

SOVEREIGN WEALTH FUND INVESTMENT PATTERNS AND PERFORMANCE

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Abstract

This study describes the newly created Monitor-FEEM Sovereign Wealth Fund Transaction Database and discusses the investment patterns and performance of 1,216 individual investments, worth over \$357 billion, made by 35 sovereign wealth funds (SWFs) between January 1986 and September 2008. Approximately half of the investments we document occur after June 2005, reflecting a recent surge of SWF activity. We document large SWF investments in listed and unlisted equity, real estate, and private equity funds, with the bulk of investments being targeted in cross-border acquisitions of sizeable but non-controlling stakes in operating companies and commercial properties. The average (median) SWF investment is a \$441 million (\$55 million) acquisition of a 42.3% (26.2%) stake in an unlisted company; the most active SWFs originate from Singapore or the United Arab Emirates. Almost one-third (30.9%) of the number, and over half of the value (54.6%) of SWF investments are directed toward financial firms. The vast majority of SWF investments involve privately-negotiated purchases of ownership stakes in underperforming firms. We perform an event study analysis using a sample of 235 SWF acquisitions of equity stakes in publicly traded companies around the world, and document a significantly positive mean abnormal return of about 0.9% around the announcement date. However, one-year matched-firm abnormal returns of SWFs average -15.49%, suggesting equity acquisitions by SWFs are followed by deteriorating firm performance. In cross sectional analysis, we find weak evidence of benefits associated with a monitoring role of SWFs and evidence consistent with agency costs created by conflicts of interest between SWFs and minority shareholder. SWFs have collectively lost over \$66 billion on their holdings of listed stock investments alone through March 2009.

JEL Classification: G32, G15, G38

Keywords: Sovereign wealth funds, International financial markets, Government policy and regulation

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Abstract

This study describes the newly created Monitor-FEEM Sovereign Wealth Fund Transaction Database and discusses the investment patterns and performance of 1,216 individual investments, worth over \$357 billion, made by 35 sovereign wealth funds (SWFs) between January 1986 and September 2008. Approximately half of the investments we document occur after June 2005, reflecting a recent surge of SWF activity. We document large SWF investments in listed and unlisted equity, real estate, and private equity funds, with the bulk of investments being targeted in cross-border acquisitions of sizeable but non-controlling stakes in operating companies and commercial properties. The average (median) SWF investment is a \$441 million (\$55 million) acquisition of a 42.3% (26.2%) stake in an unlisted company; the most active SWFs originate from Singapore or the United Arab Emirates. Almost one-third (30.9%) of the number, and over half of the value (54.6%) of SWF investments are directed toward financial firms. The vast majority of SWF investments involve privately-negotiated purchases of ownership stakes in underperforming firms. We perform an event study analysis using a sample of 235 SWF acquisitions of equity stakes in publicly traded companies around the world, and document a significantly positive mean abnormal return of about 0.9% around the announcement date. However, one-year matched-firm abnormal returns of SWFs average -15.49%, suggesting equity acquisitions by SWFs are followed by deteriorating firm performance. In cross sectional analysis, we find weak evidence of benefits associated with a monitoring role of SWFs and evidence consistent with agency costs created by conflicts of interest between SWFs and minority shareholder. SWFs have collectively lost over \$66 billion on their holdings of listed stock investments alone through March 2009.

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Sovereign Wealth Fund Investment Patterns And Performance

Perhaps it should be called the “return of state capitalism.” However phrased, recent times have seen the emergence of sovereign wealth funds (SWFs) as major international investors and the focus of global media and political attention. According to latest estimates, the 35 SWFs examined here now control approximately US\$2 trillion in assets¹ and have demonstrated an ability to both calm and roil international financial markets. Sovereign Wealth Funds are not new. While the initial wave of these funds emerged in the 1950s, the last 5 years have seen a marked increase in both the number of SWFs and their investment activity. Over two-thirds (22) of the 35 SWFs in our sample have been founded since 2000 and nearly half (17) were created since 2005. Of the 1,216 publicly-known equity investments of SWFs, over half (698) have occurred since 2005.

While SWFs were formed with a wide range of objectives and investment strategies, up until 2005 these funds as a group tended to invest more conservatively, tended to invest closer to home, and tended to invest in emerging economies (often 70-90% by deal value annually). Then, beginning in 2005, SWF investment patterns shifted both in terms of overall volume of equity investment but also in terms of target geography, with far more emphasis on OECD transactions. The resulting public dialog concerning SWFs (both in the media and among policy-makers) gained steam over the course of 2007 as these mostly Asian and Middle Eastern funds executed a number of high-profile deals involving iconic Western companies. For example, in the spring 2007, the newly-created China Investment Corporation (CIC) purchased a \$3 billion, non-voting equity stake in Blackstone Group immediately prior to the group’s highly touted (but subsequently under-performing) initial public offering. Later that same year, and again in early 2008, SWFs surged to financial prominence when several Asian and Persian Gulf-based SWFs effectively, if only temporarily, rescued the western banking system by purchasing some \$60 billion worth of newly issued stock in the largest American and European banks at the height of the subprime mortgage crisis. In total, sovereign wealth funds invested almost \$90 billion in the stock of U.S. and European financial institutions between July 2005 and October 2008, and CIC injected an additional \$40 billion into recapitalizing two of China’s state-owned banks in late 2007 and 2008. Thus, these funds have collectively invested more new capital into the world’s financial institutions recently than any other single entity except the entire United States government.² Unfortunately, the losses these funds have

¹ Current estimates of assets under management from a range of sources, including Setser and Ziemba (2009), Deutsche Bank Research, SWF Institute, Peterson Institute of International Economics, and various press accounts, as reported in Monitor-FEEM (2009).

² See Harvey (2008) and Holland (2009) for descriptions of the U.S. government’s bank rescue plans. Holland (Exhibit 3) calculates that between November 2007 and January 2009 the Federal government injected equity capital

suffered on their listed equity investments—which exceed \$66 billion of the original purchase price, as of late March 2009—also suggest that the financial crisis has hit sovereign wealth funds very hard.

This recent history highlights that SWFs have become major players in the global economy. Yet, the structure, objectives, and investment strategies of these funds are poorly understood and SWFs have only recently attracted systematic academic research. On one hand, these funds appear very similar to other internationally active investment vehicles such as pension funds, buy-out funds, and mutual funds, that have been extensively researched by financial economists such as Del Guercio and Hawkins (1999), Woitdke (2002), Hartzell and Starks (2003), Aggarwal, Klapper, and Wysocki (2005), Khorana, Servaes, and Tufano (2005), Li, Moshirian, Pham, and Zein (2006), and Chen, Harford, and Li (2007). In fact, some SWFs appear similar in structure and expressed objectives to hedge funds—studied by Klein and Zur (2006), Ferreira and Matsos (2007), Bessler and Holler (2008), and especially Brav, Jiang, Thomas, and Partnoy (2008)—in that SWFs are also stand-alone, unregulated pools of capital, managed by investment professionals, and often take large stakes in publicly traded companies. On the other hand, SWFs face numerous, severe restrictions on the monitoring and/or disciplinary role they can realistically play, at least regarding their cross-border investments in listed companies, largely because any posture other than being purely passive investors might generate political pressure or a regulatory backlash from recipient-country governments. The fact that SWFs typically purchase listed-firm equity stakes directly from the company in private transactions—rather than through open market purchases—also means that the funds may act as management allies than masters. Even when SWFs do take majority stakes, which Miracky, et al. (2008a) show occurs almost exclusively when SWFs invest in domestic companies. The funds rarely challenge incumbent managers in the way that Stulz (1988, 2005) shows might create value for outside shareholders. Instead, SWF investors appear to leave incumbent managers even more secure to enjoy the private benefits of control documented internationally by Shleifer and Vishny (1997), Dyck and Zingales (2004), and Leuz, Lins, and Warnock (2008). Ultimately, fearing upsetting target governments even further by divesting, SWFs are unlikely to even exercise the type of governance through threat of exit discussed by Admati and Pfleiderer (2009)³.

The term “Sovereign Wealth Fund” was coined only four years ago, by Rozanov (2005), and no consensus has yet been reached on its exact meaning, but most definitions suggest these are state-owned investment funds (not operating companies) that make long-term domestic and international investments

totaling \$291.3 billion into U.S. financial institutions, and provided direct and indirect financial support worth \$7.8 trillion—of which \$3.3 trillion had actually been spent as of February 1, 2009.

³ While we do not engage into a formal analysis of SWF divestments, it is evident from our data that SWFs have, to date, very rarely divested. We do recognize that might change in the future – preliminary analysis of SWF transactions during the first quarter of 2009 indicates that, for the first time, SWFs are selling significant stakes.

in search of commercial returns. Some definitions are much broader than this, as in Truman (2008), who defines a sovereign wealth fund as “a separate pool of government-owned or government-controlled financial assets that includes some international assets.”⁴ On the other hand, Balding (2008) shows that a more expansive definition encompassing government-run pension funds, development banks, and other investment vehicles would yield a truly spectacular total value of “sovereign wealth.”⁵ In this study, we employ the selection criteria presented by in Monitor-FEEM (2009), which defines a SWF as (1) an investment fund rather than an operating company, (2) that is wholly owned by a sovereign government, but organized separately from the central bank or finance ministry to protect it from excessive political influence, (3) that makes international and domestic investments in a variety of risky assets, (4) that is charged with seeking a commercial return, and (5) which is a wealth fund rather than a pension fund—meaning that the fund is not financed with contributions from pensioners and does not have a stream of liabilities committed to individual citizens. While this sounds clear-cut, ambiguities remain. Several funds headquartered in the United Arab Emirates are defined as SWFs, even though these are organized at the emirate rather than federal level, on the grounds that the emirates are the true decision-making administrative units. The sub-national UAE funds included are the Abu Dhabi Investment Authority (the world’s largest SWF), the Investment Corporation of Dubai (and its subsidiary Istithmar World), Mubadala Development Company, DIFC Investments (Company) LLC, and Ras Al Khaimah Investment Authority. It is also difficult to define which of the many national stabilization funds meet the risky-asset investment and commercial return criteria, so we use a self-selection test and include as SWFs those stabilization funds that signed the Santiago Principles in October 2008—which set forth 24 principles that would govern international investments by sovereign wealth funds—and exclude stabilization funds that did not sign⁶. This test includes funds from Chile, Mexico, Russia, Taiwan, and Trinidad and Tobago, but excludes funds from Iran, Mauritania, Nigeria, and the United States. Finally, we include Norway’s Government Pension Fund-Global, as the Norwegian government itself considers this a SWF and because

⁴ Unlike most commentators, Truman (2008) includes government pension funds in the SWF category. Most others exclude government pension plans, with the notable exception of Norway’s Government Pension Plan-Global, which is defined as a SWF because its size, its unusual global asset allocation, and its focus on profitability make it more similar to other SWFs than to other government pension plans, and because the fund is financed by oil revenues rather than by contributions from pensioners. In addition, most definitions exclude funds directly managed by central banks or finance ministries, as these often have very different priorities, such as currency stabilization, funding of specific development projects, or the development of specific economic sectors.

⁵ In ongoing research we have identified over 2,500 investments, worth over \$3 trillion, just in the listed equity of private firms by state-owned investment companies, stabilization funds, commercial and development banks, pension funds, and state-owned enterprises. Add to that state purchases of government and corporate bonds, plus SWF holdings and foreign exchange reserves—estimated by Alberola and Serena (2009) to have reached \$7 trillion in 2Q2008—and the total value of state-owned financial assets may already exceed \$15 trillion.

⁶ See International Working Group of Sovereign Wealth Funds (2008).

it is financed through oil revenues rather than through contributions by pensioners. These criteria yield a sample of 35 sovereign wealth funds from 27 countries.

As public attention to SWFs gained momentum, academia also began to take notice. This study and a handful of others (summarized below) have surfaced since early 2008. This contrasts sharply with the vast number of research studies that have examined government privatization programs—arguably the mirror image of state directed investment through sovereign wealth funds. Megginson and Netter (2001) cite more than 100 privatization empirical studies, and several dozen more have been published since 2001. Given the importance of SWFs to the global financial system today, and the projected growth of these funds in the future, it seems very likely that academic research will soon catch up to financial reality.

Using a combined sample of 1,216 investments by 35 sovereign wealth funds in companies and commercial property around the world, we examine investment patterns exhibited by these funds and test whether their investments have been value-increasing or decreasing. We find that, contrary to perceptions, these funds almost always purchase minority stakes directly from target companies, roughly half of which are unlisted and are often located in the fund's home country. We show that the vast majority of the investments in publicly traded companies are primary share offerings rather than open market share purchases. Our sample clearly shows that SWFs disproportionately favor financial companies, targeting about one-third of all their investments by number and over 50% by value in this sector—but this concentration is driven mostly by the changed investment behavior that SWFs demonstrated since 2005, when the funds were invited to invest in faltering western banks. The most common targets for SWF investment are Singaporean companies, but almost all of these are domestic investments by Temasek or the Government Investment Corporation. We also observe that SWFs make more cross-border investments in U.S.-headquartered companies than in any other country.

We also investigate how investors react to news of SWF investments in target firms prior to, at the announcement of, and for up to two years subsequent to these investments. For robustness, we calculate investment performance using raw returns, market-model abnormal returns, and the matched-firm adjusted returns technique described in Barber and Lyon (1997) and Choi, Lee, and Megginson (2009). SWFs tend to purchase stock in listed companies that have performed poorly during the year prior to the investment, but stocks of companies receiving SWF equity investments increase significantly, by about 0.9%, on the announcement of these investments, suggesting that investors welcome SWFs as shareholders. On the other hand, we also find that abnormal buy-and-hold returns on shares of firms targeted by SWFs average -10.23% over one year and -15.49% over two years after the investment⁷. We

⁷ A careful reader of the press might notice that most reports discussing SWF investments appear upbeat, often citing successful investments and positive returns. We suspect the difference between our (negative) systematic

find that SWFs invest in underperforming firms and that such underperformance persists for at least six months following the investments. However, further cross-sectional analysis indicates that the degree of underperformance is related to both fund characteristics, in particular scores of fund governance and transparency, and to the size of the stake acquired. While a positive relation between post-investment performance and fund governance appears to point to a beneficial monitoring effect, the negative relation between the size of the stake acquired and subsequent performance seems to indicate that SWFs impose agency costs by extracting wealth from minority shareholders.

This manuscript is structured as follows. Section I describes the evolution of sovereign wealth funds from small stabilization funds to their emergence as major player in global financial markets, while Section II surveys the academic and professional literature that motivates our study. Section III describes the Monitor-FEEM SWF Transaction Database we created for this study, while Section IV presents an in-depth analysis of the investment patterns exhibited by SWFs, individually and collectively. Section V presents our empirical results, including event-study analyses of market reactions prior to, at the announcement of, and subsequent to listed-firm investments by SWFs, and the results of regression analyses of the announcement-period and long-run returns. Section VI concludes.

I. The Evolution of Sovereign Wealth Funds—From Stabilization to Wealth Preservation

As previously mentioned, the descriptive term “sovereign wealth fund” was coined only recently [Rozanov (2005)]. Previously, those funds were often labeled “stabilization funds.” While SWFs are a heterogeneous phenomenon, most share common origins; in the majority of cases, SWFs are an evolution of funds whose principal initial purpose was revenue stabilization. That is, governments whose revenue streams are dependent on the value of one underlying commodity often pursue diversification of investments with the goal of stabilizing revenues. Accordingly, most SWFs have been established in countries that are rich in natural resources, with oil-related SWFs being the most common ones (in the case of Arab Gulf countries, the ex-Soviet republics, and Norway), but other sources of funding include diamonds, copper and other raw materials in a few African and South-American countries. A second category of SWF relates to the accumulation of foreign currency as a result of substantial net exports, especially in the cases of China, Singapore, Korea, and other East-Asian exporters. Nonetheless, there is no real consensus on exactly what constitutes a sovereign wealth fund. Because definitions vary and

estimates and what is often reported is largely due to a self-reporting bias, similar to what has been documented by Phalippou and Gottschalg (2009) for private equity funds and discussed by Griffin and Xu (2009) in relation to hedge funds. We believe this discrepancy emphasizes the importance of our analysis.

because precious few facts have been disclosed by these funds, estimates of the total value of assets under management can vary widely.

In recent years, a combination of trends has led to a very rapid accumulation of reserves in sovereign funds. The most relevant trends include rising oil prices, but also rising prices for other raw materials (often attributed to China's fast economic growth) and the negative balance of payments of Western countries, especially the United States, which has inflated the currency reserves of Asian exporters (particularly dollar-denominated reserves). Swelling reserves have been coupled with other trends. On one side, aging populations have led to a desire for higher returns, in anticipation of increased pension liabilities and, in response, governments have searched for new investment options offering potentially higher returns. On the other hand, a series of factors has made international investments less problematic. In particular, Truman (2007) cites "increased global integration, substantial elimination of restrictions on international capital flows, technological innovation, [...] recognition that diversification contributes to increased investment returns, and loosening of 'home bias' in investment decisions." Fast accumulation of reserves, coupled with a swelling appetite for returns, has led to a dramatic increase in the rate of SWF investments.⁸

By reliable estimates, SWFs managed over US\$3 trillion of assets in early 2008, with an authoritative estimate by International Financial Services London giving a figure of \$3.3 trillion.⁹ Today's asset value is doubtless significantly lower--with most commentators estimating total assets under management by SWFs of approximately \$2 trillion in early 2009. Table I presents our list of sovereign wealth funds, along with estimates of their size in early 2009, their inception dates, the principal source of their funding, and their Linaburg-Maduell Transparency Index scores¹⁰. This compilation shows total assets for all SWFs of \$2.363 trillion, with oil and gas-financed SWFs managing total assets of \$1.912 trillion and non-oil SWFs managing assets worth \$451 billion.

***** Insert Table I about here*****

The sheer size of SWFs, while making them an important player in markets, has to be evaluated with respect to other investment vehicles. The aggregate size of SWFs, estimated by Lyons (2007) as \$2.1

⁸ In fact, our sample shows very clearly that SWF investments surged after 2001, and grew especially rapidly from 2005 until the summer of 2008, when oil prices peaked. In fact, almost 60 percent of the 1,216 SWF investments we analyze occurred after December 2004. After the second quarter of 2008, however, investments by SWFs fell sharply, and investments in western listed companies essentially ceased [Miracky, Dryer, Fisher, Barbary, and Chen (2008b)].

⁹ See John Willman, 2008, "Sovereign Wealth Funds Grow to \$3,300bn," *Financial Times* (March 30 2008), from the www.ft.com website. As noted, the Sovereign Wealth Fund Institute, which uses a more inclusive definition of SWFs, gives their total size as \$3.927 trillion as of October 2008.

¹⁰ The Linaburg-Maduell transparency index for Sovereign Wealth Funds has been developed by Carl Linaburg and Micheal Maduell. Details on this index are available at: <http://www.swfinstitute.org/research/transparencyindex.php>

trillion in early 2007, was much smaller than the aggregate assets of either pension funds (circa \$21 trillion) or mutual funds (circa \$17 trillion) at the same time, but larger than the aggregate size of all hedge funds (at about \$1.5 trillion) and private equity funds. There is also controversy surrounding the likely future growth rate for SWF asset accumulation. Recognizing that the actual growth rates are going to be extremely sensitive to macroeconomic factors, in particular the price of oil, Stephen Jen estimated in 2007 that SWFs would grow by around \$40 billion per year over the subsequent decade, concluding that the pool of assets managed by SWFs could reach US\$12 trillion by 2015 (Jen 2007). Although Jen scaled back his forecast of SWFs' growth rate in November 2008, to reflect the impact of sharply lower asset valuations and declining oil prices, he still predicts that SWF assets will reach \$9.7 trillion in 2015 [Jen and Andreopoulos (2008)]. Kern (2008) also predicts that SWF assets under management will reach \$10 trillion by 2015.¹¹

A. *A Brief History of Sovereign Wealth Funds*

The first of today's sovereign wealth funds to be established was the Kuwait Investment Board, which was set up in London in 1953 by Sheik Abdullah Al-Salem Al-Sabah to invest surplus oil export revenues. However, since Kuwait was still a British colony in 1953 and would remain so for eight more years, the first true SWF was established in 1956 by Kiribati, a tiny Pacific island nation, to manage revenues from phosphate deposits (guano). Then, as now, this was called the Revenue Equalization Reserve Fund, and the potential payoff from establishing such a fund can be shown by noting that the assets in Kiribati's fund today (\$400 million) are almost six times larger than this country's GDP in 2008 (estimated at \$71 million in the CIA World Factbook).

The next milestone in sovereign investment came in 1974, when Singapore established Temasek Holdings to manage the Ministry of Finance's equity holdings. This was also when the Kuwaiti and Libyan governments purchased minority stakes in the German companies Daimler and Krupp, via private sales by family owners. These equity investments, which were extremely controversial in Germany at the time, were later transferred to the Kuwaiti and Libyan SWFs. Two years after these purchases, the Abu Dhabi Investment Authority was set up to manage the emirate's rapidly accumulating surplus oil export revenues. A timeline describing the evolution of sovereign wealth funds and detailing their milestone investments is presented in Appendix I.

¹¹ In addition to estimates of SWF asset growth being curtailed, it has also been reported that some of the earlier estimate of current SWF size were overstated. For example, Wall Street Journal article from May 20, 2009 reports that while earlier estimates of ADIA's size put their assets under management at \$875 billion, current ones put the figure at \$282 billion. While part of the decline is due to lower oil prices and investment losses, most of the discrepancy is simply the result of the very limited fact base on their portfolio.

Singapore was the first country to establish a SWF during the 1980s, when the Government of Singapore Investment Corporation was founded in 1981, initially as a private company, to make long-term, higher return investments. The Brunei Investment Agency was set up two years later to invest that country's surplus oil export earnings and to manage external state assets. The most important event involving (what would become) SWFs occurred in 1987, when the Kuwait Investment Authority (KIA) acquired a 21.7% stake in British Petroleum during a failed share issue privatization of British Petroleum coincident with the October 1987 stock market crash. The British government insisted that KIA cut its stake to 9.9% the following year, which the fund did—grudgingly, but very profitably.

The next important SWF milestone occurred in 1990, when the Norwegian government set up a fund, originally called simply the Petroleum Fund, to manage the country's swelling North Sea oil export earnings. In 2006, the fund was renamed the Pension Fund–Global as part of a broader reform of the Norwegian pension system, which sought to highlight the use of the country's oil revenues to provide for future generations of Norwegians. Despite its name, however, the fund has no explicit pension obligations. Rather, Norwegian state pensions are paid by the SWF's sister fund, the Pension Fund–Norway, which was formerly known as the National Insurance Scheme Fund. Malaysia established Khazanah Nasional Berhad in 1993 to manage state commercial assets and to make strategic investments, and then relatively little else was heard from sovereign investors for the remainder of the tech-driven decade of the 1990s.

The latest wave of new SWF formation and investment activity began at the start of this decade. In 2001 Khazanah Nasional purchased 100% of United Engineers (Malaysia) in the first large buyout of a publicly traded company by a SWF. The emirate of Abu Dhabi set up Mubadala Development Company in 2002, and established the private equity fund Istithmar World one year later. The Qatari and Russian governments also established their own SWFs in 2003, with the Stabilization Fund for the Russian Federation being set up to help smooth out the massive swings in Russian state income and to invest a portion of the “windfall” resulting from sharply rising oil prices. In 2008, this fund was split into the National Welfare Fund (a true SWF) and the Oil Stabilization Fund.

The year 2005 marked a watershed for SWFs, not least because this was when Andrew Rozanov gave the funds their enduring moniker. The Korea Investment Agency was also established in 2005, through transfer of \$17 billion in official exchange reserves, and tasked with pursuing international investments yielding commercial returns. That year also witnessed the first major cross-border SWF investments in financial institutions and intermediaries, when Mubadala purchased a 7.5% stake in U.S. private equity firm Carlyle Group for \$1.35 billion in July, and Temasek purchased a 5.1% stake in China Construction Bank for \$1.40 billion prior to bank's IPO two months later.

Political troubles began in earnest for sovereign wealth funds in January 2006, when Temasek Holdings paid \$1.8 billion for a controlling stake in the Thai telecommunications firm, Shin Corporation, from the family of Thaksin Shinawatra, Thailand's elected prime minister. That sale proved extremely controversial, and Shinawatra was overthrown in an Army coup only eight months later. 2006 also witnessed the first of what was to prove an astonishing 18 purchases of equity stakes in (what would soon prove to be) troubled western commercial and investment banks, when Temasek purchased 11.55% of Standard Chartered plc in March for \$4.0 billion. Seven months later, Temasek purchased another 2.70% stake in Standard Chartered for \$1.0 billion.

The financial floodgates truly opened for SWFs during 2007, with fund-raising and investment both surpassing \$100 billion for the first time. This year also marked a profound shift towards investments into financial firms, especially U.S. and European banks. Panel A of Figure I shows the massive spike in SWF investment in 2007 (and 2008) versus previous years, as well as the rising share of financial deals in aggregate investment value. Panel B of this table documents the steady decline in the fraction of SWF investments that were in domestic rather than cross-border deals, with the domestic share falling to a mere 15% in 2007 versus 45% as recently as 2000. Ironically, the first major SWF financial investment of 2007—China Investment Corporation's \$3.0 billion purchase of a 9.9% stake in U.S. private equity firm Blackstone Group as part of Blackstone's IPO in May—was very well received at the time, as was Dubai International Financial Center's \$1.8 billion investment in Deutsche Bank that same month, which yielded a 2.2% stake.

****** Insert Figure I about here ******

Enduring the latter part of 2007, the vast majority of SWF financial investments involved distressed sales of equity by western banks anxious to raise capital to offset the losses resulting from their investments in subprime U.S. mortgage-backed securities. Table II, which lists the 24 largest SWF investments in publicly-traded companies, clearly shows that no fewer than 12 of the 18 largest SWF investments in listed-firm equities occurred between November 2007 and February 2008—and that ten of the deals in this four-month period, worth \$57.9 billion, involved direct purchases of stakes in distressed western banks. The last three columns in Table II detail the value of the listed firm investments in late-March 2009, and reveals that by then the ten bank investments were collectively worth a mere \$15. billion, implying a loss of \$42.9 billion (or 74.1% of initial value) on these deals in only one year. Since the total loss incurred by SWFs on all the listed-firm investments we track totals \$66.9 billion, it is clear that the massive hole in sovereign wealth fund portfolios today was largely due to a mere handful of disastrous stock picks.

For a timeline of major milestones in SWF history, we refer to reader to Appendix I.

****** Insert Table II about here ******

B. Rising Political Opposition to Sovereign Wealth Fund Investments

Political opposition to SWFs became amplified in 2007, and reached a crescendo in early 2008. This opposition was exemplified by Chancellor Angela Merkel who, in June 2007, publicly complained about Russian SWFs buying pipelines and energy infrastructure in Europe. The U.S. Senate also held a series of hearings on SWF investments, and all the major candidates in the 2008 U.S. presidential race voiced concern about the potential dangers posed by state-directed foreign investment. For the most part, the western media also depicted SWFs in negative tones, and most of the debate focused on the perceived problems associated with the growth of SWFs. The issues that were raised included the possibility that SWF assets could be used to further political purposes and target strategic acquisitions, the risk of equity price bubbles due to the sheer size of their investments and the related decline in demand for Treasury bonds, the risk of an increase in volatility of financial markets, the possibility that SWFs might have a detrimental effect on corporate governance because of political motives or lack of sophistication and, finally, the risk of the emergence of a new form of financial protectionism as a reaction to cross-border SWF investments.

By far the most enduring criticism of sovereign funds has been their lack of transparency and accountability, which is unquestionably true. Aside from a few notable exceptions (principally the Norwegian pension and oil stabilization funds), SWFs have been extremely reluctant to disclose any information about their investment policies or returns. Consequently, there is broad agreement that SWFs should become more transparent and disclose their strategies and holdings—and this seems to be occurring. In February 2008, the Abu Dhabi Investment Authority (ADIA) sent a letter to regulators in key countries specifying what its investment policies will be and promising greater disclosure. More substantively, an agreement on general principles and practices that should guide SWF investments, collectively called the Santiago Principles, was reached between western nations and the most important SWFs in September 2008, and officially signed one month later.¹²

Despite the hyper-ventilation surrounding SWFs, however, a more sober analysis suggests these funds are much less threatening to the established global financial order than is generally perceived, for several reasons. First, as Balding (2008) makes clear, SWFs allocate their investments among different asset classes in much the same way as do other financial intermediaries, with well over half of all assets invested in fixed income securities (foreign and domestic), another sizeable fraction invested in commercial real estate, and most of the rest invested in domestic equities. Also, Miracky et al (2008a) found only minimal investment activity on the part of SWFs in what might be considered “strategically sensitive” sectors (e.g., transportation, defense and aerospace, I.T., telecom) in OECD countries. Therefore, the type of investment that most excites western observers—targeted purchases of large stakes

¹² These principles are presented and described in (<http://www.iwg-swf.org/pubs/gapplist.htm>).

in publicly-listed western operating companies—is actually a fairly minor activity for established SWFs, and has become even less important in the wake of the financial crisis. Second, the funds that western policy-makers seem to fear the most, Russia’s Stabilization Fund and the China Investment Corporation (CIC), are among the most conservatively managed and most domestically focused of all the major funds. Third, the vast majority of funds are established to be quite distinct from the political arms of the sponsoring governments, principally to ensure their independence from politically-motivated budgetary pressures, but also to ensure at least some freedom from political interference. Finally, the funds tend to be very lean organizations, with employee head-counts usually numbering in the dozens rather than the thousands, so the funds would be hard pressed to pursue a politically motivated investment agenda, even if they so wished. In fact, the major funds often refuse invitations to join the boards of companies in which they invest, and many SWFs deliberately purchase non-voting shares.

The potential benefits of SWF investments have generally received much less attention. The most often cited benefit is an expected increase in liquidity of financial markets, especially in the private equity industry. As Lesmond (2005) makes clear, the liquidity of emerging market financial systems is often quite limited, so improving market liquidity appears to be an important SWF contribution. Ironically, in the wake of the 2008 collapse in global equity values, western criticism of SWFs became much more muted, though many of the concerns described above will doubtless re-emerge if and when markets revive and the funds once more become active international investors.

II. Literature Review

Two principal streams of research motivate our analysis of sovereign wealth funds. The first examines whether the involvement of large, institutional investors in corporate governance increase or decrease the value of listed corporate equity. The second research stream examines sovereign wealth funds themselves.

B. Large Institutional Shareholders and Corporate Governance

One of the concerns commonly expressed regarding SWFs is the potential impact they may have on corporate governance. In particular, many SWFs originate from oil rich countries and from Asian exporters and, with some exceptions, both categories are dominated by countries with relatively undeveloped financial markets and institutions. Accordingly, it is unclear whether SWF managers are sophisticated enough to properly exercise their role as shareholders, both in terms of voting and in terms of monitoring. While academic literature has not so far addressed the impact of SWFs on corporate

governance, there is a large body of research focusing on the effect of large institutional shareholders on the latter. Shleifer and Vishny (1997) survey prior theory and empirical evidence on corporate governance, and two sections of their survey deal specifically with the impact of large shareholders. They conclude that large shareholders generally do improve monitoring of managers, but also introduce new agency costs, as they have incentives to expropriate both minority shareholders and creditors.

Shleifer and Vishny (1986) present a theory of the relationship between shareholder size and corporate governance. In particular, they point to the fact that small shareholders lack incentives to monitor managerial performance and they relate this to a free-rider problem. They suggest that the presence of large shareholders offers a partial solution to the free-rider problem and could greatly improve monitoring. Gillan and Starks (2000) survey the empirical evidence regarding the impact of shareholder activism and conclude that, while some short-term market reaction has been documented, there is little evidence of improvements in long-term operating or stock-market performance. They then examine proposals by both individual and institutional investors, and find that success of proposals depends on sponsor identity, issue type, prior performance and time period. They document weak market reactions, highly dependent on the sponsor. Active individual investors receive less support for proposals, but their proposals cause small positive market reactions. Proposals by active institutional investors receive more support and are more likely to be adopted, but are associated with small, negative market reactions.

While most of the articles in the corporate governance literature focus on the beneficial impact of large investors on corporate governance, several studies point to the costs associated with large institutional shareholders. Theoretical arguments focus on two main sources of costs. First, Demsetz and Lehn (1985) hypothesize and find that large investors are not sufficiently diversified and thus aim for an excessive reduction of company-specific risk, forcing companies to become excessively conservative. Subsequent empirical studies have confirmed their findings. A second problem is associated with the risk that large investors will force the company to act in their own interest, against the interests of other investors, employees or managers. The theory regarding conflicts of interest and the related agency costs relates to Jensen and Meckling (1976). A few papers have examined the latter issue by focusing on premiums paid for the acquisition of large blocs of shares, with the underlying hypothesis being that this premium reflects additional value created through ownership of a large portion of the company. Bergstrom and Rydqvist (1990) focus on Sweden and find no such premiums, concluding that there is no strong evidence for expropriation of small shareholders by large blockholders. Barclay and Holderness (1992) analyze the pricing of 106 block trades of common stock of NYSE and Amex corporations. They find that these blocks are priced at a significant premium to market prices, yet the authors observe that minority shareholders receive the same price per share in a merger or tender offer as large block holders,

suggesting that minority holders benefit as well. Dyck and Zingales (2004) clearly document widely varying, but economically highly significant private benefits of control in many national markets. They conclude that no value is transferred from small shareholders to large blockholders. Zingales (1994) estimates the value of the voting premium on the Milan stock exchange and, observing that the premium is larger than the one observed in US-based stock markets, he concludes that the risk of expropriation of minority shareholders is larger in Italy.

A handful of studies have examined the issue of costs and benefits of having large shareholders by focusing on the link between shareholder concentration and firm performance. Stulz (1988) presents a model of the relationship between ownership concentration and firm performance. Based on his model, higher ownership concentration leads to higher profitability, because of reduced agency costs. However, as ownership concentration increases, the largest owners gain incentives to generate private benefits not shared by minority shareholders. This model of the relationship between ownership concentration and profitability was validated by subsequent empirical studies, including Morck, Shleifer, Vishny (1989) and McConnell and Servaes (1990). Burkart, Gromb and Panunzi (1997) present a similar model in which they consider the tradeoff between the benefits of concentrated ownership (better monitoring) and associated costs (threat of expropriation).

Perhaps no other group of institutional investors shares as many characteristics with SWFs as do hedge funds. In contrast with mutual funds—which Khorana, Servaes, and Tufano (2005) show have spread around the world, and operate fairly similarly everywhere—hedge funds are stand-alone, unregulated pools of capital, managed by highly paid and incentivized investment professionals, that often take large stakes in publicly traded companies in order to implement corporate governance changes. These are the types of institutional investors that Chen, Harford, and Li (2007) predict will be ideal corporate monitors, and the empirical work of Klein and Zur (2006), Ferreira and Matsos (2007), Bessler and Holler (2008), Brown, Goetzmann, Liang, and Schwarz (2008), and especially Brav, Jiang, Thomas, and Partnoy (2008) shows that hedge funds do create significant value for shareholders when they purchase equity stakes in under-performing companies and encourage (or coerce) managers to implement policy changes. Brav, et al (2008) show that hedge funds create far more value, and do so with far greater success, than do any other category of activist U.S. investors. In theory, SWFs should be able to achieve the same goals in their global investments, though their effectiveness may well be neutered by their perceived need to be purely passive investors to avoid political controversies.

On one side, evidence from the literature on large institutional shareholders and corporate governance points to likely benefits associated with ownership concentration, in particular a lower cost of capital. On the other hand, the same studies emphasize the dangers of excessive ownership concentration, as it can lead to higher incentives for expropriation of minority shareholders and bondholders by large

block holders. The present study tests whether the effect of SWF investments in companies on balance creates or destroys wealth by examining the initial and long-term returns to target firm shareholders subsequent to these investments.

B. Academic Research on Sovereign Wealth Funds

While academia has been slow to react to the rise of sovereign wealth funds as globally active investors, corporate and professional research examining SWFs emerged fairly quickly. Recent, descriptive papers by the Monitor Group [Miracky, Dyer, Fisher, Goldner, Lagarde, and Piedrahita (2008)], the European Central Bank [Beck and Fidora (2008)], Subacchi (2008), and Bernstein, Lerner, and Schoar (2009) assess the rise of SWFs, and reach generally positive, if nuanced conclusions. But, Shivdasani, Stendevad and Wyman (2008) offer an interesting description of the SWF phenomenon, summarizing the salient features of SWFs and echoing the most common concerns, while Blundell-Wignall, Hy and Yermo (2008) offer a brief description of SWFs, focusing on the differences between the latter and public pension funds. Monk (2008) assesses how the rise of SWFs as a financial and political force is straining the existing international economic order, while Gilson and Milhaupt (2008) describe how SWFs fit into the increasing trend toward direct government involvement in corporate activity, which they label the New Mercantilism. Finally, Balding (2008) offers a portfolio analysis of several of the largest SWFs, and insightfully discusses how difficult accurately categorizing SWFs can be.

In addition to this study, several academic studies have addressed the same topic. Kotter and Lel (2008) analyze a sample of 163 SWF investment announcements between 1982 and 2008. They find that the market reacts positively to announcements of investments by SWFs. They also find that transparency of the fund is related to the market reaction at the time of the announcement, but they document that SWF investments do not significantly affect target firm growth, profitability or governance in the three years following the investment. Dewenter, Han and Malatesta (2008) analyze a sample of 196 acquisitions and 47 divestitures by SWFs involving publicly traded firms. They find positive market reactions to acquisitions and negative reactions to divestitures. In a long-term analysis, they find mostly insignificant, slightly negative abnormal returns. In cross-sectional analysis, they find that an overall index of fund governance is positively related to the announcement reaction and that the relationship between abnormal returns and percent acquired is non-linear: small acquisitions lead to positive reactions while large acquisitions lead to smaller, even negative reactions.

Knill, Lee and Mauck (2009) similarly analyze a sample of 232 SWF investments in publicly traded companies. They find positive market reactions to announcements. For the long-term (one-year) event studies, they offer different results by subsets. They find negative one-year abnormal returns, but only for SWFs that are from oil-producing countries, for opaque SWFs and for investments in non-

financial targets. They also find stronger negative returns following heavy media coverage. Yet, the authors are mostly interested in studying market volatility. In order to investigate whether SWFs add instability, as often claimed by the press, or produce stability by allowing a larger investor-base, the authors then estimate an autoregressive volatility model. Their results document lower volatility for targets after acquisitions. They also compute Sharpe ratios and find that the decline in returns is not compensated by sufficiently lower volatility. Finally, they repeat their analysis for the target home market and claim that target markets display lower returns and volatility after SWF investments. An analysis of profitability ratios leads to similar results as the above for individual firms—that is, both returns and volatility are lower, but the decline in volatility is not enough to compensate.

Another study focusing on SWF transactions is Chhaochharia and Laeven (2009). These authors investigate investment patterns by SWFs and find that the funds largely invest to diversify away from industries at home, but they do so by investing mainly in countries sharing the same culture. In an event study on a sample of 89 investment transactions, they find positive market reactions at the time of the announcement, but they find poor long-run performance of investment targets. Finally, Fernandes (2009) takes a different approach, by focusing on SWF holdings, rather than transactions. Using data on over 21,000 SWF holdings between 2002 and 2007, he finds that firms with higher SWF ownership have higher valuations and better operating performance. He also documents that SWFs have a stabilizing effect on financial markets. Finally, Pellizzola (2009) presents a full review of the professional and academic literature examining sovereign wealth funds.

III. Data and Sample Construction

We draw a sample of 1,216 sovereign wealth fund investments, worth \$357.1 billion, from the Monitor-FEEM SWF Transaction Database. This database was organized by the Monitor Group and the Fondazione Eni-Enrico Mattei (FEEM), overseen by the authors, and covers domestic and international investments made by 35 funds between January 1986 and September 2008. This sample includes investments in listed equity, unlisted equity, commercial real estate, private equity funds and joint ventures. These observations were created using multiple public sources. Information from five financial databases (Thomson One Banker, Bloomberg, the SDC Global New Issues database, the Zephyr M&A database, and Zawya.com) was integrated with data from fund websites and from various news sources (the Lexis-Nexis database and also the archive of Financial Times, New York Times, Wall Street Journal, GulfNews, the Associated Press and Reuters). In order to ensure accuracy, each data-point was verified by at least one high-quality source; in most cases, multiple sources were established. Particular care was

given to ascertaining the reliability of data originating from news sources; news reports (such as those from the Associated Press and Reuters) were never used as sole sources of deal information. After assembling the sample of unique deals, we verified investment dates, deal value, SWF investors, and stakes purchased by comparing observations across all available sources and, when necessary, by reconciling differences by tracking data to its original source through additional news searches and by using the Factiva and Lexis-Nexis databases and other online news sites (among others, the online archives of the Financial Times and Bloomberg.com). The FEEM-Monitor SWF database is not comprehensive—there are, for example, no observations of government or corporate bond purchases. Nonetheless, the total of over \$350 billion in deal value amounts to nearly one-fifth (19%) of the best current estimates of assets under management for the 35 funds in the sample. Unfortunately, given the lack of disclosure of facts on these funds’ portfolios, it is impossible to know what portion of their overall equity investment we are missing through our data collection. However, the database is the largest sample of SWF investment transactions available today, and we believe it is therefore a meaningful starting point¹³.

Table III summarizes the Monitor-FEEM SWF Transaction Database and details the types of investments that SWFs make. These data debunk the popular notion that SWFs are principally international purchasers of stock in listed western companies. Although over 90 percent (1,098 of 1,216) of all observations involve equity investments, only about one-third of these are investments in listed company equities. The remaining two-thirds involve purchases of stock in unlisted operating companies, private equity funds, initial public offerings, and joint ventures. The average (median) size of listed stock investments is \$383 million (\$50 million), and this purchases a mean 19.4% (9.0%) of the target company’s shares. The average sizes of SWF investments in unlisted operating companies and in initial public offerings—\$349 million (\$33 million) and \$396 million (\$170 million, respectively)—are remarkably similar both to each other and to the stakes acquired in listed firms though, unsurprisingly, funds purchase much larger fractions of the stock of unlisted operating companies (53.3% mean, 49.0% median) than they purchase in listed companies or IPOs (3.9% mean, 2.7% median).

***** Insert Table III about here******

Investments in private equity funds are the largest investments made by sovereign funds—with a mean value of \$1,905 million and a median of \$1,200 million—and in exchange the funds acquire large average (59.2%) and median (46.0%) fractions of the target private equity funds. Joint venture investments appear relatively small (\$120 million mean and median investment, purchasing a 45.5% mean and median stake), though real estate investments by sovereign funds are, on average, second only

¹³ For more detail regarding the Monitor-FEEM SWF Transaction Database, please refer to Monitor-FEEM (2009), available at www.monitor.com and www.feem.it.

to IPO purchases in size (\$546 million mean, \$245 million median) and involve purchases of the biggest stakes (73.1% mean, 100% median). While the typical SWF investment involves purchases of significant but minority stakes in target firms, fully one-third (261 of 775 observations with stake purchase values) of the deals involve acquisitions of majority stakes and 184 observations are purchases of 100% of the target firm's equity.

Although not separately reported in Table III, we find that the vast majority of the investments that all SWFs make in publicly traded companies are privately-negotiated, primary share offerings rather than open market share purchases. Only 23 deals, worth \$677 million, are described as open market purchases of stock in listed firms. Mikkelson and Partch (1985), Lee (1997), and Hertz, Lemmon, Linck, and Rees (2002), all document that the stock market response to announcements of privately negotiated share sales is significantly positive, whereas a mass of empirical evidence shows that the market reaction to public seasoned equity offerings is a significantly negative 2-3%. In their event-study analysis of the market response to international SEOs executed by both accelerated and traditional underwriting methods, Bortolotti, Megginson, and Smart (2008) show that primary share offerings are met with a much more positive (or at least a less negative) market response than are secondary share offerings of existing shares. The authors interpret this result as showing that investors react more positively when the firm itself is raising new capital in a SEO than when an existing investor—who is presumably a knowledgeable insider—chooses to sell his or her shares. The fact that SWFs purchase primary shares in privately-negotiated offerings directly from target firms thus may explain the significantly positive announcement period abnormal returns we document in Section V.

Taken together, the summary statistics in Table III portray SWFs as internationally active, rather omnivorous, investors seeking to acquire significant but non-controlling equity stakes in a wide variety of listed and private companies, but who also seek to diversify risk by purchasing stakes in private equity funds and commercial real estate.

IV. Sovereign Wealth Fund Investment Patterns

A. Observations by Fund

Table IV details the SWFs making the largest number and value of investments in our database. This table also describes the number and value of domestic investments—purchases of stakes in firms from the SWF's home country. Singaporean SWFs account for over 57% of the number and 41% of the value of all SWF deals, with Temasek Holdings and its subsidiaries alone accounting for 42% of the number and 18% of the value of all deals. Other significant SWF investors include China Investment

Company (12 deals worth \$37.4 billion), the UAE's Mubadala Development Company (62 deals worth \$30.3 billion) and Istithmar (80 deals worth \$26.96 billion), the Qatar Investment Authority (29 deals worth \$20.9 billion), the Kuwait Investment Authority (18 deals worth \$19.9 billion), and the Abu Dhabi Investment Authority (42 deals worth \$19.1 billion). Perhaps the most surprising finding detailed in Table 4 is the relative *infrequency* of domestic investments; only 21.6% of the number and 16.3% of the value of all deals involve SWF investments in their home countries.

***** Insert Table IV about here*****

These patterns generally support common perceptions that the Singaporean SWFs are the most active internationally-oriented funds and that the Chinese fund has primarily focused on the home market since its founding in 2007. However, the results are surprising for two important funds, Norway's Government Pension Fund-Global and the Abu Dhabi Investment Authority (ADIA). Although Norway's fund is the world's second largest SWF, and is a recognized leader in global investing, there are literally no observations for it in our sample. This is because the fund sub-contracts out all of its investments to asset managers, and so the fund is never listed as the buyer of stock or real estate in any database. There are two principal reasons for the modest number of observations for ADIA (only 42 investments, though these do total almost \$19.1 billion). First, ADIA also seems to employ asset managers for many of its investments, especially smaller portfolio investments in listed companies. Second, it has a more conservative investment philosophy than do most other SWFs, and thus concentrates more of its investment capital in dollar-denominated government and corporate bonds, which are not visible to our search techniques.

B. Industrial Distribution of Sovereign Wealth Fund Investments

Table V details the industrial distribution of SWF investments. As is generally presumed to be the case, and as mentioned earlier in this text, SWFs favor investing in companies in the financial industry over all others. The 376 financial firm investments account for 30.9% of all deals, by number, and over half (54.6%) of the value of all acquisitions. Other significant target industries attracting SWF investments are real estate (11.9% of deals, 15.3% of value), information technology (7.5% of deals, 7.7% of value), industrials (9.1% of deals, 5.3% of value), and infrastructure (11.9% of deals, 15.3% of value). The reader should, however, note that this preference for financial investments is a fairly recent phenomenon. As noted in Figure I (Panel A), sovereign funds allocated less than one-fifth of their investment funds to financial firms as recently as 2006, and allocated even smaller fractions to financial companies in previous years.

***** Insert Table V about here *****

C. *Target Countries for Sovereign Wealth Fund Investments*

Table V also presents the national distribution of SWF investments (by target country). As noted above, Singapore receives the largest number of SWF investments—almost all from the two Singaporean SWFs—but the total value of these investments (\$13.23 billion) yields only a sixth place ranking. The United States is easily the most popular target nation for SWFs, in terms of total value invested, with 10.9% of the number and 22.2% of the total value of SWF investments being channeled to US-headquartered companies. China is the second most popular target country in terms of value, though almost all of the 79 deals worth \$31.0 billion are domestic investments by the China Investment Corporation—including the \$20 billion, December 2007 purchase of an equity stake in China Development Bank, which is the largest single investment in our database.¹⁴ Besides Singapore, the United States and China, other popular target countries include the United Kingdom (all foreign investments), the UAE (mostly domestic deals), Australia (mostly foreign) and Malaysia (mostly domestic). Apart from investing in a few home-country firms, it seems clear that SWFs prefer to purchase stock and real estate in the capital markets of the principal English common law countries: America, Britain, and Australia.

V. **Empirical Results**

A proper understanding of the SWF phenomenon requires an analysis of the impact those funds have on the companies they invest in. A long-term analysis of the profitability of the companies in which SWFs invest allows us to determine whether these funds have a value-enhancing impact on target firms, consistent with the monitoring role usually attributed to large institutional shareholders, or whether SWFs effectively destroy target firm value. Given that markets might be efficiently impounding this expected effect at the time of the announcement of a SWF investment, we investigate the short-term market reactions as well. We find evidence consistent with a negative impact on target firm profitability. The negative impact on firm profitability could be either due to a lack of monitoring or to conflicts of interest with other (minority) shareholders. In cross sectional analysis, we find evidence consistent with both explanations of this negative impact.

In this section, we first present results from three event studies: a study of the company's stock price performance prior to the SWF investment, to offer some insight into what kind of companies SWFs invest in; a short-term event study, in order to evaluate the market reaction to the announcement of a SWF investment; and a long-term event study, to investigate the impact of SWF investments on target

¹⁴ In December 2008, CIC invested another \$20 billion into recapitalizing the Agricultural Bank of China, but this is not included in our database, which ends in September 2008.

companies. In each case, we present three sets of results, by making use of raw returns, market-model abnormal returns with a local equity index used as a benchmark, and matched-firm abnormal returns. The econometric benefits of using a matched-firm approach in event studies are outlined by Barber and Lyon (1997) and exemplified by Choi, Lee and Megginson (2009). Accordingly, while we present raw and market-model abnormal returns, we give most emphasis to the matched-firm results.

For our event study, we restrict the sample to purchases of shares of publicly traded firms¹⁵. We obtain daily historical stock-price returns, adjusted for dividends and splits, and translated into US dollars for targeted firms from *Datastream*, and include only observations for firms for which we find return data for a period of at least six months (120 trading days) prior to the announcement date. Our final sample contains 235 observations related to \$118.7 billion worth of investments by 21 SWFs in 195 distinct firms in 32 target countries, with the earliest being in 1991 and the latest in 2008¹⁶. We obtain historical daily total return series for equity indices for each target country, translated into US dollars, from *Datastream*. Similarly, we obtained from *Datastream* industry classifications and year-end market capitalizations (in US dollars) of all publicly-traded firms in each country of incorporation of target firms, from 1990 onwards. We obtain scores for SWF structure, governance, accountability and transparency and behavior from Truman (2008)¹⁷. For more details on the exact scoring method, the reader is directed to Truman (2007b and 2008). We also employ the Linaburg-Maduell transparency index scores as a robustness check, and we obtain these scores from the Sovereign Wealth Fund Institute.

Market-model abnormal returns are computed by subtracting the expected return obtained from a market model, using the local equity index as a market proxy, from the target's return. In order to

¹⁵ In order to not rely on SWF-supplied data, as the latter potentially suffers from the biases documented by Phallipou and Gottschalg (2009) and Griffin and Xu (2009), we are forced to restrict our analysis to acquisitions of equity in publicly traded firms. We recognize this being a major limitation of our empirical study. On the other side, we believe the size of our sample to be large enough to draw some important conclusions regarding both the investment-picking ability and the impact of SWFs on target companies. A recent precedent of a similar approach in the financial literature is the above-mentioned Griffin and Xu (2009).

¹⁶ In the analysis of raw returns, we use all events for which we can obtain target stock prices for the entire time interval of interest, unless a target has received multiple investments by different SWFs on the same day; in that case, we treat those multiple investments as one single event. Similarly, for the analysis of market-adjusted returns, we use all events for which we can obtain both target stock prices and local market indices for the entire time interval of interest, while adjusting as previously stated for multiple contemporaneous investments. Finally, for the matched-firm event study, we use all events for which we can obtain both target and match stock prices for the entire time interval of interest, with the same adjustment for multiple contemporaneous investments in the same target.

¹⁷ Truman (2007 and 2008) scores SWFs on corporate governance, and the score is based on four main questions: (1) is the role of the government in setting investment strategy clearly established? (2) Is the role of managers in executing the investment strategy clearly established? (3) Does the SWF have in place and publicly available guidelines for corporate responsibility? And (4) does the SWF have ethical guidelines that it follows? Truman (2007b and 2008) also scores SWFs on their level of accountability and transparency, structure and behavior.

compute expected returns, we estimate the market model using at least 120 and as much as 360 trading days ending 20 days prior to the time interval of interest; the exact length of the estimation interval depends on data availability.

In computing matched-firm abnormal returns, we proceed as follows. We begin by identifying matching firms to use as benchmarks: for each target firm, we obtain the set of firms from the same country of incorporation and sharing the same FTSE Level 5 classification.¹⁸ Amongst these, we select the firm with the closest market capitalization as of the end of the fiscal year preceding the year during which the investment takes place. If no firm shares the same FTSE Level 5 classification, we match on FTSE Level 4; in the absence of matches, we use FTSE Level 3 and, finally, if no firms share the same FTSE Level 3, we use the firm from the same country with the closest market capitalization as of the end of the fiscal year preceding the year during which the investment takes place. We do not use as matches any firms being the target, at any time, of investments by SWFs. Matched-firm abnormal returns are computed by subtracting the stock-price return of a matched firm from the stock-price return for the target.

We present event study results for various time intervals preceding the SWF investment in Table VI. Results of a short-term event study around the announcement of the investment are presented in Table VII, while results from a long-term event study following the investment are included in Table VIII. In each table, we report the time interval of interest, the number of observations, Patell's Z-score [as described by Patell (1976)] for the significance of the mean abnormal return (the raw return in Panel A of Tables VI, VII and VIII), the number of positive and negative abnormal or raw returns (cumulative for the short-term analysis and compounded for the longer time intervals) and the results of a nonparametric generalized sign test.¹⁹ In the matched-firm analysis, we also present a t-test for the significance of the abnormal return conducted using a cross-sectional estimate of the standard error of the abnormal return, to control for event-induced volatility as recommended by Brown and Warner (1985).

A. *Pre-Event Performance*

¹⁸ *Datastream* offers six different levels of industry and sector classification. Of those, we employ levels 3, 4 and 5. Level 3 classifies firms into one of 9 groups: resources, basic industries, cyclical consumer goods, non-cyclical consumer goods, cyclical services, non-cyclical services, utilities, information technology and financials. Level 4 is more details and contains 39 sectors, based on the FTSE Actuaries system. Level 5 adds sub-sectors (a maximum of 11 sub-sectors per sector).

¹⁹ In order to compute the standard error of the abnormal return, used in computing Patell's Z score, we use at least 120 and as many as 360 trading days ending 20 days prior to the investment; the exact length of the estimation interval depends on data availability. For the analysis of abnormal returns prior to the investment, we estimate the standard error of the abnormal return by using at least 120 and up to 360 trading days ending 240 days prior to the day of the investment.

We limit our analysis of pre-event performance to 227 observations for which we have at least 360 trading days of data prior to the announcement of the SWF acquisition²⁰. We report compounded raw and abnormal returns for 240 trading days (approximately one year), 120 trading days (approximately six months), 60 trading days (approximately three months) and 20 trading days (approximately one month) prior to the announcement of the acquisition.

As reported in Table VI, Panel A raw mean returns are positive over all pre-event time intervals. Yet, raw returns fail to account for the riskiness of the investment. Accordingly, we present, in Panel B, market-model abnormal returns. Here, the evidence is mixed – over the one-year period preceding SWF investments, mean compounded abnormal returns are positive (2.18%); yet, Patell’s Z test indicates statistically significant underperformance²¹. Nonparametric analysis is inconclusive, since 112 of the securities exhibit positive abnormal returns over the one-year preceding SWF investments, while 115 exhibit negative abnormal returns. Results are clearer over the six-months preceding SWF investments: we find a statistically significant abnormal return equal to -1.22%. Yet, in accordance to recent literature, we give most emphasis to matched-firm mean abnormal returns, all of which are negative. In particular, the average buy and hold abnormal return on a target firm over the one year preceding the investment by a SWF is equal to -8.01% and highly statistically significant, both in parametric and nonparametric tests. The great majority (143 out of 212²², or 67%) of the target firms display negative abnormal returns over the same time horizon.

We wish to emphasize that our main results – market model abnormal returns and matched-firms abnormal returns, are unaffected by the use of US dollar prices, as returns on both target firm and benchmarks (local equity indices and matched-firms equity prices) are equally affected by the currency conversion.

These results lead us to conclude that, on a risk-adjusted basis, the companies in which SWFs tend to invest have on average performed poorly when compared to their peers, consistent with the proposition that SWFs tend to invest in distressed companies. We propose that this is largely due to SWFs investing in distressed companies to avoid the backlash of regulators in target-countries; certainly, by acting as ‘saviors’ of distressed companies, SWFs are tilting public opinion in their favor. SWF actions

²⁰ 120 days for the estimation period and 240 to study one year of pre-event performance, for a total of 360 days.

²¹ This apparent inconsistency is explained by the fact that the mean compounded abnormal return is computed as a straight average of abnormal returns, while Patell’s Z is based on a volatility-weighted average abnormal return. The volatility-weighted mean compounded abnormal return over the one year preceding the SWF investment is equal to -3.57%.

²² Please note, we are able to compute matched-firm abnormal returns for only 212 of the 227 acquisitions, due to lack of available daily return data for matched firms.

during the recent financial crisis, in particular the heavy investments in distressed western financial institutions, are a good example of such behavior.

****** Insert Table VI about here ******

B. Initial Market Reaction to SWF Investment Announcements

We report short-term event study results in Table VII. We include our entire event-study sample in this analysis (235 observations). Raw returns, market-model abnormal returns and matched-firm abnormal returns all indicate that the event-day (or event-window) market reaction to SWF investment announcements is positive. In particular, in the three-day interval including the day of the investment announcement, the previous day and the following day, abnormal returns are approximately equal to 0.9% and statistically significant at least at the 10% level, with the only exception of the matched-firm t-test based on cross-sectional estimates of the return standard error, which is not significant. Nonparametric tests confirm the statistical significance of our findings and indicate that our results are not driven by few, larger, outliers.

As previously, when discussing the pre-event study, we wish to emphasize that our market-model and matched-firm results are robust to the use of local currency returns, rather than returns in US\$ presented here. In addition, for the short-term event study we compute raw returns in local currency around the announcement date and find qualitatively unchanged results. For robustness, we also study the market response by using market-adjusted returns (computed by subtracting the local equity index return from that of the target company) and find qualitatively identical results. As a final robustness check, we also compute abnormal returns, both market-adjusted and market-model, by using a global index as a benchmark (the MSCI global), for the available years, and again find a very similar, positive and statistically significant, market reaction.

Overall, our results clearly indicate that the market reaction to SWF investments is positive. There are two possible explanations for these significantly positive announcement-period abnormal returns: either market participants react positively because they believe SWFs will improve target firm performance (a certification effect) or the large but temporary increased demand for target firm shares forces stock prices higher through a purely liquidity effect. We address these two effects in subsequent analyses.

****** Insert Table VII about here ******

C. Long-Term Stock Price Performance After SWF Investments

We report long-term event study results in Table VIII. In particular, we analyze target performance over 120 trading days (approximately six months), 240 trading days (approximately one

year) and 480 trading days (approximately two years) following the SWF investment. For each time interval, we only include the observations for which we have target stock prices for the entire period – and, in the matched-firm analysis, for which we have both target and matched-firm stock prices for the entire period.

Mean raw returns are negative but not statistically significant over the 120 trading days following investment by SWFs; mean raw returns are positive and statistically significant at least at the 10% level over the one and two-year periods following SWF investments²³.

Market-model abnormal returns, on the other side, document severe underperformance. The six-months, one-year and two-year abnormal returns are, respectively, -10.99%, -26.52% and -104.92%; approximately two thirds of all investments are followed by negative abnormal performance over each interval. Parametric and nonparametric tests are significant at the 1% level over the six-months and one-year interval and at the 5% level for the two-year event window.

Our results are confirmed by the matched-firm analysis. Abnormal returns are negative over all time intervals and equal to -5.98% over six months, -10.23% over one year and -15.49% over two years following SWF investments. 149 of 208 firms (72%) display negative buy and hold abnormal returns over the two-years following SWF investments. All results are statistically significant in both parametric and nonparametric tests at the 1% level.

****** Insert Table VIII about here ******

As previously, we wish to emphasize that our market-model and matched-firm results are robust to the use of local currency returns, rather than returns in US\$ presented here. Previous analysis based on a slightly smaller sample indicates that our results are robust to the use of a global, rather than local, market index – while the magnitude of the underperformance varies, evidence of the underperformance itself is very strong.

While we recognize that the magnitude of the abnormal returns computed by using the market-model differs greatly from those estimated by the matched-firm approach, both sets of results indicate severe underperformance. As previously noted, we put more faith in the results obtained by using the matched-firm approach, as most recent literature on long-run event studies. We conclude that SWF investments underperform relative to local market indices and relative to matched firms.

²³ While the raw returns from the event study are mostly positive, the results presented in Table II indicate that the aggregate value of SWF investments has declined over time. Noting that the results of the event study give equal weight to each observation, while the computation of aggregate value necessarily leads to value-weighting of individual observations, we observe that SWFs suffer the biggest percentage losses on their largest investments. In unreported results, we confirm our intuition by computing value-weighted returns on investments, obtaining larger loss estimates than those presented in Table IX. A discussion of large losses for select SWFs is offered by Setser and Ziemba (2009).

These results lead us to conclude that the companies in which SWFs tend to invest have subsequently performed poorly when compared to their peers, consistent with either poor stock picking or with agency costs being introduced by conflicts between SWFs and minority shareholders. We try to distinguish between those two possibilities in cross-sectional analysis (below).

D. Cross-Sectional Analysis, Market Reaction

In order to further investigate the determinants of the market reaction at the announcement of investments by SWFs, we employ a series of cross-sectional regressions. The dataset we employ in this and in the following regressions includes all individual investments which are not contemporaneous to other investments in the same target by the same or by other SWFs. In addition, only observations with available data for all explanatory variables are used.

In the first set of regressions, we use the three-day matched-firm abnormal return as a response variable. In all specifications, we include a common set of explanatory variables. We first examine whether the abnormal performance of the funds is driven by investments in two sectors particularly affected by the recent crisis, finance and real estate. Accordingly, we include two binary variables, *Financial Target* and *Real Estate Target*, set to 1 if the primary sector of the target is, respectively, finance or real estate and to 0 otherwise. Given the evidence presented in Section II of SWFs ‘rescuing’ firms in those sectors, we expect the signs of the estimated coefficients to be positive, as markets should react positively to the news of a SWF offering a lifeline to firms in severe financial distress. We expect the market reaction to be weaker if the SWF is already a shareholder of the firm. Accordingly, we add another binary variable, *Pre-Existing Stake*, set to 1 if the investing SWF has a prior stake invested in the target firm, to 0 otherwise, and we expect a negative coefficient. We also expect the strength of the market reaction to be proportional to the size of the investment, so we add a variable equal to the percentage of the target acquired by the SWF, *Percent Acquired*. The significance of this variable could also indicate a short-term liquidity effect, as the latter should be related to the proportion of shares acquired. Since the effect of *Percent Acquired* might be nonlinear, as predicted by Shleifer and Vishny (1997), we also add *Percent Acquired Squared*, the squared value of the latter variable. Since it is possible that SWFs are also having a negative effect on the firms they invest in by expropriating minority shareholders, we also add *75% Acquisition*, a binary variable set at 1 if the SWF acquired a stake equal to or greater than 75%, and to 0 otherwise. Since in such cases there are few minority shareholders, we expect the sign of the coefficient to be positive. We include a binary variable identifying open market transactions, *Open Market Investment*, to test whether the positive market reaction is due to cash infusions associated with primary market transactions. Since in an open market transaction the target firm receives no funding, we expect the sign to be negative. To test whether SWFs are viewed more favorable

domestically, we include *Domestic Investment*, a binary variable set at 1 if the country of incorporation of the target and the country of origin of the SWF are the same, to 0 otherwise. A final explanatory variable is *1-Month Pre-Event BHR*, the matched-firm compounded abnormal return over the months preceding the SWF investment, included to control for momentum. Aside from this common set of variables, in the first specification we also add fixed effects by fund. In a second specification, we remove the fixed effects but add *LM Transparency Index*, the Linaburg-Maduell transparency index for the investing SWF. We expect the market to react more favorably to investment by more transparent funds and, accordingly, we expect the associated coefficient to be positive. In a third specification, we remove the Linaburg-Maduell transparency index and add *Truman_Total*, the total score given by Truman (2008), equal to the average of Truman's SWF scores for structure, governance, accountability and transparency and behavior; we expect the market to react more favorably to investment by funds that rank higher on Truman's score. In our final specification, we substitute the disaggregated *Truman_Structure*, *Truman_Accountability&Transparency* and *Truman_Behavior* for *Truman Total*.

The results of our cross-sectional analyses are reported in Table IX, Panel A. We find that the market reaction is stronger for financial targets, as expected, leading to larger, positive, abnormal returns. Since many of the financial investments were, in effect, bailouts, this result is unsurprising. Also, we find that the market reaction is weaker if the fund had a pre-existing stake in the company, indicating that the announcement of the investment has a weaker signaling effect. We interpret this as a sign of the fact that SWF investments are viewed favorably by markets, above and beyond a pure 'rescuing' effect – if the market were simply reacting to the favorable news of a capital injection into a distressed company, there would not be a reason for subsequent investments to elicit a weaker market reaction. Rather, it seems market participants do view SWFs as desirable shareholders.

Finally, we find that pre-event performance is strongly linked to the market reaction, indicating possible leakage of information, or at least the presence of rumors, in the month preceding the investment. Yet, we find no evidence of the other hypothesized explanatory variables playing a role and we rule out a possible liquidity effect, as the latter would be related to the size of the stake acquired.

E. Cross-Sectional Analysis, Long-Term Impact

While the analysis of the market reaction provides insights into how market participants perceive SWFs as investors, it is important to understand what drives the abnormal performance of investment targets. Accordingly, we utilize a second set of cross-sectional regressions to analyze the long-term market impact of SWFs as investors. We believe there are three possible explanations for a long-term impact of SWFs as investors and we attempt here to investigate which one is correct. On one side, SWFs might be passive investors and the long-term negative performance we document might simply be a result

of poor stock-picking. Alternatively, SWFs might be active investors whose interests are conflicting with those of other, minority shareholders. That would result in agency costs and a loss of firm value, as in Jensen and Meckling (1976), thus potentially leading to a negative stock-price reaction. Finally, SWFs, as large shareholders, might be acting as monitors as discussed by Shleifer and Vishny (1986), thus improving the long-term performance of target firms. While the negative results from our long-term event studies appear to rule out this as a possible explanation, it is best to consider the possibility of monitoring and shareholder-expropriation not being mutually exclusive.

We utilize, as responses, the six-month, one-year and two-year buy and hold abnormal returns obtained in the matched-firm event studies. As in the previous regressions, we include binary variables indicating whether the primary activity of the target is in finance or real estate, as we hypothesize that the negative long-term abnormal returns could be driven by investments in those sectors, which would be consistent with poor stock-picking. We hypothesize that funds with better structure, governance and behavior could exercise a more beneficial monitoring effect on target firms; hence, we add, as explanatory variables, the related scores by Truman. We also believe that transparency could affect the long-term profitability of SWF investments: on one side, more transparent funds could send more significant signals to the market, thereby increasing the benefits associated with their monitoring role. On the other side, a high level of transparency could reduce fund profitability by forcing disclosure of potentially valuable information. Hence, to test the effect of transparency, we add Truman's score for transparency & accountability. A pre-existing stake in the target firm could reduce the performance improvements associated with new monitoring. Accordingly, we add the related binary variable. We also hypothesize that the long term impact could be related to the size of the stake acquired: as the stake acquired grows larger, so do monitoring incentives. Yet, as the SWF gains control, it might seek to extract benefits and to impose priorities not consistent with those of other shareholders. Accordingly, Shleifer and Vishny (1997) predict that the impact of large shareholders might be a nonlinear function of the size of the stake acquired. In order to allow for this possibility, we add an explanatory variable equal to the square of the share acquired. As in the regressions pertaining to stock market reaction, we add a variable identifying acquisitions of stakes equal to or larger than 75% to further test for the presence of agency costs related to the expropriation of minority shareholders. It is also plausible that SWFs have a stronger impact on domestic investments, as political pressures to act as passive investors would be weaker domestically. Accordingly, we add the relevant binary variable. Finally, we control for pre-event performance by including the one-month matched-firm pre-event compounded abnormal return.

We present results in Table IX, Panel B. We find that financial targets display weaker long-term performance, with negative and statistically significant coefficients at the six-month and two-year horizons. The coefficient on the financial-firm binary variable is also negative, but insignificant, at the

one-year horizon. This result is consistent with poor stock picking: since the response variable is a matched-firm abnormal return, this evidence indicates that not only investments in financial firms (which constitute, as previously documented, a large portion of SWF investments) underperformed, but that SWF managers invested in some of the worst performing financial firms, even when compared to their industry-matched peers.

Truman's governance score is associated with a positive and statistically significant impact at all time horizons, as expected. Truman's accountability score, on the other hand, is negative at all horizons and statistically significant over the six-month and the one-year horizons. While the six-month post-investment performance is highly related to the pre-investment performance, the effect of pre-investment performance wanes at longer horizons. Rather, one and two-year abnormal returns are strongly related to the size of the stake acquired. Overall, the relationship is negative, with larger negative abnormal returns associated with larger stakes, and the effect is non-linear, as expected. This is consistent with the shareholder expropriation hypothesis. We also find some evidence of a positive effect associated with ownership of a stake of 75% or larger, which is also consistent with the shareholder expropriation hypothesis.

Overall, the results of this cross-sectional analysis indicate that the long-term performance of SWFs cannot be simply explained by any of our three hypotheses alone. Rather, the negative performance of financial targets is indicative of poor stock picking, as SWFs largely invested in this sector, while the significance of the governance score and of the share of the stake acquired are both indicative of an active role for SWFs as investors.²⁴ While the positive impact of the governance score indicates some benefits related to monitoring, the negative impact associated with larger stakes points to the role of agency costs derived from conflicts between SWFs and minority shareholders. Consistently, this effect is greatly moderated when the acquisition involves nearly full ownership of the target.

****** Insert Table IX about here ******

VI. Conclusions

This study presents early empirical analysis of sovereign wealth fund investment patterns and performance. We list the major funds and analyze their size and discuss estimates of future growth. Using

²⁴ While the performance of SWF investments appears to suffer from overinvestment in the financial sector, we should not be too quick in judging the stock-picking skills of SWF managers. While it is certainly plausible to attribute such misallocation of funds to error, we should also note that SWF investments have often been channeled towards industries and sectors in which they encounter the least resistance. Accordingly, we believe that SWFs invested so often in underperforming or distressed industries to minimize political opposition in target countries. Our analysis of pre-event performance, documenting large negative returns on target firms prior to SWF investments, is consistent with this interpretation.

a broad sample of SWF equity investments, we provide the first comprehensive overview of SWF investment patterns by fund, by industry sector, and by geography. Surprisingly, despite significant interest by both media and policy makers, very little formal research has been conducted on SWFs, so we offer a review of the existing discussion, present evidence on the mechanics of SWF investments, and measure the impact of SWFs on the subsequent performance of the listed companies in which they invest. We document that SWFs purchase, on average, a sizable minority stake in target companies, which can either be publicly traded or unquoted. We also find that SWFs overwhelmingly buy equity stakes in listed companies by purchasing newly-issued common or preferred stock directly from target companies in friendly transactions that exclude outside participation by existing shareholders. This feature of SWF investment might indicate that SWFs will become the allies of target-firm managers and will be constrained from playing a meaningful disciplinary or monitoring role. In addition, these government-owned funds face significant political pressure from recipient countries to remain passive investors in cross-border deals. The fact that the funds invariably purchase minority stakes—at least in large western public companies—similarly suggests that the funds will be unable to decisively intervene in target firm management even should they wish to do so.

We find that a large number of acquisitions are clustered in the finance and banking sector. Using stock price returns as a proxy for firm profitability, we find that target firms underperform during the year preceding SWF investments; accordingly we conclude that SWFs tend to invest in underperforming firms, possibly to minimize political opposition. On average, stocks of targeted corporations exhibit *positive* abnormal returns of about 0.9% over the three day period including the day on which the SWF investment is announced, the previous and the following day. This could indicate either that investors welcome SWFs as shareholders or the price reaction could merely be a liquidity effect resulting from a temporary—but quite large—increase in demand for target firm shares. While, in cross-sectional analysis, we offer some evidence against a liquidity effect, we will clarify this in subsequent research. Certainly we think it plausible that investors are welcoming SWF investments, as many investments effectively inject new capital in distressed firms.

There are two plausible, but conflicting, theories of how SWFs could impact firm governance and, as a result, firm value. On the one hand, SWFs might act as monitors, hence improving governance and profitability. Alternatively, SWFs might impose goals and priorities not consistent with the maximization of firm profits, leading to increased agency costs and declining firm value. Finally, it is plausible that SWFs, fearing political and regulatory opposition, act as passive investors and do not affect the performance of investment targets at all. We analyze firm profitability, proxied by stock returns, over two years subsequent to the initial SWF investment and find evidence that SWFs are associated with deteriorating firm performance. In particular, we find that the two-year average abnormal buy and hold

return of investment targets, computed by using matched firms as benchmarks, is equal to -15.49%. In cross-sectional analysis, we find that the pre-investment underperformance of investment targets appears to persist for up to six months following the investment. Yet, we also find that the longer-term post-acquisition target performance is related to fund characteristics and to the size of the stake acquired. In particular, underperformance is less severe for SWFs with better governance, but more severe for funds that are more transparent and for acquisitions involving largest stakes. While the positive impact of the governance score offers mild evidence of benefits related to monitoring, the negative impact associated with larger stakes points to the role of agency costs derived from conflicts (real or perceived) between SWFs and minority shareholders. The overall negative abnormal performance following SWF investments suggests that the monitoring effect, if present at all, is, on average, weak.

Taken together, the evidence of a positive market reaction followed by negative long-term performance is puzzling. A similar pattern has been documented by Hertzel et al. (2002) in regards to private placements of equity: in their sample, including 619 publicly traded firms announcing private equity placements over the years 1980 to 1996, the market reacts positively, but the subsequent (3-year) stock price performance is negative. The similarities between our sets of results include also negative pre-event performance, as Hertzel et al. find that private issues follow periods of poor operating performance, whereas we document low stock price returns over the year preceding SWF investments. As Hertzel et al., we note that our results indicate that investors are overoptimistic about the prospects of target firms, but ultimately fail to fully explain the puzzle.

Finally, we recognize that SWFs are a very heterogeneous group. While our analysis indicates that those with a high quality of governance can provide some monitoring benefits, the majority lead to deteriorating target performance by creating new conflicts with minority shareholder. All SWFs, however, appear to have been poor stock pickers, overinvesting in the sector that was most hit in the current crisis, the financial industry – and then picking some of the worst performing firms within the financial industry. We propose that the poor stock picking could be a consequence of political pressures which led SWFs to invest in distressed industries and firms in order to minimize target-country political opposition and regulatory backlash.

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Table I. Major Sovereign Wealth Funds

This table lists the 35 funds that meet the Monitor-FEEM definition of a SWF, and offers information regarding country of origin (*Country*); fund name (*Fund Name*); the estimated fund size in US\$ billions (*Assets \$US Billion*) as of April 2, 2009; the year in which the fund was established (*Inception Year*); the principal source of funding for the fund (*Source of Funds*); and a measure of the fund's transparency score (Linaburg-Maduell Transparency index), where 1=totally non-transparent and 10=totally transparent. Asset size, inception date, and source of funds data are from the Monitor Group-FEEM (2009) (<http://www.monitor.com>) or the Sovereign Wealth Fund Institute (<http://www.swfinstitute.org>), and the Linaburg-Maduell Transparency Index values are from the Sovereign Wealth Fund Institute.

Country	Fund Name (Principal investment subsidiaries)	Assets \$US Billion	Inception Year	Source of Funds	Linaburg- Maduell Transparency Index
UAE-Abu Dhabi	Abu Dhabi Investment Authority	\$627.0	1976	Oil	3
Norway	Government Pension Fund – Global	\$326.0	1990	Oil	10
Singapore	Government of Singapore Investment Corporation	\$247.5	1981	Non-Commodity	6
Kuwait	Kuwait Investment Authority (Reserve Fund for Future Generations)	\$202.8	1953	Oil	6
China	China Investment Corporation (Central Huijin Investment, Ltd)	\$190.0	2007	Oil	6
Russia	Reserve Fund	\$137.1	2004	Oil	N/A
Singapore	Temasek Holdings	\$85.0	1974	Non-Commodity	8
Russia	National Welfare Fund	\$83.6	2008	Oil	5
UAE-Dubai	Investment Corporation of Dubai (Istithmar World; Dubai International Capital)	\$82.0	2006	Oil	4
Libya	Libyan Investment Authority (Libyan Arab Investment Company; Libyan Reserve Fund)	\$65.0	2006	Oil	2
Qatar	Qatar Investment Authority (Qatar Holdings)	\$62.0	2003	Oil	5
Australia	Australian Future Fund	\$42.2	2006	Non-Commodity	9
Kazakhstan	Kazakhstan National Fund	\$38.0	2000	Oil	2
Brunei	Brunei Investment Agency	\$30.0	1983	Oil	1
South Korea	Korea Investment Corporation	\$27.0	2005	Non-Commodity	9
Malaysia	Khazanah Nasional	\$23.1	1993	Non-Commodity	4
Taiwan	National Stabilisation Fund	\$15.2	N/A	Non-Commodity	N/A
Bahrain	Mumtalakat Holding Company	\$14.0	2006	Oil	6
São Tomé & Príncipe	National Oil Account	\$12.2	2004	Oil	N/A
Azerbaijan	State Oil Fund	\$11.2	1999	Oil	9
UAE-Abu Dhabi	Mubadala Development Company	\$10.0	2002	Oil	7
Chile	Economic and Social Stabilization Fund	\$9.83	1985/ 2006	Copper	7
Oman	State General Reserve Fund	\$8.20	1980	Oil & Gas	1
Mexico	Oil Revenues Stabilization Fund of Mexico	\$5.00	2000	Oil	N/A
East Timor	Timor-Leste Petroleum Fund	\$3.20	2005	Oil & Gas	6
Trinidad & Tobago	The Heritage and Stabilization Fund	\$2.90	2000	Oil	5
UAE-Ras Khaimah	Ras Al Khaimah (RAK) Investment Authority	\$1.20	2005	Oil	3
Venezuela	FIEM	\$0.80	1998	Oil	1
Vietnam	State Capital Investment Corporation	\$0.50	2006	Non-Commodity	4
Kiribati	Revenue Equalization Reserve Fund	\$0.40	1956	Phosphates	1
UAE-Federal	Emirates Investment Authority	N/A	2007	Oil	1
UAE-Dubai	DIFC Investments (Company) LLC	N/A	2006	Non-Commodity	N/A
Angola	Reserve Fund for Oil	N/A	2004	Oil	N/A
Equatorial Guinea	Fund for Future Generations	N/A	N/A	Oil	N/A
Gabon	Fund for Future Generations	N/A	1998	Oil	N/A
	Total Assets	\$1,912			

Figure I: Temporal Distribution of Sovereign Wealth Fund Investments, January 2000- December 2008

These figures describe the annual number and total value (US\$ Billions) of investments by sovereign wealth funds in the FEEM-Monitor SWF Transaction Database, January 1986 - December 2008.

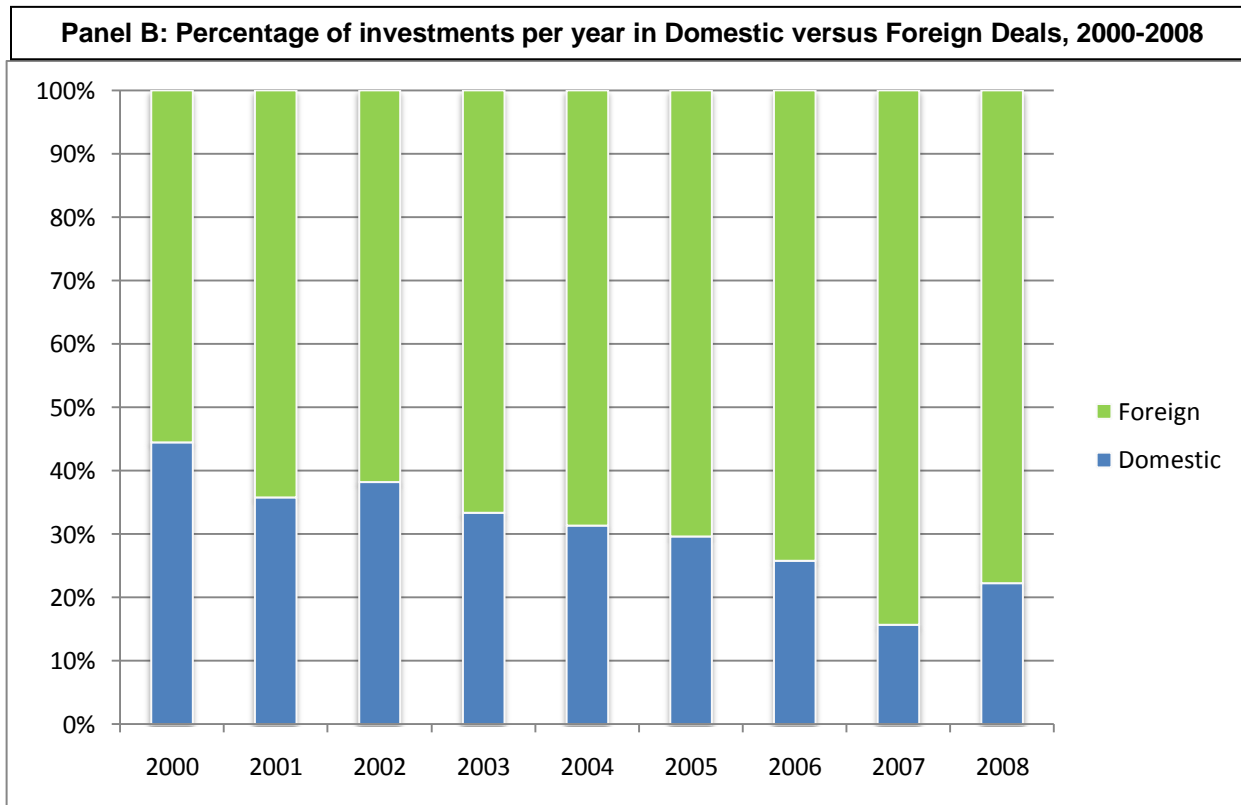
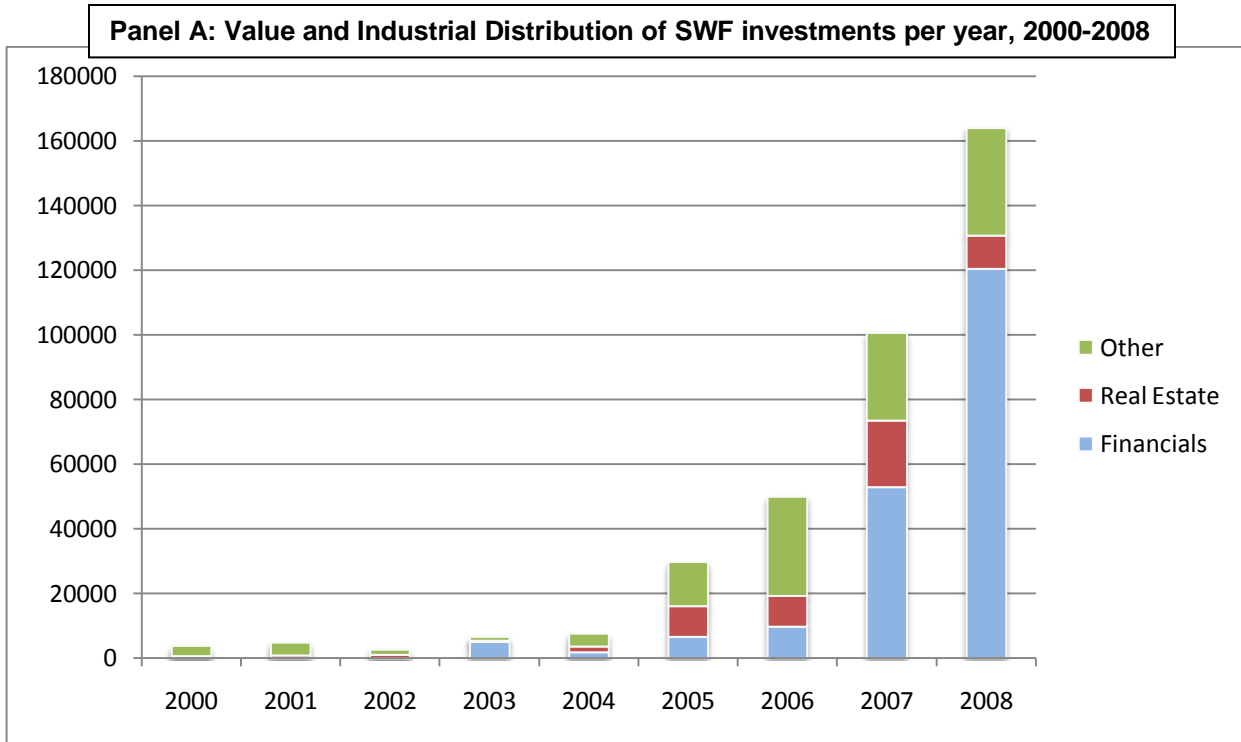


Table II. Details on the Largest Sovereign Wealth Fund Investments in Listed Stocks, with Investment Returns from Inception through March 27, 2009

This table details the 24 largest sovereign wealth fund investments into listed equities, along with the investment date, the value of the investment at the inception date, the holding period return from inception to March 27, 2009, and the overall gains and losses experienced by SWF investors on these investments. Source: Monitor-FEEM SWF Transaction Database.

Acquiror Name	Target Name	Investment Date	Value of Investment (\$mil)	Investment Value (\$mil), March 27, 2009	Holding period return, inception to March 27, 2009	Gain or loss, (\$mil)
GIC - Singapore	UBS	02/08/08	\$14,400.00	\$4,339.16	-69.87%	-\$10,060.84
GIC - Singapore	UBS	12/10/07	\$9,760.42	\$2,121.06	-78.27%	-\$7,639.36
Abu Dhabi Investment Authority	Citigroup Inc.	11/27/07	\$7,500.00	\$684.87	-90.87%	-\$6,815.13
GIC - Singapore	Citigroup Inc.	01/15/08	\$6,880.00	\$2,370.00	-65.55%	-\$4,510.00
Abu Dhabi Investment Authority (ADIA)	PrimeWest Energy Trust of Canada	09/07/07	\$5,000.00	\$5,371.40	7.43%	\$371.40
China Investment Corporation	Morgan Stanley	12/19/07	\$5,000.00	\$2,545.13	-49.10%	-\$2,454.87
Temasek Holdings	Merrill Lynch & Co Inc.	12/27/07	\$4,400.00	\$515.00	-88.30%	-\$3,885.00
Kuwait Investment Authority	Dow Chemical Company	07/10/08	\$4,019.08	\$1,171.06	-70.86%	-\$2,848.02
Temasek Holdings	Standard Chartered PLC	03/27/06	\$4,000.00	\$2,345.39	-41.37%	-\$1,654.61
Temasek Holdings	Merrill Lynch & Co Inc.	07/27/08	\$3,400.00	\$1,767.28	-48.02%	-\$1,632.72
Dubai International Financial Centre	OMX AB	02/29/08	\$3,396.80	\$3,644.26	7.29%	\$247.46
Qatar Investment Authority (QIA)	Credit Suisse	01/28/08	\$3,000.00	\$1,680.90	-43.97%	-\$1,319.10
Istithmar World	Time Warner	11/27/06	\$2,000.00	\$2,300.00	15.00%	\$300.00
China Investment Corporation	Fortescue Metals Group	02/04/08	\$2,000.00	\$552.96	-72.35%	-\$1,447.04
Korea Investment Corporation	Merrill Lynch & Co Inc.	01/15/08	\$2,000.00	\$238.02	-88.10%	-\$1,761.98
Kuwait Investment Authority (KIA)	Citigroup Inc.	01/16/08	\$3,000.00	\$299.40	-90.02%	-\$2,700.60
Kuwait Investment Authority (KIA)	Merrill Lynch & Co Inc.	01/15/08	\$2,000.00	\$238.02	-88.10%	-\$1,761.98
Temasek Holdings	Shin Corp Pcl	01/23/06	\$1,900.00	\$991.98	-47.79%	-\$908.02
Dubai International Financial Centre	Deutsche Bank	05/16/07	\$1,800.00	\$540.31	-69.98%	-\$1,259.69
Dubai International Financial Centre	London Stock Exchange Plc	08/17/07	\$1,648.02	\$534.65	-67.56%	-\$1,113.37
Investment Corporation of Dubai	Inmobiliaria Colonial SA	03/11/08	\$1,504.51	\$199.40	-86.75%	-\$1,305.11
Qatar Investment Authority (QIA)	J Sainsbury	06/15/07	\$1,400.00	\$554.38	-60.40%	-\$845.62
Temasek Holdings	Stats Chippac Ltd	05/18/07	\$1,083.48	\$190.59	-82.41%	-\$892.89
Istithmar World	Standard Chartered Plc	10/06/06	\$1,000.00	\$580.42	-41.96%	-\$419.58
Total, Table			\$92,092.31	\$35,775.64	-61.15%	-\$56,316.67
Total, 189 sovereign wealth fund investments in listed firms			\$125,650.29	\$58,772.29	-53.23%	-\$66,878.00

Table III. Characteristics of the Monitor-FEEM SWF Transaction Database

This table describes the Monitor-FEEM SWF Transaction Database and summarizes the 1,216 individual investments, worth \$357.1 billion, made by 35 sovereign wealth funds (SWFs) between January 1986 and September 2008. This database is created from three sources. The first is the set of 785 SWF investment observations, worth \$250.9 billion, garnered from public sources by the Monitor Group. This sample includes investments in listed equity, unlisted equity, commercial real estate, private equity funds and joint ventures. The second source is a listing of 239 stock purchases made by a pre-specified group of SWFs, worth \$84.1 billion, contained in the Securities Data Corporation Global New Issues database. This database covers equity issues by listed and unlisted companies. The third source is a sample of 230 listed and unlisted equity acquisitions, worth \$71.8 billion, made by pre-specified SWFs presented in the Zephyr Mergers and Acquisitions database. After combining the three datasets and netting out the 71 observations common to two or more samples (which naturally tend to be the largest deals), we verify investment dates, amounts, SWF investors, and stakes purchased for as many observations as possible.

	Summary		Size (\$US mn)		Stake acquired (%)	
	Number of obs	Total value, \$US mn	Mean size	Median size	Mean stake	Median stake
All transactions	1,216	\$357,133	\$441	\$55	42.3%	26.2%
Listed equity investments	379	\$141,218	\$383	\$50	19.4%	9.0%
Unlisted equity investments	719	\$170,659	\$361	\$36	52.5%	49.0%
Unlisted operating companies	691	\$154,202	\$349	\$33	53.3%	49.0%
Private equity funds	10	\$9,526	\$1,905	\$1,200	59.2%	46.0%
Initial public offerings	7	\$2,773	\$396	\$170	3.9%	2.7%
Joint ventures and other	8	\$145	\$120	\$120	45.5%	45.5%
Real estate investments	118	\$45,256	\$546	\$245	73.1%	100%

Table IV: Sovereign Wealth Fund Home Country and Investment Patterns

This table lists the number and total value (in US\$ millions), by fund, of all investments, investments in domestic companies, investments in listed equity, investments in unlisted equity, real estate investments and other types of investments (private equity, initial public offerings, and joint ventures).

Home country	Fund Name	Total number, value investments		Number and value domestic investments		Listed Equity investments		Unlisted Equity investments		Real Estate investments		Other (PE, IPOs, joint ventures)	
		# obs	Total value, \$US mn	# obs	value, \$US mns	# obs	Value, US\$ mns	# obs	Value, \$US mn	# obs	Value, \$US mn	# obs	Value, \$US mn
Singapore	Government Investment Corp & subs	188	\$81,383	3	\$408	66	\$34,110	81	\$31,331	41	\$17,340	0	\$0
Singapore	Temasek Holdings, Temsak Capital	510	\$65,454	159	\$9,213	166	\$34,828	332	\$27,754	8	\$2,805	4	\$68
China	China Investment Company, Ltd	12	\$37,350	2	\$20,100	6	\$7,250	4	\$23,000	0	\$0	1	\$4,100
United Arab Emirates	Mubadala Development Comp	62	\$30,279	20	\$9,171	11	\$2,560	38	\$17,875	5	\$2,548	8	\$7,296
United Arab Emirates	Istithmar	80	\$26,962	15	\$3,972	22	\$5,195	37	\$7,110	26	\$14,658	1	na
Qatar	Qatar Investment Authority (QIA)	29	\$20,926	0	\$0	13	\$9,291	8	\$5,891	5	\$4,744	3	\$1,000
Kuwait	Kuwait Investment Authority	17	\$19,878	1	na	4	\$6,019	10	\$12,963	3	\$896	0	\$0
United Arab Emirates	Abu Dhabi Investment Authority	42	\$19,072	7	\$51	19	\$14,372	19	\$3,565	4	\$1,135	0	\$0
United Arab Emirates	Dubai International Capital LLC	20	\$11,062	4	\$22	4	\$1,834	16	\$9,228	0	\$0	0	\$0
Malaysia	Khazanah Nasional Bhd	108	\$10,019	90	\$8,398	36	\$6,502	65	\$3,260	6	\$137	1	\$120
United Arab Emirates	Dubai International Financial Cente	11	\$8,858	3	na	7	\$8,445	3	\$413	1	na	0	\$0
United Arab Emirates	International Petroleum Investment Corp	20	\$8,081	3	\$1,821	5	\$2,413	15	\$5,668	0	\$0	0	\$0
Saudi Arabia	Saudi Arabia Public Investment Fund	3	\$4,266	3	\$4,266	0	\$0	3	\$4,266	0	\$0	0	\$0
United Arab Emirates	Dubai Financial LLC	8	\$2,922	0	\$0	3	\$1,073	6	\$1,849	0	\$0	0	\$0
United Arab Emirates	Investment Corporation of Dubai	3	\$2,518	1	na	1	\$1,504	2	\$1,014	0	\$0	0	\$0
Libya	Libyan Investment Authority	44	\$2,101	1	na	3	\$125	26	\$330	13	\$438	2	\$1,200
South Korea	Korea Investment Corporation	2	\$2,000	1	0.05	1	\$2,000	1	\$0.01	0	\$0	0	\$0
	Others (9 funds)	49	\$2,604	13	\$929	12	\$3,697	53	\$15,142	11	\$555	5	na
	Total	1,216	\$357,133	326	\$58,351	379	\$141,218	719	\$170,659	118	\$45,256	25	\$13,784

Table V: International and Industrial Distribution of SWF Investments

This table lists the number and total value (in US\$ millions), by fund, of all investments, investments in domestic companies, investments in listed equity, investments in unlisted equity, real estate investments and other types of investments (private equity, initial public offerings, and joint ventures).

	Financial	Real estate	Information Technology	Industrial	Infrastructure	Services	Manufacturing	Telecoms	Consumer products & services	Transportation	Healthcare	Trade	Natural resources	Energy & utilities	Materials	Other	# of observations/ Total value (\$ mms)
United States	41 \$79,385	13 \$9,855	15 \$994	7 \$514	0 0	17 \$1,944	6 \$149	2 \$22	5 \$3,242	5 \$80	13 \$185	1 \$942	1 na	2 \$400	0 0	2 \$14	132 \$79,385
United Kingdom	19 \$18,537	18 \$10,059	1 \$413	2 \$285	2 \$5,200	12 \$6,174	10 \$1,547	2 \$134	5 \$94	1 \$118	4 \$3,187	3 \$1,705	0 0	2 \$369	1 \$17	0 0	83 \$47,688
China	18 \$26,318	21 \$2,070	6 \$122	4 \$42	1 \$925	1 \$1	6 \$34	1 \$5	8 \$852	4 \$406	1 \$6	1 \$20	1 \$50	2 \$20	2 \$29	1 \$50	79 \$31,000
Switzerland	3 \$27,160	0 0	0 0	0 0	0 0	0 0	1 \$1,290	0 0	0 0	4 \$1,970	2 \$43	0 0	0 0	1 \$77	0 0	0 0	11 \$30,540
United Arab Emirates	14 \$1,141	9 \$3,692	1 na	5 \$6,000	0 0	4 na	7 \$123	0 0	2 na	3 na	1 na	2 na	2 \$1,821	8 \$2,100	0 0	0 0	55 \$14,877
Singapore	21 \$1,126	10 \$3,367	35 \$2,142	32 \$463	0 0	3 \$6	1 \$35	10 \$428	20 \$751	9 \$1,576	0 0	2 \$49	2 \$878	10 \$1,089	2 \$6	1 \$848	177 \$13,230
Australia	10 \$1,119	6 \$1,835	2 \$28	5 \$2,007	0 0	7 \$890	0 0	0 0	1 \$329	1 na	2 \$890	1 na	1 \$13	4 \$4,985	0 0	1 \$14	41 \$12,110
Malaysia	29 \$2,786	12 \$639	8 \$36	23 \$2,476	2 na	4 \$1,250	12 \$158	13 \$2,563	1 na	2 na	4 \$321	2 \$37	2 \$55	1 \$191	1 \$36	1 \$55	117 \$10,550
Hong Kong	5 \$319	0 0	10 \$652	4 \$1,019	3 \$5,474	0 0	4 \$182	3 \$1	11 \$207	0 0	0 0	0 0	0 0	2 \$52	1 \$9	0 0	43 \$7,915
Japan	6 \$238	8 \$3,512	0 0	3 \$50	0 0	3 \$985	1 na	1 \$173	3 na	1 \$244	1 \$95	2 \$862	1 na	1 \$780	0 0	0 0	31 \$6,939
Indonesia	22 \$2,874	0 0	0 0	6 \$136	2 \$1,000	2 \$2	3 \$34	2 \$1,270	1 na	0 0	0 0	0 0	0 0	3 \$363	0 0	0 0	79 \$5,680
India	17 \$993	3 \$226	2 \$110	8 \$25	2 \$60	4 \$158	2 na	8 \$2,191	10 \$547	7 \$379	10 \$152	0 0	0 0	4 \$38	1 na	0 0	30 \$4,884
South Korea	8 \$445	2 \$959	0 0	0 0	0 0	0 0	3 \$82	1 1	0 0	0 0	7 \$463	0 0	2 \$730	1 \$142	0 0	0 0	22 \$3,592
Thailand	16 \$2,465	3 \$161	3 \$110	0 0	0 0	0 0	0 0	2 \$23	2 \$10	2 na	0 0	0 0	0 0	2 \$425	0 0	0 0	30 \$3,194
Italy	2 na	1 \$300	0 0	0 0	1 \$1,579	6 \$313	6 \$262	1 \$4	3 \$111	1 na	0 0	0 0	1 \$36	0 0	0 0	1 na	23 \$2,606
Other	145 \$29,928	51 \$17,896	8 \$245	12 \$5,677	3 \$131	34 \$10,357	25 \$6,069	8 \$1,432	7 \$379	10 \$1,259	8 \$214	5 \$165	3 \$18	17 \$18,943	6 \$113	3 \$489	260 \$113,414
Total	376 \$194,834	145 \$54,571	91 \$4,852	111 \$18,907	16 \$14,369	92 \$22,080	75 \$9,965	52 \$8,247	79 \$6,414	50 \$6,032	53 \$5,556	19 \$3,780	16 \$3,601	70 \$29,974	14 \$210	10 \$1,470	1,216 \$357,133

Table VI. Pre-Event Performance

This table reports raw and abnormal stock price returns for target firms prior to investments by SWFs; Panel A reports raw returns, Panel B reports market model abnormal returns (computed as the difference between target’s returns and expected returns based on a market model, with a local equity index acting as a market proxy) and Panel C reports matched-firm abnormal returns (computed as the difference between target’s returns and returns on a benchmark firm, incorporated in the same country, when feasible from the same industry and with similar market capitalization). *Interval* indicates the time interval of interest, relative to the date of the announcement of the SWF investment (day 0). *N* reports the number of observations. *Mean Compounded (Abnormal) Return* reports average (abnormal) compounded returns. *Patell Z* reports the result of Patell’s Z-score computed to test the statistical significance of the mean compounded (abnormal) return relative to the period of interest. *T-Stat (Cross Section)* reports the result of t-test of the statistical significance of the mean compounded (abnormal) return making use of a cross-sectional estimate of the standard deviation of the (abnormal) daily returns. *Positive* and *Negative* report, respectively, the number of positive and negative compounded (abnormal) returns for the period of interest. *Generalized Sign Z* reports the results of a generalized nonparametric sign test for the significance of the mean compounded (abnormal) return relative to the period of interest. Significance is denoted as follows: “*” indicates significance at the 0.1 level; “**” indicates significance at the 0.05 level; “***” indicates significance at the 0.01 level.

Panel A: Raw Returns

Interval	N	Mean Compounded Return	Patell Z	Positive	Negative	Generalized Sign Z
(-240,-1)	227	15.06%	4.99 ***	151	76	7.062 ***
(-120,-1)	226	4.61%	1.351	125	100	3.646 ***
(-60,-1)	225	2.64%	0.274	126	98	3.847 **
(-20,-1)	225	0.41%	-0.481	116	109	2.501 **

Panel B: Market Model Abnormal Returns

Interval	N	Mean Compounded Abnormal Return	Patell Z	Positive	Negative	Generalized Sign Z
(-240,-1)	227	2.18%	-1.805 *	112	115	0.481
(-120,-1)	226	-1.22%	-3.200 ***	102	124	-0.786
(-60,-1)	225	0.36%	-1.962 *	104	121	-0.457
(-20,-1)	225	-0.16%	-1.203	109	116	0.210

Panel C: Matched-Firm Abnormal Returns

Interval	N	Mean Compounded Abnormal Return	Patell Z	T-Stat (Cross-Section)	Positive	Negative	Generalized Sign Z
(-240,-1)	212	-8.01%	-2.527 **	-2.444 ***	69	143	-4.395 ***
(-120,-1)	212	-3.28%	-1.978 **	-1.228	90	122	-1.507
(-60,-1)	212	-1.43%	-0.707	-0.809	99	113	-0.269
(-20,-1)	212	-0.74%	-0.075	-0.585	104	108	0.419

Table VII. Short-Term Market Reaction

This table reports raw and abnormal stock price returns for target firms on the days surrounding the announcement of investment by a SWF; Panel A reports raw returns, Panel B reports market model abnormal returns (computed as the difference between target's returns and expected returns based on a market model, with a local equity index acting as a market proxy) and Panel C reports matched-firm abnormal returns (computed as the difference between target's returns and returns on a benchmark firm, incorporated in the same country, when feasible from the same industry and with similar market capitalization). *Interval* indicates the time interval of interest, relative to the date of the announcement of the SWF investment (day 0). *N* reports the number of observations. *Mean Cumulative (Abnormal) Return* reports average (abnormal) cumulative returns. *Patell Z* reports the result of Patell's Z-score computed to test the statistical significance of the mean cumulative (abnormal) return relative to the period of interest. *T-Stat (Cross Section)* reports the result of t-test of the statistical significance of the mean cumulative (abnormal) return making use of a cross-sectional estimate of the standard deviation of the (abnormal) daily returns. *Positive* and *Negative* report, respectively, the number of positive and negative cumulative (abnormal) returns for the period of interest. *Generalized Sign Z* reports the results of a generalized nonparametric sign test for the significance of the mean cumulative (abnormal) return relative to the period of interest. Significance is denoted as follows: "*" indicates significance at the 0.1 level; "***" indicates significance at the 0.05 level; "****" indicates significance at the 0.01 level.

Panel A: Raw Returns

Interval	N	Mean Cumulative Abnormal Return	Patell Z	Positive	Negative	Generalized Sign Z
(-1,+1)	235	0.95%	3.27 ***	131	93	3.641 ***
(0,0)	234	0.21%	1.655 *	113	95	1.355
(0,+1)	234	0.70%	3.473 ***	137	85	4.496 ***

Panel B: Market Model Abnormal Returns

Interval	N	Mean Cumulative Abnormal Return	Patell Z	Positive	Negative	Generalized Sign Z
(-1,+1)	235	0.89%	3.009 ***	132	103	3.084 **
(0,0)	234	0.22%	1.759 *	121	113	1.709 *
(0,+1)	234	0.64%	3.328 ***	131	103	3.020 ***

Panel C: Matched-Firm Abnormal Returns

Interval	N	Mean Cumulative Abnormal Return	Patell Z	T-Stat (Cross-Section)	Positive	Negative	Generalized Sign Z
(-1,+1)	229	0.87%	1.853 *	1.572	129	98	2.853 ***
(0,0)	229	0.08%	0.618	0.237	114	107	1.132
(0,+1)	229	0.35%	0.857	0.649	122	104	1.926 *

Table VIII. Long-Term Impact

This table reports raw and abnormal stock price returns for target firms following investments by SWFs; Panel A reports raw returns, Panel B reports market model abnormal returns (computed as the difference between target's returns and expected returns based on a market model, with a local equity index acting as a market proxy) and Panel C reports matched-firm abnormal returns (computed as the difference between target's returns and returns on a benchmark firm, incorporated in the same country, when feasible from the same industry and with similar market capitalization). *Interval* indicates the time interval of interest, relative to the date of the announcement of the SWF investment (day 0). *N* reports the number of observations. *Mean Compounded (Abnormal) Return* reports average (abnormal) compounded returns. *Patell Z* reports the result of Patell's Z-score computed to test the statistical significance of the mean compounded (abnormal) return relative to the period of interest. *T-Stat (Cross Section)* reports the result of t-test of the statistical significance of the mean compounded (abnormal) return making use of a cross-sectional estimate of the standard deviation of the (abnormal) daily returns. *Positive* and *Negative* report, respectively, the number of positive and negative compounded (abnormal) returns for the period of interest. *Generalized Sign Z* reports the results of a generalized nonparametric sign test for the significance of the mean compounded (abnormal) return relative to the period of interest. Significance is denoted as follows: "*" indicates significance at the 0.1 level; "**" indicates significance at the 0.05 level; "***" indicates significance at the 0.01 level.

Panel A: Raw Returns

Interval	N	Mean Compounded Abnormal Return	Patell Z	Positive	Negative	Generalized Sign Z
(+1,+120)	219	-0.95%	-0.802	104	115	0.961
(+1,+240)	182	5.33%	1.856 *	95	85	2.420 **
(+1,+480)	131	42.42%	6.892 ***	77	53	3.701 ***

Panel B: Market Model Abnormal Returns

Interval	N	Mean Compounded Abnormal Return	Patell Z	Positive	Negative	Generalized Sign Z
(+1,+120)	219	-10.99%	-5.087 ***	71	148	-4.169 ***
(+1,+240)	182	-26.52%	-5.082 ***	66	116	-2.712 ***
(+1,+480)	131	-104.92%	-2.435 **	48	83	-2.184 **

Panel C: Matched-Firm Abnormal Returns

Interval	N	Mean Compounded Abnormal Return	Patell Z	T-Stat (Cross-Section)	Positive	Negative	Generalized Sign Z
(+1,+120)	217	-5.98%	-2.348 **	-2.576 ***	84	133	-2.417 ***
(+1,+240)	217	-10.23%	-2.347 **	-2.934 ***	71	146	-4.186 ***
(+1,+480)	208	-15.49%	-2.006 **	-3.426 ***	59	149	-5.354 ***

Table IX. Cross-Sectional Analysis of Market-Model Abnormal Returns

This table reports results from OLS regressions of matched-firm abnormal target returns (computed as the difference between target's returns and returns on a benchmark firm, incorporated in the same country, when feasible from the same industry and with similar market capitalization) over different time horizons relative to the day of investment by a SWF; in *Panel A* the response variable is a three-day cumulative abnormal return over the event window including day 0 (the day of the announcement of the SWF investment) and days -1 and +1. Six-months, one-year and two-year buy-and-hold abnormal returns, computed respectively over 120, 240 and 480 trading days following investment by the SWF, are the response variables in, respectively, the first, second and third column of *Panel B*. *Intercept* is the intercept in the regression. *Financial Target* and *Real Estate Target* are binary variables set to 1 if the primary sector of the target is, respectively, finance or real estate and to 0 otherwise. *LM Transparency Index* is the Linaburg-Maduell transparency index for the investing SWF. *Truman_Total*, *Truman_Structure*, *Truman_Accountability&Transparency* and *Truman_Behavior* refer to the SWF-specific scores reported by Truman (2008). *Pre-Existing Stake* is a binary variable set to 1 if the investing SWF has a prior stake invested in the target firm, to 0 otherwise. *Percent Acquired* is equal to the percentage of the target acquired by the SWF, while *Percent Acquired Squared* is simply the squared value of the latter variable. *75% Acquisition* is a binary variable set at 1 if the SWF acquired 75% or more of the target, to 0 otherwise. *Open Market Investment* is a binary variable set at 1 if the investment involved an open-market transaction, to 0 otherwise. *Domestic Investment* is a binary variable set at 1 if the country of incorporation of the target and the country of origin of the SWF are the same, to 0 otherwise. *1-Month Pre-Event BHR* is the matched-firm pre-event compounded abnormal return, included to control for momentum. *N* reports the number of observations and *R-sq* the R squared statistic of the regression. The table included parameter estimates and, in grey font, related standard errors. Significance is denoted as follows: "*" indicates significance at the .1 level "**" indicates significance at the .05 level; "***" indicates significance at the .01 level.

Panel A: Three-Day Matched-Firm Abnormal Returns

	Cumulative Abnormal Returns (-1,+1)			
Intercept	0.0558 <i>0.0863</i>	-0.0121 <i>0.0247</i>	0.0192 <i>0.0259</i>	0.0931 <i>0.0573</i>
Financial Target	0.0305 * <i>0.0178</i>	0.0385 ** <i>0.0184</i>	0.0295 * <i>0.0174</i>	0.0301 * <i>0.0176</i>
Real Estate Target	-0.0177 <i>0.0451</i>	-0.0215 <i>0.0447</i>	-0.0272 <i>0.0442</i>	-0.0293 <i>0.0449</i>
LM Transparency Index		0.0022 <i>0.0031</i>		
Truman - Total			-0.0005 <i>0.0006</i>	
Truman - Structure				-0.0024 <i>0.0016</i>
Truman - Governance				0.0005 <i>0.0012</i>
Truman - Accountability&Transparency				0.0002 <i>0.001</i>
Truman - Behavior				0 <i>0.0015</i>
Pre-Existing Stake	-0.0517 *** <i>0.0165</i>	-0.0460 *** <i>0.0169</i>	-0.04714 *** <i>0.0163</i>	-0.0503 *** <i>0.0166</i>
Percent Acquired	0.0003 <i>0.001</i>	0.0007 <i>0.0011</i>	0.0009 <i>0.001</i>	0.0007 <i>0.001</i>
Percent Acquired Squared	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>	0 <i>0</i>
75% Acquisition	0.0052 <i>0.0574</i>	0.0008 <i>0.0656</i>	-0.0104 <i>0.0568</i>	-0.0156 <i>0.0571</i>
Open Market Investment	0.0282 <i>0.0277</i>	0.0134 <i>0.027</i>	0.014 <i>0.0265</i>	0.0175 <i>0.027</i>
Domestic Investment	0.008 <i>0.0222</i>	0.0102 <i>0.0196</i>	0.0072 <i>0.0175</i>	-0.0055 <i>0.0202</i>
1-Month Pre-Event BHAR	0.1375 *** <i>0.0455</i>	0.1433 *** <i>0.0442</i>	0.1316 *** <i>0.0437</i>	0.1391 *** <i>0.0441</i>
Fixed Effects	Yes	No	No	No
N	155	142	148	148
R-Sq (%)	22.50%	17.50%	16.50%	10.20%

Panel B: Long-Term Matched-Firm Abnormal Returns

	6-Month BHARs	1-Year BHARs	2-Year BHARs
Intercept	-0.0917 <i>0.216</i>	-0.1458 <i>0.2761</i>	0.036 <i>0.3942</i>
Financial Target	-0.1114 * <i>0.067</i>	-0.1126 <i>0.0856</i>	-0.2171 * <i>0.1246</i>
Real Estate Target	0.1398 <i>0.1956</i>	0.2934 <i>0.2499</i>	0.409 <i>0.3511</i>
Truman - Structure	0.001 <i>0.006</i>	0.0018 <i>0.0076</i>	-0.0044 <i>0.0108</i>
Truman - Governance	0.0077 * <i>0.0045</i>	0.0112 * <i>0.0058</i>	0.0187 ** <i>0.0082</i>
Truman - Accountability&Transparency	-0.0062 * <i>0.0037</i>	-0.0089 * <i>0.0047</i>	-0.0106 <i>0.0067</i>
Truman - Behavior	-0.0057 <i>0.0058</i>	-0.0079 <i>0.0074</i>	-0.0106 <i>0.0103</i>
Pre-Existing Stake	0.0157 <i>0.0634</i>	-0.0236 <i>0.081</i>	-0.1037 <i>0.1204</i>
Percent Acquired	-0.0013 <i>0.004</i>	-0.0115 ** <i>0.0051</i>	-0.0185 ** <i>0.0075</i>
Percent Acquired Squared	<0.0001 <i><0.0001</i>	<0.0001 * <i>0.0001</i>	0.0001 * <i>0.0001</i>
75% Acquisition	0.2698 <i>0.2148</i>	0.1451 <i>0.2745</i>	1.0799 ** <i>0.512</i>
Open Market Investment	0.0513 <i>0.1019</i>	0.1773 <i>0.1302</i>	0.2392 <i>0.1916</i>
Domestic Investment	0.0285 <i>0.1434</i>	0.1131 <i>0.0989</i>	0.0238 <i>0.1434</i>
1-Month Pre-Event BHAR	0.4100 ** <i>0.0774</i>	0.3211 <i>0.2154</i>	-0.0235 <i>0.3105</i>
N	155	144	138
R-Sq (%)	22.50%	12.60%	16.90%

Appendix I. Milestones in Sovereign Wealth Fund History

This table details key dates in the evolution of sovereign wealth funds and describes their most important and newsworthy investments. Sources include Miracky, et al (2008), the Sovereign Wealth Fund Institute, *Financial Times* (various issues), individual fund websites, and the authors' own research.

Year	Event or milestone
1953	Kuwait Investment Board set up in London by Sheik Abdullah Al-Salem Al-Sabah to invest surplus oil export revenues. Later given current name of Kuwait Investment Authority. Formal investment policies established by Ministry of Finance following Kuwaiti independence in 1961.
1956	Kiribati set up first true SWF, the Revenue Equalization Reserve Fund, to invest revenues from phosphate (guano) exports.
1974	Singapore establishes Temasek Holdings to manage Ministry of Finance's equity holdings. ----- Following first oil shock, Kuwaiti and Libyan governments purchase minority stakes in German companies Daimler and Krupp via private sales by family owners. Stakes later transferred to Kuwaiti and Libyan SWFs.
1976	Abu Dhabi Investment Authority founded to manage surplus oil export revenues
1981	Government of Singapore Investment Corporation established, initially as a private company, to make long-term, higher return investments.
1983	Brunei Investment Agency set up to invest oil export earnings and manage external state assets.
1987	Kuwait Investment Authority acquires 21.7% stake in British Petroleum as a result of failed BP share issue privatization following October 1987 stock market crash. British government forced KIA to cut its stake to 9.9% the following year.
1990	Norway establishes the Norway Petroleum Fund (later re-named the Government Pension Fund-Global) to invest proceeds from North Sea oil export sales outside of Norway.
1993	Malaysia establishes Khazanah Nasional Berhad to manage state commercial assets and to make strategic investments.
2001	Khazanah Nasional purchases 100% of United Engineers (Malaysia) in first large buyout of a publicly traded company by an SWF.
2002	Libyan Arab Foreign Investment fund (later re-named Libya Investment Agency) purchases minority stake in Italian soccer team Juventus. Stake later raised twice. ---- Emirate of Abu Dhabi sets up Mubadala Development Company.
2003	Qatar Investment Authority established to provide revenue diversification ---- Emirate of Dubai sets up private equity fund Istithmar World as a wholly-owned subsidiary of Dubai World. ---- Russia establishes Stabilization Fund for the Russian Federation. Later (February 2008) split into Oil Stabilization Fund and National Welfare Fund, a true SWF.
2004	Singapore Power (controlled by Temasek) purchases Australian assets of TXU for \$3.8 billion, the largest cross-border acquisition by SWF to date.
2005	Andrew Razanov first coins phrase "sovereign wealth fund." ---- Dubai International Capital acquires Tussauds Group Ltd for \$1.5 billion [Mar] ---- Korea Investment Corporation established by transferring \$17 billion of foreign exchange reserves to new fund. Given a mission to pursue international investments yielding commercial returns. ---- Mubadala purchases 7.5% stake in U.S. private equity firm Carlyle Group for \$1.35 billion. [Jul] ---- Mubadala buys 3.31% stake in Ferrari. Though fairly small (\$90.5 million), purchase was highly publicized. [Aug] ---- Temasek purchases 5.1% stake in China Construction Bank for \$1.40 billion prior to bank's IPO. [Sep]

2006	<p>Temasek pays \$1.8 billion for controlling stake in Thai telecommunications firm, Shin Corporation, from family of Thaksin Shinawatra, Thailand's elected prime minister. [Jan] Sale proves extremely controversial, and Shinawatra is overthrown in Army coup eight months later. ----</p> <p>Temasek purchases 11.55% stake in Standard Chartered plc for \$4.0 billion. First of many SWF purchases of equity in troubled western commercial and investment banks. [Mar] ----</p> <p>Investment Corporation of Dubai established with the transfer of the Ministry of Finance's investment portfolio. [May] ----</p> <p>China announces plans to issue \$200 billion worth of special Treasury bonds to establish China Investment Corporation. [Sep] CIC actually established in early 2007. ----</p> <p>Istithmar purchases 2.70% stake in Standard Chartered for \$1.0 billion.[Oct]</p>
2007	<p><i>Financial Times</i> begins using phrase "sovereign wealth fund" for first time. [May] ----</p> <p>Stephen Jen (Morgan Stanley) publishes influential report estimating that SWFs then had about \$2.5 trillion in assets, and predicting this total would reach \$12 trillion by 2015. [May] ----</p> <p>Dubai International Financial Center purchases 2.2% stake in Deutsche Bank for \$1.8 billion. [May] ----</p> <p>China Investment Corporation pays \$3.0 billion for 9.9% stake in U.S. private equity firm Blackstone Group as part of Blackstone's IPO. [May] ----</p> <p>Abu Dhabi Investment Authority pays \$7.5 billion for a 4.9% stake in Citigroup, after U.S. bank disclosed massive losses on its mortgage-backed securities holdings. Sale structured as convertible preferred stock with an 11% coupon, convertible within 30 months. [Nov] ----</p> <p>Government of Singapore Investment Corporation pays \$9.76 billion for a 9.04% stake in Switzerland's UBS, after bank disclosed large losses on holdings of U.S. subprime mortgage-backed securities. Including other investors, total financing package was worth \$11.3 billion. [Dec] ----</p> <p>China Investment Corporation pays \$5.0 billion for a 9.9% stake in Morgan Stanley. [Dec] ----</p> <p>Temasek pays \$4.40 billion for 9.45% stake in Merrill Lynch, paying \$48 per share--\$5/share below previous market stock price. [Dec] ----</p> <p>China Investment Corporation invests \$20.0 billion into recapitalization of China Development Bank in order to transform CDB into a commercial bank. [Dec]</p>
2008	<p>Government of Singapore Investment Corporation pays \$6.80 billion for a 4.04% stake in Citigroup, part of a total financing package of \$12.50 billion. Stake sale structured as perpetual convertible preferred stock with a 7% coupon, convertible into Citigroup common stock at a 20% premium. [Jan] ----</p> <p>Korea Investment Corporation and Kuwait Investment Authority each pay \$2.0 billion for 3.0% stakes in Merrill Lynch. Total financing equals \$6.6 billion. [Jan] ----</p> <p>Qatar Investment Authority buys 5.0% stake in Credit Suisse for \$3.0 billion. [Jan] ----</p> <p>China Investment Corporation invests \$4.0 billion into private equity fund set up by J C Flowers & Company to invest in troubled financial institutions. [Feb] ----</p> <p>Government of Singapore Investment Corporation leads other SWFs in a \$12.14 billion emergency capital injection (structured as convertible debt) in UBS after Swiss bank revealed \$18 billion in losses on U.S. subprime mortgage backed securities. GIC invested \$10.3 billion for a 9.0% stake. Other UBS shareholders reacted violently to recapitalization plan, but approved it in an</p>

	<p>extraordinary general meeting. [Feb]</p> <p>----</p> <p>Government of Singapore Investment Corporation invests \$2.50 billion into \$6.0 billion private equity fund set up by TPG Capital to invest in troubled financial institutions. [Feb]</p> <p>----</p> <p>Borse Dubai (subsidiary of Investment Corporation of Dubai) completes acquisition of OMX, paying Swedish government \$4.50 billion, then merges with NASDAQ—obtaining a 19.9% ownership stake (but 5% voting stake) in combined group. [Feb]</p> <p>----</p> <p>Temasek invests another \$600 million into Merrill Lynch, increasing its ownership by 1.11% to 43%. [Feb]</p> <p>----</p> <p>Abu Dhabi Investment Authority responds to criticism about non-transparency and sends a letter to U.S. Treasury describing its investment philosophy and practices. [Feb]</p> <p>----</p> <p>Bear Sterns fails and is acquired by JP Morgan, with financial guarantees provided by U.S. government. Signals a serious worsening of subprime credit crisis. [Mar]</p> <p>----</p> <p>Qatar Investment Authority pays \$3.48 billion for another 8.0% stake in Barclays Bank, out of planned \$8.885 billion total financing package. Very poor uptake of shares, but QIA fully subscribed. [Jun]</p> <p>----</p> <p>Brazil announced plans to establish a SWF, to be capitalized with \$200-\$300 billion in revenues expected to be received from newly-discovered oil fields. [Jun]</p> <p>----</p> <p>Oil prices peak at \$147.27 per barrel, up from \$70 per barrel at the start of 2008 and \$40 per barrel in 2005. [Jul]</p> <p>----</p> <p>Saudi Arabia establishes its first SWF, Sanabil al-Saudia, with an initial capitalization of \$5.3 billion. No investments made yet (through March 2009). [Jul]</p> <p>----</p> <p>Temasek buys \$3.40 billion of an \$8.50 billion share offering by Merrill Lynch, receiving about a 10% additional stake, after Merrill announced a \$4.6 billion second-quarter loss. This deal involved Merrill Lynch refunding Temasek \$2.5 billion from its original investment—necessitated by the fact that Merrill was issuing new shares below the original sale price—which Temasek re-invested along with \$900 million in new cash. This deal allowed Temasek not to show a loss on its Merrill Lynch investments. [Jul]</p> <p>----</p> <p>Lehman Brothers files for bankruptcy; AIG, Fannie May and Freddie Mac rescued by U.S. government; Congress passes TARP legislation, clearing way for massive government purchases of bank stocks to rescue financial system. [Sep]</p> <p>----</p> <p>Bank of America agrees to acquire Merrill Lynch for \$50 billion, initially valuing Merrill stock at \$48/share and making Temasek and other SWF investors whole. [Sep] By the time the merger closed in January 2009, the value (of BofA stock) that Merrill Lynch shareholders actually received had fallen to \$11.64/share.</p> <p>----</p> <p>IMF and 21 sovereign wealth funds agree to 24 principles that are to guide SWF investments worldwide. Since these terms were agreed to during a 2-day conference in Chile, they are called the Santiago Principles. [Oct]</p> <p>----</p> <p>Qatar Investment Authority and Sheik Mansour Bin Zayed Al Nahyan (a member of Abu Dhabi's royal family) buy \$9.28 billion worth of convertible securities issued by Barclays Bank, bringing their combined ownership to 30%. Barclays opted to raise capital from SWFs to avoid participating in British government's rescue plan. QIA and Sheik Masour purchase \$4.8 billion worth of new capital reserve notes, paying 14% interest, and \$4.48 billion worth of convertible shares. Other institutional investors purchased an additional \$2.0 billion in convertible shares. [Oct]</p>
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	<p>-----</p> <p>The newly-elected president of the Maldives announces plans to set up a SWF capitalized with revenues from tourism that would be used to purchase a new homeland for Maldives citizens in India, Sri Lanka, or Australia—which would be needed if global warming submerges the home islands.</p> <p>-----</p> <p>France establishes a SWF, mandates that it protect French industry from acquisitions by foreigners, and assigns management of the fund to the Caisse des Dépôts et Consignations. [Oct]</p> <p>-----</p> <p>China Investment Corporation invests \$20.0 billion into recapitalization of Agricultural Bank of China. [Dec]</p>
2009	<p>Report published by U.S. Council on Foreign Relations estimates that Gulf sovereign wealth funds and ruling families suffered investment losses of almost \$100 billion, bringing the total assets under management from \$1.30 trillion at year-end 2007 to \$1.20 trillion at year-end 2008. [Jan]</p> <p>-----</p> <p>Qatar Investment Authority announced plans to purchase share stakes of up to 20% in all the country's banks. The SWFs of Kuwait, Russia, China, and other countries also volunteered or were forced to divert funding from international investments to rescuing domestic markets. [Jan]</p> <p>-----</p> <p>Aabar Investments (an affiliate of the International Petroleum Investment Company) purchased a 9.1% stake in Daimler for \$2.6 billion, making Aabar the carmaker's largest shareholder. [Mar]</p> <p>-----</p> <p>Temasek announced that it had suffered a 31% fall in the value of its assets, from \$184 billion to \$127 billion, between April and November 2008, mostly because of its investments in Standard Chartered, Barclays and Merrill Lynch. [Mar]</p>