvant, K.P., Sachs, L.E. and Schmit Joungbloed, W.P.F. (Eds.): *Sovereign Investment – Concerns and Policy Reactions*, Oxford University Press, New York, pp. 84-97.

68. Sun, T. and Hesse, H. (2009), "Sovereign Wealth Funds and Financial Stability - An Event Study Analysis", IMF Working Paper.

69. Truman, E.M. (2008), "A Blueprint for Sovereign Wealth Fund Best Practices", Policy Brief April 2008, Peterson Institute for International Economics.

70. United Nations (Ed.) (1997), *Glossary of Environment Statistics*, Studies in Methods, Series F, No. 67, New York.

71. Voss, E., Vitols, S., Wilke, P. and Haves, J. (2009), "Data collection study on the impact of private equity, hedge and sovereign funds on industrial change in Europe", Study to support the EESC opinion CCMI/049 on 'The impact of private equity, hedge and sovereign wealth funds on industrial change in Europe'.

b. News Paper Articles and Online Resources

1. Basler Zeitung (15.02.2011), "Musterschülerin Credit Suisse" [Role model Credit Suisse], http://bazonline.ch/wirtschaft/boerse/Musterschuelerin-Credit-Suisse/story/13297542.

2. Börsen-Zeitung (05.05.2012), "Temasek setzt neuen Akzent bei China-Banken" [Temasek puts new emphasis on China banks].

3. Börsen-Zeitung (03.07.2012), "Ölfonds zieht sich aus dem Euro zurück" [Oil fund withdraws from the Euro].

4. Börsen-Zeitung (18.09.2012), "CIC findet seine Spielwiese im Energiesektor" [CIC finds its playing field in the energy sector].

5. Börsen-Zeitung (20.12.2012), "China geht auf große Staatsfonds zu" [China moves towards large state funds].

6. Die Zeit (02.07.2007), "Angst vor den Investoren aus dem Ausland" [Fear of foreign investors], http://www.welt.de/wirtschaft/article991900/Angst-vor-den-Investoren-aus-dem-Ausland.html.

7. Financial Times (19.01.2013), "Chinese Labor Pool Begins to Drain", retrieved from: http://www.cnbc.com/id/100392731.

8. Financial Times (18.06.2013), "Qatar to invest €35m in Germany's Solarworld", http://www.ft.com/intl/cms/s/0/d89c7584-d829-11e2-b4a4-00144feab7de.html.
9. Financial Times Deutschland (25.04.2012), "1 Mrd. Euro für neuen Rohstofffonds" [€ 1 billion for new commodities fund], p. 3.
10. Financial Times Deutschland (26.04.2012), "US-Großanleger paktieren mit Kommunisten-Staatsfonds" [Large U.S. investors ally with communists fund], p. 15.
11. Forbes (12.09.2012), "Game-Changer: Qatar Plays Historic Role in Glencore's Bid for Xstrata", http://www.forbes.com/sites/richardlevick/2012/09/12/game-changer-qatar-plays-historic-role-in-glencores-bid-for-xstrata.
12. Frankfurter Allgemeine Zeitung (22.04.2010), "Qatar rückt in den Aufsichtsrat [Qatar moves into the VW supervisory board], http://www.faz.net/aktuell/wirtschaft/unternehmen/hauptversammlung-qatar-rueckt-in-den-vw-aufsichtsrat-1966613.html.
13. Frankfurter Allgemeine Zeitung (25.04.2012), "Die Industrie schürft selbst nach Rohstoffen" [Industrial firms are exploring for natural resources themselves], No. 97, p. 9.
14. Frankfurter Allgemeine Zeitung (23.08.2012), "Wenn das Wohl und Wehe am Ölpreis hängt" [If the welfare depends on the oil price], No. 196, p. 19.
15. Handelsblatt (02.02.2011), "Staatsfonds meiden Dollar und Euro" [State funds shun dollar and euro], No. 23, p. 33.
16. Handelsblatt (14.04.2011), "Der Fluch der Bodenschätze" [The curse of natural resources], No. 74, p. 18.
17. Handelsblatt (11.03.2013), "Staatsfonds Temasek steigt bei Evonik ein" [State fund Temasek enters Evonik].
18. Handelsblatt (18.02.2013), "Expedition Rohstoffe: Deutschlands neuer Kurs" ['Expedition Commodities': Germany's new course].
19. Handelsblatt (12.06.2013), "Im Griff des Staates" [Controlled by the state], No. 110, pp. 1, 4-5.
20. Norwegian Ministry of Finance (2013), http://www.regjeringen.no/en/dep/fin.html?id=216.
21. Reuters (27.05.2013), "Norway fund's POSCO India investment under OECD ethics scanner", http://in.reuters.com/assets/print?aid=INDEE94Q0AJ20130527.
22. SWF Institute (2013), http://www.swfinstitute.org.
23. The Economist (04.02.2010), "Norway's pension fund - Passive aggressive", http://www.economist.com/node/15453041.
24. The Economist (09.09.2010), "It's only natural", http://www.economist.com/node/16964094.
25. The Telegraph (22.10.2011), "Eurozone leaders seek foreign money to boost bail-out fund", http://www.telegraph.co.uk/finance/financialcrisis/8843333/Eurozone-leaders-seek-foreign-money-to-boost-bail-out-fund.html.
26. The Wall Street Journal (04.04.2011), "Italy plans state investment fund to repel invaders", p. 4.
27. The Wall Street Journal (31.05.2011), "Libyan Fund Had Negotiated To Take a Stake in Goldman", pp. 14-15.
28. The Wall Street Journal (08.06.2012), "Chinese Fund Sours on Euro Zone", p. 1 & 12.
29. The Wall Street Journal (01.08.2012), "Asian Wealth Funds Pare Their Risky Bets".
30. The Wall Street Journal (12.03.2013), "Would You Please Yield?"
31. The Wall Street Journal (28.-30.06.2013), "Singapore's Temasek Is On Hunt in Europe, U.S.", p. 1 & 24.
32. The Wall Street Journal (05.-07.07.2013), "Temasek Keeps Faith in China and U.S."
33. The Wall Street Journal Europe (18.10.2012), "Oil-rich Angola Launches Sovereign-wealth Fund".