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Keywords: Sovereign Wealth Funds, International Financial Markets, Government Policy and Regulation

JEL Classification: G32, G15, G38

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SOVEREIGN WEALTH FUND INVESTMENT PATTERNS AND PERFORMANCE

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Abstract

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SOVEREIGN WEALTH FUND INVESTMENT PATTERNS AND PERFORMANCE*

Abstract

We examine 802 investments by 33 Sovereign Wealth Funds (SWFs) in publicly traded companies between May 1985 and November 2009, and find that SWFs tend to invest in large, levered, profitable growth firms, usually headquartered in OECD countries. Announcements of SWF investments yield significantly positive abnormal stock price returns, averaging 1.25% (2.91% excluding the 403 purchases of U.S.-listed stocks by Norway's fund) over a three-day (-1,+1) event window, but most investments lead to deteriorating firm performance over the following two years, with significantly negative mean abnormal returns of up to -6.25% (median of up to -14.71%) over 2-year holding periods. Our results are robust to the use of different benchmarks and event study methodologies. We examine whether sovereign funds acquire representation on the boards of directors of 355 target firms in the years after initial investment; funds acquire seats in only 53 companies, or 14.9% of all cases, though this percentage rises to 26.8% when the 157 targets of Norway's fund are excluded. Poor long-term stock performance is linked to the degree of involvement of the SWF: abnormal performance worsens the larger the stake acquired, if the investment is direct, rather than through subsidiaries or investment vehicles, and if the SWF takes a seat on the board of directors. Underperformance is also worse for investments in foreign firms. Analysis of post-investment performance using accounting variables validates the event-study findings of poor long-term performance. These findings support our Constrained Foreign Investor Hypothesis, which predicts that foreign investors, especially large, state-owned ones such as SWFs, will be unable to exercise proper monitoring due to pressures not to antagonize local management.

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Sovereign Wealth Fund Investment Patterns and Performance

Perhaps it should be called “state capitalism 2.0.” Recent shifts in the global distribution of production and wealth have prompted the rise of a major new class of investment funds owned and operated by national governments, but guided in their investment policies by commercial principles. This study examines the investment patterns and performance of sovereign wealth funds (SWFs), the single most important category of state-owned investor, and the one that has attracted the most attention from policy-makers, academics, and investors alike since they were assigned this vivid moniker by Andrew Rozanov five years ago [Rozanov (2005)]. The growth of these funds has been fueled primarily by massive petroleum-related trade surpluses that have been earned by state-owned enterprises (especially national oil companies) based mostly in non-Western, less-than-perfectly democratic, and often small-population countries. These factors alone would make sovereign wealth funds controversial, but their size and the rapid growth in assets under their management have brought the funds under often extreme scrutiny. According to our estimates, the 33 SWFs examined here control approximately US\$2.22 trillion in assets and have demonstrated an ability to both calm and roil international financial markets.

Although their name is new, sovereign wealth funds themselves have been operating for over five decades. The last several years have, however, seen a marked increase in both the number of SWFs and their investment activity; 19 of the 33 funds in our sample have been established since 2000 and 14 were created after 2004. As noted above, several characteristics of sovereign wealth fund investing and organization make SWFs especially interesting to financial economists. First, these are fully government-owned investment funds that make large, risky, cross-border investments in politically sensitive industries--such as banking, telecommunications, and energy--as well as in politically sensitive investment categories such as commercial real estate and listed-firm equity. As state-owned entities, SWFs are organized and managed in a different way than are large private-sector investment funds, and many commentators have charged that sovereign funds might pursue non-commercial objectives such as promoting home-country economic development or furthering the national strategic interest. It also seems likely that SWFs will invest differently than do other large, internationally active investment vehicles that have been extensively researched by financial economists, such as pension funds, mutual funds, and hedge funds. A natural question to ask is whether SWFs can and do achieve investment returns similar to these private-sector institutional investors. A large body of empirical research, summarized in Megginson and Netter (2001) and Estrin, Hanousek, Kočenda, and Svejnar (2009), strongly suggests that governments are usually bad operating *managers* and that firm performance improves with privatization, but there has been little investigation of whether states can be value-creating *investors*.

For a financial academic audience, however, the most interesting and important feature of sovereign fund investing must surely be that SWFs' listed-firm stock purchases typically are large enough to make the funds significant blockholders in target firms, with the potential to play an active role in corporate governance. Recent years have seen major advances in the literature examining the effectiveness of large-block shareholders (which tend to be institutional investors) in monitoring and disciplining the managers of investee companies. Many large, internationally active investment vehicles have been extensively researched but until recently there has been little empirical evidence that blockholders are particularly effective monitors. Even institutional investors such as CalPERS [English, Smythe, and McNeill (2004)] with an avowed goal of improving corporate governance in portfolio companies have achieved only marginal and often fleeting success.

On the other hand, there is evidence that several types of blockholders--especially private pension funds, hedge funds, corporate investors, and individuals--*are* associated with significant improvements in target firm performance. Hedge funds are the types of institutional investors that Chen, Harford, and Li (2007) predict will be ideal corporate monitors. The empirical work of Klein and Zur (2009), Ferreira and Matos (2008), Ferreira, Massa and Matos (2009), Brav, Jiang, Partnoy and Thomas (2008), and Cronqvist and Fahlenbrach (2009) also shows that hedge funds sometimes do create significant shareholder value in the firms they target for investment. On the other hand, Greenwood and Schor (2009) find that at least in the United States this is mostly due to the ability of hedge funds to pick likely takeover targets, or to put target firms "in play." Blockholders that successfully improve target firm performance often do so through private interactions with target firm managers rather than by mounting public, often quixotic campaigns against entrenched management teams, though Brav, et al. (2008) show that hedge funds often achieve success through private negotiations with managers that are backed up by public campaigns.

SWFs appear to have important similarities with both hedge funds and pension funds. As wealth funds, SWFs are similar to pension funds principally in that both have very long-term investment horizons--and thus feel little need to invest only in highly liquid securities--and both have demonstrated a preference for diversifying across multiple investment categories including stocks, government and corporate bonds, private equity, and real estate. SWFs appear similar to hedge funds in that both are stand-alone, unregulated pools of capital, managed by investment professionals and mandated (or at least allowed) to purchase large ownership stakes in foreign companies.

In contrast to both hedge funds and pension funds, however, SWFs seem to 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. This is largely because any posture they take other than being purely passive investors might generate political pressure or a regulatory backlash from recipient-country governments. Even when SWFs do take majority stakes--which Miracky, Dyer, Fisher,

Goldner, Lagarde, and Piedrahita (2008) show occurs almost exclusively when SWFs invest in domestic companies--the funds rarely publicly challenge incumbent managers in the way that Stulz (1988, 2005) shows might create value for outside shareholders.

For all these reasons, we expect that SWFs will not generally make effective monitors of investee company managers and will not create value over the long term. In section 1 below, we present the *Constrained Foreign Investor Hypothesis* to explain why SWFs should be especially reluctant to “interfere” in target firm management by demanding high performance or by holding managers to account and thus why the long-run excess returns to stockholders following SWF investments are likely to be negative. This hypothesis also predicts that SWFs will be much less constrained in the industries targeted and disciplinary/monitoring activities undertaken when they are investing domestically or regionally. It further predicts that relatively transparent funds from more democratic societies—especially Norway’s Government Pension Fund-Global--will be less constrained in their investment targets and might be able to generate positive long-run returns from their investments. Finally, this hypothesis predicts that politically constrained funds, especially those from non-democratic societies, will be more likely to make large investments in target companies by purchasing shares directly from these firms in a primary share offering, since this provides capital to the firm and can cast SWFs as corporate “saviors.” Less politically constrained funds will be more willing to invest smaller amounts of capital passively through open market stock purchases—as do most private sector investment funds.

Using a sample of 802 investments in publicly traded companies made by 33 sovereign wealth funds between May 1985 and November 2009, we examine the investment patterns and performance of SWFs and study the monitoring roles they play. We specifically test whether their investments have been value-increasing or decreasing over both short- and long-term investment horizons and whether the cross-sectional patterns observed are those predicted by the Constrained Foreign Investor Hypothesis. We find that politically constrained funds that invest internationally generally purchase sizeable but minority ownership stakes directly from target companies, whereas unconstrained funds (especially Norway’s) make much smaller investments via open-market share repurchases. We show that most of the investments that non-Norwegian SWFs make in publicly traded companies involve buying stock through primary share offerings rather than through open market share purchases, and direct purchases account for almost 90% of the value of these investments. The stakes purchased by non-Norwegian are large enough (16.56% mean, 8.0% median) to make SWFs influential blockholders in the investee companies should they wish to participate in target firm governance.

SWFs disproportionately favor financial companies, targeting about one-fifth of all their investments by number and over 50% by value in this sector. This concentration is driven mostly by the changed investment behavior that SWFs have demonstrated since 2005, as the funds were invited to

invest in (increasingly troubled) western financial institutions. American companies attract over half the number of SWF investments (426 of 802) and almost one-third of the value (\$58.3 billion of \$181.6 billion). The next most popular by number are Chinese and Singaporean companies—but almost all of these are domestic investments by China Investment Corporation, Temasek or the Government of Singapore Investment Corporation. Cross-border investments account for 90% of all SWF listed-firm stock purchases, and over three-fourths of this is targeted towards OECD companies.

We also examine the financial performance of investee firms prior to SWF investments, at the announcement of these investments, and for up to three years afterwards. For robustness, we calculate performance using market-adjusted returns, market-model abnormal returns, matched-firm adjusted returns, and calendar-time portfolio abnormal returns described in Rau and Vermaelen (1998), Mitchell and Stafford (2000), Hertz, et al (2002), Choi, Lee, and Megginson (2009), and others. SWFs tend to invest in large, levered, profitable growth firms, usually headquartered in a foreign country, most often an OECD member. The stocks of companies receiving SWF equity investments increase significantly, by about 1.25% (2.91% excluding the large number of small purchases of U.S. stocks by Norway's fund) over the three-day window surrounding the purchase announcement. This suggests that investors welcome SWFs as shareholders. On the other hand, abnormal buy-and-hold returns on shares of firms targeted by SWFs are significantly negative over one, two, and (usually) three-year holding periods after the investment. Depending on the specification, average abnormal long-run returns computed versus a local market index or versus matching firms range between -1.56% and -7.60% for the one-year horizon, between -2.64% and -6.25% for two years and between insignificantly positive and -11.83% for three-year holding periods. Long-term median excess returns and returns excluding Norway are consistently more negative than are mean excess returns, and market-model-adjusted excess returns are always more negative than market-adjusted or matching-firm adjusted abnormal returns. These findings of negative long-run stock performance support the Constrained Foreign Investor Hypothesis, especially when matched with the findings from our cross-sectional analyses of the initial and long-term excess returns.

To directly study the monitoring role—or lack thereof—exercised by SWFs, we collect board of director composition data for 355 companies and examine whether sovereign funds acquire representation on the boards of directors of target firms in the years after the initial fund investment. Our findings strongly support the Constrained Foreign Investor Hypothesis. Funds acquire seats in only 53 companies, or in only 14.9% of all cases, though this percentage rises to 26.8% when the 198 targets of Norway's fund are excluded—since the Norwegian fund always makes small investments and *never* receives a board seat. Non-Norwegian SWFs are significantly more likely to acquire seats in domestic than in foreign companies (in 15.27% versus 10.35% of all cases), and are especially unlikely to acquire seats on a target company headquartered in an OECD country (7.4% of cases). Furthermore, when non-Norwegian

funds do acquire board seats, they are more likely to nominate representative from fund subsidiaries than from the main fund itself, and this propensity is strikingly higher when acquiring a seat on a foreign (especially OECD) company's board.

Cross-sectional analyses of the initial market reaction to SWF announcements reveals that excess returns are significantly more positive for investments by Norway's fund (after controlling for the size of stake purchased), for investments by funds with high Truman governance scores, for larger stakes acquired, for foreign investments, and when the investment is a capital infusion into the target firm. Excess returns are significantly more negative for investments in OECD countries, for direct investments by the main SWF rather than by a subsidiary, and for funds with high Truman scores for accountability. Regression analyses of the longer-term post-acquisition excess returns shows target performance is related to fund characteristics and to the level of involvement of the SWF. In particular, underperformance is more severe for acquisitions involving larger stakes and when the SWF acquires a seat on the board of directors. Also, performance tends to further deteriorate when the SWF invests directly, rather than through an investment vehicle or subsidiary. The negative impact associated with larger stakes points to the fact that SWFs do not create value through monitoring, and may even exacerbate conflicts between managers and minority shareholders by freeing managers from effective oversight. We also find that the underperformance is most severe when the target headquarters are located in a country different from the country of origin of the SWF. Our analysis of post-investment performance using accounting variables validates the event-study findings of poor long-term performance following SWF investment. These results are consistent with our Constrained Foreign Investor Hypothesis, which predicts that SWFs should be especially reluctant to "interfere" in target firm management of foreign companies by demanding high performance or by holding managers to account.

This manuscript is structured as follows. Section 1 develops our Constrained Foreign Investor Hypothesis and lists testable predictions. Section 2 describes the evolution of sovereign wealth funds from small stabilization funds to their emergence as major player in global financial markets, and describes the funds we analyze in this study. Section 3 surveys the academic and professional literature on sovereign wealth funds and positions our work in this research stream. Section 4 describes the database of listed company targets we create for this study, and describes the investment patterns exhibited by SWFs, individually and collectively. Section 5 presents our short and long-term event-study analyses of market reactions at the announcement of and subsequent to listed-firm investments by SWFs, while section 6 presents our board of director data and analyses. The results of regression analyses of the announcement-period and long-run returns are presented in section 7, as are the results of several robustness tests of our key findings. Section 8 presents results related to operating performance while section 9 concludes.

1. The Constrained Foreign Investor Hypothesis

The seminal papers of Shleifer and Vishny (1986) and Stulz (1988), hypothesize that large shareholders (blockholders) have the proper incentives to monitor portfolio firm managers and the capability to intervene decisively to punish or replace poorly performing executives. These studies have been very well received by the academic community, and are widely cited, but empirical evidence on the topic has always been mixed. One strand of the large-shareholder literature focuses on pension funds and finds that they are not good monitors, and appear to achieve only marginal success when engaging in active governance. Explanations for this “non-performance puzzle” have been put forth by Woitdke (2002), Parrino, Sias, and Starks (2003), Davis and Kim (2007), Becht, Franks, Mayer, and Rossi (2009), and Cronqvist and Fahlenbrach (2009). On the other hand, a second strand of the literature focusing on a different class of large, institutional investors finds that hedge funds have often been successful at improving governance of the firms in which they invest [Brav, Jiang, Partnoy and Thomas (2008), Klein and Zur (2009), Ferreira and Matos (2008), Ferreira, Massa and Matos (2008) and Cronqvist and Fahlenbrach (2009)]. The two apparently conflicting set of results have been reconciled by Chen, Harford and Li (2007), who predict that not all large shareholders will be good monitors and attempt to identify distinguishing characteristics.

Building on the work on Chen, Harford and Li (2007), we identify a new class of investors we predict are unlikely to exercise proper monitoring and to positively impact corporate governance of investment targets: constrained foreign investors. We conjecture that foreign investors, especially high profile ones such as foreign government and government-related entities, will be afraid of taking an active governance role in order to not generate political opposition or regulatory backlash. In addition, the monitoring role of such foreign investors will be further reduced by their reluctance to divest, as the selling of a large block of shares could also trigger resentment amongst local management, regulators and market participants. Accordingly, we expect ‘constrained foreign investors’ to be unlikely even to exercise the type of governance through threat of exit discussed by Parrino, Sias, and Starks (2003) and Admati and Pfleiderer (2009), or to withhold their votes as a sign of displeasure with current managers [Del Guericco, Seery, and Woitdke (2008)], for fear of upsetting target-firms governments and public opinion. As purely state-owned investment vehicles, from generally less than perfectly democratic societies, with few exceptions, SWFs should be among the most constrained of all investors.

Our testable hypotheses are as follows. We expect targets of cross-border investments by SWFs to underperform, compared to their peers, both in terms of operating and stock-market metrics. We expect the degree of underperformance to be directly related to the size of the stake acquired by the SWF, as the lack of monitoring becomes more pernicious the larger the block of shares, as it effectively reduces the ability of other eventual blockholders to exercise proper governance by giving a ‘blank check’ to

management. For similar reasons, we expect the degree of underperformance to worsen if the SWF acquires one or more seats on the board of directors. We also expect the lack of monitoring to be even more likely in direct investments by SWFs, rather than in investments by SWF subsidiaries, as anecdotal evidence suggests SWFs often utilize subsidiaries for active investments as those are less likely to elicit a negative foreign response than the more recognizable parent SWFs. Finally, we expect these constraints to be less binding for SWFs based in what are considered to be less hostile countries; accordingly, we expect the long-run performance of investment targets of the Norwegian SWF to be better and that of targets of Middle-Eastern SWFs to be the worst. All of these predictions are fully or partially supported by our empirical findings, presented in sections 5-7 below.

Our contribution thus relates to two strands of corporate finance literature. First, we add to the large-shareholders and governance literature by showing that constrained foreign investors are likely to have a negative impact on the governance of target firms. Second, we contribute to the growing literature on state capitalism by offering evidence that equity investments by governments are unlikely to yield the benefits traditionally associated with large blockholders.

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

Though several government-owned investment funds have operated for decades, the descriptive term “sovereign wealth fund” was, as noted above, coined only recently [Rozanov (2005)]. Previously, these funds were usually classified as ‘stabilization funds’. While SWFs are a heterogeneous group, most evolved from funds set up by governments whose revenue streams were dependent on the value of one underlying commodity and thus wished to diversify 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 and most important—including the Arab Gulf countries, the ex-Soviet republics, Brunei and Norway. Other sources of funding include earnings from exporting diamonds, copper, and other raw materials in a few African and South American countries. The second important group of SWFs includes those that have been financed out of accumulated foreign currency reserves resulting from persistent and large net exports, especially of the funds based in Singapore, Korea, China, and other East-Asian exporters.

Nonetheless, there is no real consensus on exactly what constitutes a sovereign wealth fund. Because definitions vary and because few organizational details have been disclosed by these funds, estimates of the total value of assets under management can vary widely. This also, inevitably, leads to very heterogeneous funds being grouped into the SWF category, even though there are significant differences between funds with respect to organizational structure (separately-incorporated holding companies versus pure state ministries), investment objectives (preservation of wealth versus wealth

diversification and growth), compensation policies and status of fund managers (incentivized professionals versus fixed-wage bureaucrat), and degree of financial transparency (Norway's Pension Fund-Global versus almost everyone else).

In recent years, a combination of trends has led to a very rapid accumulation of reserves in export surplus countries, and thus in their sovereign funds. The most relevant trends include rising oil prices, but also rising prices for other raw materials (often attributed to China's rapid economic growth) and the negative balance of payments of Western countries, especially the United States, which has inflated the currency reserves of net exporters--particularly their dollar-denominated reserves. Rising 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, though investors all over the world still demonstrate a pronounced, but weakening, home bias [Chan, Covrig, and Ng (2005)]. 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.¹

By reliable estimates, SWFs managed over US\$3 trillion of assets in early 2008, with an authoritative estimate by International Financial Services London [Willman (2008)] giving a figure of \$3.3 trillion. Today's asset value is significantly lower as a result of the sharp decline in global asset values that began with Bears Stearns near-collapse in March 2008 and accelerated following Lehman Brothers' bankruptcy six months later. Table 1 presents our list of sovereign wealth funds, along with estimates of their size in early 2010, their inception dates, the principal source of their funding, their disclosed investment allocations regarding asset classes and geographic regions. This table is based on a more comprehensive description of SWF organization, investment strategy, and mission presented in Barbary (2010). Table 1 shows total assets for all SWFs of \$2.217 trillion, with oil and gas-financed SWFs managing total assets of \$1.467 trillion and non-oil SWFs managing assets worth \$750 billion.²

***** Insert Table 1 about here*****

¹ Our sample shows clearly that SWF investments surged after 2001, and grew especially rapidly from 2005 until the summer of 2008, when oil prices peaked. After the second quarter of 2008, however, investments by SWFs fell sharply, and investments in western listed companies essentially ceased for more than a year [Monitor Group-Fondazione Eni Enrico Mattei (2009)]. In many cases, this was because SWFs were being asked to rescue local financial systems or to ease other domestic economic problems [Wigglesworth (2010)].

² The Sovereign Wealth Fund Institute, which uses a more inclusive definition of SWFs and tracks 50 funds, gives their total size as \$3.809 trillion as of December 2009 (<http://www.swfinstitute.org/funds.php>). On the other hand, Grene (2009) cites studies showing that SWF assets under management shrank to around \$3.0 trillion by late 2008 and that SWFs have not more than \$1.0 trillion invested in global equities.

There is significant 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 the pool of assets managed by SWFs could reach US\$12 trillion by 2015 [Jen (2007)], though he scaled back his forecast of SWFs' growth dramatically--to \$9.7 trillion by 2015--in November 2008, to reflect the impact of sharply lower asset valuations and declining oil prices [Jen and Andreopoulos (2008)]. Kern (2009) predicts less rapid, though still substantial growth in SWF assets under management, and predicts these will more than double to \$7 trillion by 2015.³

While SWFs were formed with a wide range of objectives and investment strategies, until 2005 these funds as a group tended to invest very conservatively, tended to invest close to home, and tended to invest in emerging economies. Beginning that year, SWF investment patterns shifted both in terms of overall volume of equity investment and in terms of target geography, with far more emphasis on OECD transactions. As a result, the SWF debate gained steam after 2005 as these mostly Asian and Middle Eastern funds executed a number of high-profile deals involving iconic Western companies. SWFs surged to financial prominence during late 2007 and early 2008 when several Asian and Persian Gulf-based SWFs purchased some \$63 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.

3. Literature Review of Research on Sovereign Wealth Funds

After a slow start, there has been a recent surge in academic studies analyzing sovereign wealth funds. Besides ours, there are now seven major competing SWF empirical studies, which can be classified into two groups: those which employ event study methodology to examine the short and long-term valuation impact of SWF investments, and those which employ other methodologies to assess the valuation impacts of SWF investments--such as examining evolutions in Tobin's Q or changes in accounting variables over time. We refer to these approaches as "Event study valuation measures" and

³ In addition to estimates of SWF asset growth being curtailed, it has also been reported that some of the earlier estimates of current SWF size were overstated. For example, a *Wall Street Journal* article from May 20, 2009 [Davis (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 public fact base on ADIA's portfolio. To the surprise of many, ADIA actually published a 36-page 2009 Review of fund operations on March 15, 2010, and this report disclosed much information about investment strategy and allocations (across asset classes and geographic regions). The report did not, however disclose the most important unknown data item, assets under management. Published reports also indicate that ADIA is pursuing an ambitious strategy of industrial diversification aimed at turning Abu Dhabi into a major global manufacturing and technology center [England and Kerr (2009)].

“Indirect valuation measures” and survey them in sections 3.1 and 3.2, respectively. We summarize these studies and describe what we believe are the distinctive contributions of our study in section 3.3.

3.1. SWF empirical studies employing event study valuation measure tests

Dewenter, Han, and Malatesta (2009) analyze the impact of SWF investments on target firms and provide evidence consistent with the tradeoff between the monitoring and lobbying benefits of SWFs as corporate monitors versus the tunneling and expropriation costs SWFs can impose as large-bloc shareholders. Using a sample of 227 SWF equity purchases and 47 divestments from January 1996 through April 2008, they document significantly positive abnormal returns for SWF investments [CAR (-1,+1) = 1.5%], and significantly negative ARs for divestments [CAR (-1,+1) = -1.4%]. Post-investment average long-run excess returns are insignificant and close to zero for holding periods up to five years, but median long-run excess returns are significantly negative over one year and consistently negative over all holding periods. They perform numerous regression analyses of the initial and long-run returns using deal-, SWF-, and country-specific explanatory variables, but find few significant results (other than transaction size) in their cross-sectional analyses. The authors also find that SWFs are active investors, with slightly more than half of all target firms experiencing at least one event indicative of SWF monitoring or influence—which they define as assumption of a board seat by a SWF representative, announcement of a business deal between the target firm and the SWF, or disclosure of a regulatory ruling affecting the target firm soon after SWF investment. They find that SWFs acquire board seats 15% of the time overall, but in 28% of domestic investments.

Kotter and Lel (2009) examine the investment strategies and performance of SWFs and ask whether they are friends or foes for target firms—do they create value through their investments? They analyze 417 investments made by SWFs into 326 separate publicly traded companies over the period 1980 through February 2009. They find that SWFs tend to invest in financially distressed, cash constrained, large and multinational companies with poor performance, and document that SWF investments are associated with significantly positive announcement period excess returns averaging 2.25% for (-1,+1). These investments yield significantly negative excess long-run returns for a one-year holding period, and insignificantly negative excess returns (ERs) over holding periods up to three years—then significantly positive ER for a five-year holding period. The median long-run excess returns are negative over all holding periods. Cross-sectional analyses indicate excess returns are significantly higher for more visible targets (measured by press coverage), for financially distressed companies, and for more opaque firms that are covered by few analysts. The regressions offer contradictory evidence regarding a perceived corporate governance role for SWFs: excess returns are positively related to the stake acquired (median of 5%), suggesting a positive monitoring role, but country-specific corporate governance

measures are insignificant, casting doubt on the idea that SWFs are perceived as likely to become effective monitors. Accounting measures of performance reveal no significant changes in target firm profitability, growth, investment, or corporate governance during the three years after SWF investment, compared to matching firms. In general, the authors conclude that SWFs have investment track records similar to other institutional investors, in that they yield no lasting, significant improvement in the performance of the target firms in which they invest—but neither do they inflict material harm on targets.

Although SWFs are not the principal focus of their study, Karolyi and Liao (2009) examine whether government-owned companies make fundamentally different types of cross-border acquisitions than do private firms. They study the motives for and consequences of 5,317 failed and completed cross-border acquisitions by state-controlled entities between 1990 and December 2008, and benchmark these acquisitions at both the country and deal levels with 150,379 cross-border acquisitions by private companies over the same period. They find that median excess returns [CMAR (-1,+1)] for cross-border deals by corporate acquirers are 5.8% for those seeking majority stakes and 1.4% for minority stake bids, compared to 2.1% and 1.0% for state-owned acquirers seeking majority and minority stakes, respectively. Essentially as a robustness check, they also compare cross-border acquisitions by SWFs to other state-backed deals and to private acquisitions, and find that SWF acquisitions yield target abnormal stock returns that are significantly worse than other state-owned bidders, and much worse than private sector bidders. The 181 SWF acquisition attempts have significantly lower announcement-period excess returns [CMAR (-1,+1) = 0.88%] than do non-SWF bids [CMAR (-1,+1) = 1.32%], despite the fact that they target the largest firms. SWFs account for barely three percent (181 of 5,317) of all state-led bids by number, but these represent almost one-quarter of their overall value.

Knill, Lee, and Mauck (2009) take a somewhat different empirical tack than do the other studies surveyed here, and principally examine whether SWF investments stabilize or destabilize trading in both the target firms' shares and the targets' home stock markets after the SWF deal is announced. Using a sample of 232 SWF investment announcements made through February 2008, they find that total, systematic, and idiosyncratic risks are not compensated for at the same level after SWF investments as they are prior to announcement of these deals. The authors document a significantly positive announcement-period abnormal return [CAR (-1,0) = 1.43%], followed by significantly negative one-year abnormal returns [BHAR (+1,+240) = -6.3%] after the investments. Somewhat surprisingly, they find that transparent SWFs are associated with more negative long-run excess returns than are non-transparent funds and that financial targets have better long-run returns than non-financial targets. Less surprisingly, they show that SWFs funded by oil revenues are associated with worse long-run excess returns than are non-oil funds. These results lead them to conclude that a SWF's domicile nation is more important than the disclosure level of the firm in determining long-run excess returns. Overall, the authors find that SWF

investment is associated with a significant reduction in return, a marginally significant reduction in firm volatility, and a significant reduction in the overall market return, and thus conclude that SWF investments are destabilizing.

3.2. SWF empirical studies employing indirect valuation measures

The first two studies detailed below use indirect measures such as Tobin's Q, rather than event study methodologies, to determine whether value is created or destroyed by SWF investments. The principal objective of the third study, Chhaochharia and Leuven (2009), is to examine the determinants of SWF investment allocations, rather than test whether these funds are value-creating investors.

Bernstein, Lerner, and Schoar (2009) examine sovereign wealth funds as private equity investors and study the investment strategies across SWFs and compare these to the funds' organizational structure. The authors construct a sample of 2,662 investments by 29 SWFs from 1984-2007 that includes acquisitions, private equity investments, and structured minority equity purchases. Only 20% of these observations involve investments in listed companies, and 24% of all the deals have politicians involved in the SWF's decision-making process. They find that SWFs seem to engage in a form of trend chasing, since they are more likely to invest at home when equity prices are higher and invest abroad when foreign prices are higher. Where politicians are actively involved in setting SWF investment policies, the funds have a much higher likelihood of investing at home than abroad, and this influence reduces the funds' performance. The study's most clear-cut finding for our purposes results from a robustness test, where the authors examine whether 538 publicly traded SWF target firms experience positive or negative market-adjusted abnormal returns over a six-month holding period after SWF investments. They document a significant negative market adjusted abnormal return for the full sample of all targets and for the sub-sample of domestic investments.

The study by Fernandes (2009) differs most dramatically from all other SWF studies both in its methodology and its findings. The author employs a sample of some 8,000 SWF holdings in 58 countries over 2002-2007 to examine how operating and financial performance changes following a fund's investment. He estimates target firms' Tobin's Q using variables such as size, growth opportunities, leverage, cash holdings, cross-listing, and median Tobin's Q for the target's industry worldwide and finds a coefficient of 0.31 of the SWF dummy variable, suggesting that a SWF investment yields a 17% improvement from the overall sample Q of 1.70. He also finds significant improvements in target firms' ROA, ROE, and net profit margin after SWF investment. Not surprisingly, given these results, he concludes that SWFs create tremendous value in target firms, though he never discusses the mechanism by which SWFs achieve these transformations and presents no explanation of how these gains can be

achieved in one year by funds making very small (average stake purchased < 1%), inherently passive investments in huge public firms.

Finally, Chhaochharia and Leuven (2009) focus on examining how and why SWFs make their investment allocation decisions. They collect and analyze a large (almost 30,000 observations) sample of equity investments made by four SWFs (Norway's Government Pension Fund Global, the National Pension Reserve Fund of Ireland, the Alaska Permanent Fund, and the New Zealand Superannuation Fund) between 1998 and 2007, and determine that these funds tend to invest in countries with common cultural traits—especially religion. While other institutional investors demonstrate a similar tendency to “invest in the familiar,” this home bias is especially pronounced for the four SWFs examined in this study than it is for the comparator groups of global investors, private institutional investors, and public institutional investors they also study. The authors document that SWFs concentrate their investments in developed markets—especially the United States and United Kingdom—and also in financial firms, but under-invest in private equity, oil and gas companies, and in unethical industries.

Besides the academic studies surveyed above, several recent descriptive papers by the Monitor Group [Miracky, Dyer, Fisher, Goldner, Lagarde, and Piedrahita (2008), Miracky, Dryer, Fisher, Barbary, and Chen (2008), and Monitor Group-Fondazione Eni Enrico Mattei (2009)], the European Central Bank [Beck and Fidora (2008)], and Subacchi (2008) also assess the rise of SWFs. Butt, 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. Clark and Monk (2009) survey the asset managers used by SWFs and assess how they perform their fiduciary duties, while Balding (2008) offers a portfolio analysis of several of the largest SWFs, and insightfully discusses how difficult accurately categorizing SWFs can be.

3.3. Summary of existing SWF research and contrasts with our study

Most of the studies cited above, with the extreme exception of Fernandes (2009), present valuation results quite similar to what we document: that SWF investments in publicly traded companies yield significantly positive announcement period abnormal returns, followed by negative long-run returns over one, two, and three-year holding periods. We differ in that we employ a much larger sample of investments (including equity purchases by the Norwegian SWF), employ both matched-firm and market-adjusted excess return generating models, and find consistently more negative long-run excess returns than do the major competitive models. These results are supported by extensive cross-sectional analyses of abnormal returns and analyses of the frequency and type of board of director seat acquisitions by SWFs after their investment, which are not performed by most other studies. Most other empirical studies—

except Fernandes (2009) and Dewenter, Han, and Malatesta (2010)—also agree with our conclusion that SWFs do not create value in their role as corporate monitors. However, we uniquely provide a rationale for SWF ineffectiveness by articulating our Constrained Foreign Investor Hypothesis and presenting evidence showing that SWFs are prevented by political and organizational constraints from exercising a greater corporate governance role in investee firms, particularly targets in Europe and the United States.

4. Data and Sample Construction

As noted above, the term “sovereign wealth fund” was coined only five years ago, 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 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 impressive total value of “sovereign wealth.”⁵

In this study, we employ the selection criteria presented 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 emirati 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 second-largest SWF), the Investment Corporation of Dubai (and its

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 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 identify over 2,500 investments, worth \$2.5 trillion, just in listed-firm stocks by state-owned investment companies, stabilization funds, commercial and development banks, pension funds, and state-owned enterprises. Add to those state purchases of government and corporate bonds, plus SWF holdings and foreign exchange reserves of roughly \$8 trillion, and the total value of state-owned financial assets may already exceed \$15 trillion.

subsidiary Istithmar World), Mubadala Development Company, DIFC Investments (Company) LLC, the International Petroleum Investment Corporation (IPIC), and Ras Al Khaimah Investment Authority. Finally, we include Norway's Government Pension Fund-Global, as the Norwegian government itself considers this a SWF and because it is financed through oil revenues rather than through contributions by pensioners. These criteria yield a sample of 33 sovereign wealth funds from 23 countries.

We draw our sample of SWF investments in listed firms in two ways. We collect a preliminary sample of 1,347 sovereign wealth fund investments made by any of the 32 SWFs other than Norway's Government Pension Fund-Global (GPF) 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 funds between May 1985 and November 2009. This sample includes investments in listed equity, unlisted equity, commercial real estate, private equity funds and joint ventures in which one of the SWFs listed in Table 1 (or one of its subsidiaries) is an investor. 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).⁶ From this, we identify a sample of 399 investments in firms with publicly-traded stock by SWFs other than Norway's GPF.⁷

We must employ an entirely different methodology to collect a sample of investments by Norway's SWF. Since this fund--which is described and analyzed in Caner and Grennes (2009) and Ang, Goetzmann, and Schaefer (2009)--always accumulates small stakes in listed companies through open market share purchases, its investments are rarely documented in the press and are almost never recorded as direct share acquisitions by SDC or Zephyr, which is why most of the other SWF empirical studies have no observations for GPF. The Norwegian fund does, however, post annual listing of all its equity holdings around the world, and we exploit this fact to develop a large sample of GPF investment observations. Investments in U.S.-listed stocks made by Norges Bank Investment Management (NBIM), the asset management arm of the GPF, are publicly disclosed on a quarterly basis beginning in the fourth quarter of 2006. With this knowledge, we generate a list of new GPF investments in U.S.-listed companies by tracking the annual investment lists and determining when GPF makes an initial

⁶ Detailed information about the Monitor-FEEM SWF Transaction Database is provided in Monitor Group-Fondazione Eni Enrico Mattei (2009), available at www.monitor.com and www.feem.it. This database is updated continuously and the managing parties publish quarterly and annual reports on SWF investments.

⁷ In more detail, we select all investments from our database in which the investing entity is either a Sovereign Wealth Fund, a Sovereign Wealth Fund investment vehicle (for example, we classify Central Huijin Investment Corporation as an investment vehicle of China Investment Corporation) or a subsidiary that is majority-owned by the SWF. In addition, we keep only transactions for which Datastream includes listed common stock.

investment (through NBIM)—which we define as an investment that did not appear in the previous year’s listing. We then follow MBIM’s holdings after the initial investment and record increases in their holdings as follow-on investments.

As is commonly done in the empirical corporate finance literature, we take the filing date—the day when NBIM files a Form 13F-HR with the U.S. SEC detailing its shareholdings in a listed firm—as the announcement date for performing event studies, since this is the date that the stock ownership information is first disclosed. Similarly, while the filing does not contain an exact date on which the investment is transacted, it does identify the end-day of the quarter during which the transaction took place. We use this end-date as our ‘completion date’ for the transaction. While we recognize this is an approximation, we note that the completion date is used only in long-run event studies, where this approximation should not have a strong impact, given the long horizons we investigate and, if anything, is likely to make our results more conservative. We find 160 initial and 243 follow-on investments by NBIM from December 31, 2006 through September 30, 2009. Since we identified no other country that mandates such disclosure, we have this data only for U.S. listed firm investments by Norway’s GPF (acting through NBIM). Combining the 403 Norwegian fund’s investments with the 399 obtained from the Monitor-FEEM Database yields our final sample of 802 SWF investments in listed companies, collectively worth \$181.6 billion.

4.1. Sovereign Wealth Fund Investment Observations by Year, 1985-2009

Panel A of Table 2 details SWF investments in publicly traded firms by year from May 1985 through November 2009. Very few investments were made in any single year prior to 2001, and 2003 was the first year the total value of investments exceeded \$1 billion. From that point onward, however, the number and total value of SWF investments surged—reaching a peak of 340 investments worth \$61.3 billion during 2008. Though the number of investments dropped sharply during the first eleven months of 2009, to 50 deals, the decline in total value was less dramatic, to \$29.3 billion.

***** Insert Table 2 about here*****

4.2. Observations by Fund

Panel B of Table 2 describes the number and total value of investments by individual SWFs. All the deals by the main fund and its subsidiaries are included in the main fund’s totals. While Norway’s Global Pension Fund-Global made by far the largest number of investments in listed stocks, these were on average quite small in value (\$12 million) and the total value is a modest \$4.76 billion. Though we searched for investments by all 33 SWFs listed in Table 1, we collect usable observations of investments in listed firms made by 18 funds. All of the Norwegian investments are in U.S. listed stocks after the third

quarter of 2006, and four-fifths of these purchases are of stocks of companies headquartered in the United States. The second most active SWF investor, Temasek Holdings, made only one-third as many investments as Norway's GPF (132 versus 403), but the total value of these deals was nine times as large, \$42.4 billion, is the largest of any SWF. Singapore's Government Investment Corporation was the third most active stake acquirer in both number and value (79 investments, worth \$22.6 billion), while the China Investment Corporation ranked a mere seventh in terms of the number of investments (18), but second in overall value (\$38.9 billion). Other active investors include Khazanah Nasional Berhad (32 transactions, worth \$3.2 billion), Qatar Investment Authority (31 deals, worth \$15.3 billion), Kuwait Investment Authority (19 investments, worth \$13.2 billion), and Abu Dhabi Investment Authority (18 transactions, worth \$8.5 billion).

4.3. Industrial Distribution of Sovereign Wealth Fund Investments

Panel C of Table 2 details the industrial distribution of SWF investments in publicly traded firms. As is generally presumed to be the case, SWFs favor investing in companies in the financial industry over all others. The 136 investments in banking (77) and financial service (59) firms account for 16.6% of all deals, by number, but their combined value (\$98.6 billion) represents 54.3% of the value of all acquisitions. This preference for financial investments is, however, a fairly recent phenomenon; 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. Other significant target industries attracting SWF investments are real estate development and services and REITs (8.2% of deals, 28.4% of value), oil and gas producers (4.1% of deals, 3.8% of value), chemicals (3.0% of deals, 3.2% of value) and general industrials (1.2% of deals, 3.2% of value).

4.4. Target Countries for Sovereign Wealth Fund Investments

Panel D of Table 2 presents the geographic distribution of SWF investments in listed companies (by target country). The United States is easily the most popular target nation for SWFs, both in terms of number and total value invested, with 53.1% of the number (426 of 802) and 32.1% of the total value (\$58.3 billion of \$181.6 billion) of SWF investments being channeled to U.S.-headquartered companies. China is the second most popular target country in terms of both number and value, though most of the 43 deals worth \$32.0 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 [Dickie (2008)]. Singapore ranks third in number (39) but only sixth in value (\$10.9 billion), whereas the United Kingdom ranks third in value (\$20.9 billion) but only sixth in number (28). The majority of all deals (560, or 69.8%) and value (\$120.2 billion, or 66.2%) of SWF

investments are targeted at OECD-headquartered companies, and foreign (cross-border) investments represent 90.2% of the number and 77.8% of the value of all SWF deals.

4.5. *Method of Acquiring Equity Stakes*

Finally, we examine how SWFs acquire the stakes they purchase in listed companies. We find that a majority of the investments that all SWFs (except Norway's) make in publicly traded companies are privately-negotiated, primary share offerings rather than open market share purchases. All of Norway's 403 investments are open market purchases of small stakes in listed firms, but that fund is unique in this respect. Excluding Norway, we identify the method of investment for 129 transactions, and 91 of these (70.5%) are direct purchases—and thus represent capital infusions for target firms—while only 38 (29.5%) are open market share purchases. In terms of purchase size, capital infusions are even more dominant, accounting for 88.2% of the \$92.1 billion worth of deals for which we can identify purchase method. To our knowledge, this method of acquiring equity stakes is unique to SWFs; pension funds, hedge funds, mutual funds and other types of internationally active institutional investors generally acquire stock through open-market purchases rather than by direct sales.

Mikkelson and Partch (1985), Lee (1997), and Hertzell, 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 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 generally purchase primary shares in privately-negotiated offerings directly from target firms supports the Constrained Foreign Investor Hypothesis and may also explain the significantly positive announcement period abnormal returns we document (in some regressions) in Section 7.

5. **Event Study Results**

We start our empirical analysis by presenting descriptive statistics for target firms prior to SWF investments, and by examining how selected characteristics of target firms compare to industry median values to gain insights into the process by which SWFs select investment targets. We then present results from a short-term announcement-period event study, in order to evaluate the market reaction to the public

disclosure of a SWF investment. We conclude this section by presenting the results of various long-run return studies, performed using multiple excess-return-generating techniques and versus multiple benchmarks. We then analyze the frequency with which SWFs assume seats on the board of directors of target firms in section 6, and then investigate cross sectional determinants of both the short-term market reaction and the long-term impact on target firms' performance in section 7. In section 8, we investigate the long-run impact of SWF investments on the operating performance of target firms.

We require various benchmarks to perform our analyses, such as industry median values employed in the pre-event comparisons and matched firms identified for use in our event studies. In order to compute the needed benchmark values, we identify a 'universe' of securities as a starting point. We do so by selecting all securities identified in *Datastream* as 'primary' and 'major', thus obtaining a list of securities associated with unique firms.⁸ We further restrict our sample to securities for which there is stock price data in *Datastream* at any point in time, both for economic (to make sure the security is publicly traded) and econometric reasons (as the lack of stock price data renders the security an unsuitable match for our event studies). Our universe thus selected contains 94,020 securities/firms.

In order to understand how SWFs select target firms, we first identify what we label the 'early year': the year preceding the earliest of either the announcement year (defined as the year during which the SWF transaction was announced) or the completion year (defined as the year during which the SWF transaction was completed). For each transaction we obtain various metrics from *Worldscope*, and these are defined in Table 3: *Book Value of Equity*, *Market Value*, *Market to Book Ratio*, *Total Assets*, *Debt Over Assets*, *Cash Over Total Assets*, *Quick Ratio*, *ROA*, *ROE*, *Tobin's Q* and *Dividend Yield* as of December 31 of the 'early year'. For each of our target firms, we obtain the country of incorporation (as identified by the *Market* variable in *Datastream*) and primary industrial sector (as defined by the FTSE Level 3 sector classification, also from *Datastream*).⁹ Using our universe of securities, we compute the median value for each of those variables for a sample including all publicly traded firms from the same country and industry as of December 31 of the early year. We then compare values of the variables of interest for our target firms to industry medians and use a Wilcoxon sign rank test to gauge the statistical significance of our analysis. In unreported analysis, we also employ a simple sign test and find results to be robust.

⁸ Only one security per firm is defined as 'major', and it generally is the largest market capitalization common stock issue of the firm; the 'primary' requirement further restricts our analysis to one security per firm, as *Datastream* treats the same security listed on different exchanges as multiple securities, yet identifies only one of those, the listing on the primary exchange, as 'primary'.

⁹ *Datastream* offers six different levels of industry and sector classification. Of those, we employ level 3 (recorded in a variable labeled *FTAG3*). 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.

**** Insert Table 3 about here ****

For our event studies, we compute both daily and monthly adjusted returns as the percent change in the total return index from *Datastream*.¹⁰ From here onwards, we refer to returns on the total return index associated with the primary and major common stock security of a target firm as ‘target firm returns’ or ‘target’s returns’. We extensively check the return series we thus obtain for possible data errors.¹¹ We do so by computing descriptive statistics, including the number of missing returns, the number of zero returns, the proportion of returns of magnitudes exceeding specific cutoff values, and other tests. While we do not formalize any mechanical rules for excluding securities, we manually examine each series with suspect observations and, when we find reason to doubt the accuracy of our data, we exclude that series from our analysis. We engage in this exercise for our target securities, local market indices and matched securities.

In our analysis, we employ both local market indices and matched firms as benchmarks. We use *Datastream* to obtain local market total return indices associated with the countries of incorporation of our target firms. Local market total return indices are available for all but 33 of our targets firms, as we are unable to obtain local market total returns indices for a handful of MENA countries, Bermuda, Vietnam and Luxembourg. While we exclude those securities in our reported event studies that employ local market indices as benchmarks, in unreported results we use regional total market return indices when local ones are unavailable, and find that our results are robust to this exclusion. Further, we find suspect data for the Indonesian total return index and decide to not employ the latter in our analysis; this leads us to exclude an additional 16 transactions from our local-market index adjusted event studies. In unreported results, we include those transactions and employ a regional total return index, again finding our results to be robust. Local market index returns are computed as the daily and, when required, monthly percent change¹² on the total returns index for the local total market index.

In conjunction with local market indices, we use both market-adjusted and market-model returns. Market adjusted returns are computed by subtracting the return on the related local market total return

¹⁰ The exact data item we use is the *Total Return Index* (RI). This is a daily closing price, adjusted for capital events such as stock splits and dividends, scaled so that the total return index on the first trading day is equal to 100.

¹¹ We notice various problems with data quality which appear to be recurring in *Datastream*. One such common mistake is the occasional multiplication of a total return index value by 10 or more. Another systematic problem appears in series associated with specific exchanges, where we find multiple instances of total return indices equal to zero; this problem seems to be particularly common for data associated with the Indonesian market and with OTC stocks from the United States.

¹² When computing cumulative abnormal and calendar time abnormal returns, we use monthly returns, as the distribution of those tends to be closer to normal, and as monthly returns moderate infrequent trading problems associated with some emerging market exchanges. In unreported robustness tests, we replicate our results with daily returns, and find our key findings to be robust.

index from the target's return. Market-model abnormal returns are computed by subtracting the expected monthly return obtained from a market model from the target's monthly return.

In computing matched-firm abnormal returns, we proceed as follows. We first identify matching firms to use as benchmarks in two different ways. In constructing our first matched sample, we first identify, for each transaction, all securities from our 'universe' which are traded as of the end of the year preceding the SWF investment and which are not, at any point of time, the target of SWF investments. We then select, for each transaction, all securities of firms that share the same country of incorporation as our target firm and which are listed on the same primary exchange.¹³ We then identify all securities with market capitalization within plus or minus 30% of the market capitalization of the target security. Among this sample, we select the security with the closest market to book ratio. We are able to find matched firms meeting our selection criteria for 685 of our transactions. We refer to this set of securities as 'size and book-to-market matched sample'. Our alternative matching procedure is identical up to the country and exchange matching. But among all securities with the same country and exchange, we select those from the same industrial sector (based on the FTSE Level 3 classification) and, among those, we pick the security with the closest stock market total return over the calendar year ending on December 31 of the year preceding the SWF investment. The set of 661 securities we identify in this way constitute our 'industry and performance matched sample'.

When using matched-firms as event study benchmarks, we compute abnormal returns as the difference between target security and matched security returns. When dealing with long-run returns, if our target firm is delisted prior to the end of the event study window, or if stock price data is otherwise unavailable, we keep only the abnormal return up to the date of delisting. If the matched firm is delisted, or stock price is otherwise unavailable, we instead use returns on the local stock market index, if available, or drop the observation pair if not.

For each benchmark, we compute buy and hold, cumulative and calendar time abnormal returns. In all cases, we report means and medians of the abnormal returns and the number of observations with positive and negative abnormal returns. For the short-term event studies, we report only cumulative abnormal returns, but we verify that results are robust to the use of compounded abnormal returns. To test the significance of those abnormal returns, we employ Patell's z -scores, as described by Patell (1976), and two nonparametric tests, the generalized sign and the Wilcoxon signed rank statistic. We are conscious of problems related to time clustering of events, as SWF investments have greatly increased in numbers over the recent years; accordingly, we employ the t -statistic obtained with the crude dependency adjustment

¹³ We find that a portion of the target firms in our sample have, as primary listing market, an exchange in a different country than the country of incorporation. Accordingly, we believe it is important to find matched firms that share both country of incorporation and primary exchange with our target firms. In unreported results, we relax this matching criterion (that is, we match on country but not on exchange) and find our results to be robust.

advocated by Brown and Warner (1985). We are also mindful of problems related to skewness of buy and hold abnormal returns, so when discussing the significance of the long-term abnormal buy and hold returns, we employ the bootstrapped, skewness adjusted t -statistic employed by Hall (1992) and which Lyon, Barber and Tsai (1999) find to be well specified, alongside the same nonparametric statistics used previously. When discussing long-run cumulative abnormal returns, we report the crude-dependency-adjusted t -statistic and the same two nonparametric tests. Finally, when testing the significance of the calendar-time abnormal return, we also employ one more adjustment for possible clustering in calendar time: a calendar-time t -statistic in the spirit of Jaffe (1974) and Mandelker (1974). Please note that, for compactness, for each test we only report the associated p -value and not the actual test statistic.

While in the short-term event studies we include all transactions, for the long-run event study we only include transactions which have been completed. We could not verify completion for 57 transactions in our database and thus exclude those from the long-term event studies and long-term cross-sectional regressions. When using time-series models or test statistics based on an estimation period we further require the security, and eventual match, to have at least one year of pre-event data, ending one month prior to the investment. We use up to two years of pre-event data to estimate return-generating parameters.

5.1. *Pre-Event Analyses*

We compute mean and median values of the pre-event sample's accounting metrics of interest and present these in Table 4. All of these are computed as of December 31 of the year prior to the SWF investment, as described in the previous section. When target firms are compared to industry medians as described in the previous section, we find that our firms are larger--median book value of equity is about \$890 million--and book value of equity exceeds the industry median in 87% of the cases. Median market cap is about \$2.3 billion, which is greater than industry median in 90% of the cases and total assets have a median of \$2.8 billion, which exceeds the industry median in 88% of all cases. Target firms in our sample also have higher valuations, with a median market to book ratio of 2.26, greater than industry medians in 66% of the cases. Our target firms have somewhat higher leverage, with median debt to assets at 62%, greater than industry median in 56% of all cases. Target firms also have significantly more short-term liquidity, as indicated by both *Cash Over Total Assets* and *Quick Ratio*, but these results are somewhat weaker. Target firms are generally more profitable, with median return on assets of 6.1%, which exceed industry medians in 70% of the cases. Median return on equity of targets is equal to 15.23%, higher than industry medians in 65% of all cases. Target firm Tobin's Q, with a median of 1.94, is also generally higher than industry medians and so is the dividend yield (median of 0.87%). Please note that median is higher than industry median in less than 50% of the cases (49.41%), but, in unreported robustness checks,

we still find a significant sign test due to the large number of observations for which dividend yield equals industry median. Overall, our analysis indicates that SWFs invest in large, highly levered, growing and profitable firms – likely, the most visible and high-profile growth firms.

****** Insert Table 4 about here ******

5.2. *Initial Market Reaction to SWF Investment Announcements*

We report short-term event study results in Table 5, where we present market adjusted returns obtained by using a local price index as a benchmark. Our short-term event studies using local market benchmarks include a maximum of 688 observations. As reported in Panel A, the mean reaction is 1.25% over the three-day event window spanning days -1 to +1 (where day 0 is the day on which the SWF investment was announced). While the median is smaller (at 0.17%), the number of positive abnormal returns exceeds the number of negative ones (368 to 320), so both parametric and nonparametric test statistics are highly significant. Results are somewhat weaker when we include only day 0 in our analysis, and virtually identical when we consider the two-day window including days 0 and +1.

We further investigate short-term market reactions to SWF investments by excluding transactions by the Norwegian fund, GPF. We do this for two reasons, as we want to both make sure that our results are not driven by one fund, which alone constitutes over half of our sample, and since we believe the Norwegian SWF to have characteristics that are likely to lead to a different impact on the market. In particular, Norway's GPF has a higher level of transparency than any other fund, and has a reputation as a passive, responsible, and sophisticated investor. The fund also makes large numbers of very small investments in U.S.-listed firms. Panel B reports results obtained when excluding GPF observations. The mean cumulative abnormal return is much larger, ranging from 2.14% on day 0 to 2.91% over the three-day event window. In Panel C, we report results related to short-term market reaction to announcements of acquisitions solely by the Norwegian SWF. As the comparison between Panel A and Panel B results would suggest, we find that announcements of investments by GPF elicit almost no response on the markets. Mean cumulative abnormal return estimates range from 0.02% to 0.32%, while medians range from -2% to +2%, and most of the results are statistically insignificant.

While these event study results suggest that reactions to investments by Norway are much weaker than those to investments by SWFs originating from other countries, when analyzing cross-sectional determinants of SWF abnormal returns, we show that those differences are driven mostly by the fact that Norway's investments tend to be for much smaller stakes. Once adjusted for the size of the stake acquired, we find that Norway's investments actually elicit a stronger positive reaction than comparable stake investments by other SWFs.

In unreported results, we verify that our results are qualitatively similar when using a market model with a local market index benchmark or when employing matched-firm adjusted returns, where matches are obtained with either of the two methodologies previously described. We also obtain similar results when employing either of two global market index benchmarks, the *Datastream* total returns index for the whole world or the total return world index by MSCI. Overall, our results clearly indicate that the market reaction to SWF investments is positive. We now turn to long-run return tests to determine how these SWF investments perform over extended holding periods.

5.3. *Long-Term Stock Price Performance after SWF Investments*

We report four sets of long-term event study results in Tables 6 and 7. In each case, we focus on four different event windows, respectively spanning six months, one year, two years, and three years after the SWF investment. In Table 6, Panels A-C we present buy and hold abnormal returns when using local market adjusted or matched firm abnormal returns; we repeat the analysis with the same benchmarks excluding Norway's investments in Panels D-F of Table 6. Cumulative abnormal returns with the same sets of benchmarks are presented in Panels A-D of Table 7 and cumulative abnormal returns excluding Norway are again presented in Table 7, Panels E-H.

Results in Table 6, Panel A, indicate that market adjusted buy-and-hold abnormal returns are mostly negative: the mean is negative over the six-month, one-year, and two-year windows, ranging from -1.24% to -4.00%, but positive over the three year event window, at 3.72%. Medians are negative over all windows, peaking at -10.00% over the two-year event window, but most are statistically insignificant. Bootstrapped, skewness adjusted *t*-statistics are insignificant, while the Wilcoxon sign rank test indicates the negative returns are statistically significant at 1% over the 6-month, 1-year and 2-year windows.

****** Insert Table 6 about here ******

Results in Panel B are obtained by employing a size and book-to-market matching methodology as previously described. Mean abnormal returns range from -1.67% over six months to -11.83% over three years. Medians are somewhat stronger, with -2.86% over six months and -10.57% over three years, but reaching the largest magnitude at -14.71% over two years. Statistical significance is also fairly weak, with nonparametric tests marginally significant at the one and two-year horizons, and skewness adjusted *t*-statistics statistically significant only at the 1-year horizon, at a 10% level.

Results in Panel C are obtained by employing industry and performance matches; mean abnormal returns are negative at the six-months (-3.06%), one-year (-6.22%) and two-year (-2.64%) horizons, but tiny and positive at the three-year horizon (+0.85%); medians follow a similar pattern. Bootstrapped, skewness adjusted *t*-statistics indicate significance at the six-months (10% level) and one-year (1% level) horizons, while all non-parametric tests are insignificant.

Results obtained excluding Norway are presented in Panels D-F of Table 6. For the sake of brevity, we will not extensively discuss those results, as they are qualitatively very similar. Means are somehow smaller, but medians are generally of greater magnitude, but overall patterns are very similar.

Long term event study results using monthly cumulative abnormal returns, presented in Table 7, appear to differ more according to which benchmark is employed. Local market index adjusted returns, in Panel A, display negative means over the six-months, one-year and two-year windows, ranging between -1.35% and -2.06%, but includes a large positive abnormal return of 7.82% over the two-year event window. Similar patterns are observed for the medians. While the calendar time *t*-test indicates negative significant abnormal returns over the one-year event window, the crude-dependency adjusted *t*-statistic and the nonparametric tests indicate significant positive abnormal performance over the two-year window. Calendar-time abnormal returns are negative over the six-months (-1.80%), one-year (-7.29%) and three-year (-0.65%) horizons, but positive at the two-year horizon (0.72%). Only the negative one-year calendar time abnormal return is statistically significant, at the 5% level.

****** Insert Table 7 about here ******

We also compute market-model abnormal returns and present those in Panel B. Market model abnormal returns, properly adjusting for the risk level of the target security, are consistently negative and strongly statistically significant, with means ranging from -7.99% over six-months to -56.39% over three years. Medians show a similar pattern of negative abnormal returns, ranging from -3.97% over six-months to -40.35% over three-years. Calendar time abnormal returns range from -11.05% over six-months to -59.62% over three-years. The extreme magnitude of the results, significantly greater than those obtained by using market adjusted or even matched firm abnormal returns, especially at horizons longer than one-year, does give us pause. We report the results, but note that, especially at long horizons, market model returns might be unreliable.

Matched firm abnormal returns, in Panels C and D, have negative means over all windows except over three-years, and always negative medians (over three-years, -3.86% with size and book-to-market matches and -7.83% with industry and performance matches). Calendar time abnormal returns are negative over almost all event windows and adjustment methods. The six-months, one-year and two-year windows are negative, and significantly so for all of the market-model and for at least one interval of all the other categories. About half of the nonparametric tests show significantly negative returns.

The same methodology is applied to results excluding Norway in Panels E-H of Table 7. Once more, for the sake of brevity, we do not discuss those results in detail, as they are very similar to those obtained when including Norwegian investments in our sample. We note, however, that most of the coefficient estimates are of slightly greater magnitude, but levels of significance are mostly unaffected due to the smaller sample sizes.

Though the magnitude of the underperformance varies across models and benchmarks, evidence of the log-run underperformance itself is fairly consistent, at least up to the two-year post-investment horizon. While we recognize that the abnormal returns computed by using the market-model differ greatly from those estimated using the matched-firm approach, both sets of results indicate some degree of underperformance. As previously noted, we put more faith in the results obtained by using the matched-firm approach, as do most recent papers on long-run event studies. We conclude that SWF investments underperform relative to local market indices and relative to matched firms, as predicted by the Constrained Foreign Investor Hypothesis.

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: for their sample of 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. As do 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. We 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 a lack of monitoring leading to increased agency costs between managers and outside shareholders. We try to distinguish between those two possibilities in the cross-sectional analyses discussed in section 7.

6. Do Sovereign Wealth Funds Obtain Board of Director Seats in Investee Companies?

To directly study the monitoring role—or lack thereof—exercised by SWFs, we collect board of director composition data for companies and examine whether sovereign funds acquire representation on the boards of directors of target firms in the years after the initial fund investment. Dewenter, Han, and Malatesta (2009) perform a similar analysis, and Saigol (2009) presents anecdotal evidence that some funds are demanding board seats. We begin with the full dataset of the 318 investments by SWFs, other than Norway's GPF, for which we have firm investment dates, amounts, and percent stakes acquired. We search for annual reports for the years following the SWF investment for all non-US investee companies (from the target firm's website) and examined proxy statements from the SEC's EDGAR database for US targets. We are able to determine the composition of corporate boards for 198 companies, including director profiles, and listed any director with an affiliation with an SWF or subsidiary as a representative of the fund who obtained their seat as a result of that fund's investment. The other 120 observations were unusable, because the investment was too recent to show up on statements on the target firm's website (30 cases), the investment was too early (usually before 2003) and a recent enough annual report was not listed on the target company's website (49 cases), or because no board of director profiles

were provided (41 cases). Amazingly, English-language reports were available for all except three companies. We add to this board seat data for 157 companies in which Norway's GPF made an initial investment between December 2006 and September 2009, yielding a usable sample of 355 observations.

We find that funds acquire seats in only 53 companies, or in only 14.9% of all cases, though this percentage rises to 26.8% when the 157 targets of Norway's fund are excluded—since the Norwegian fund always makes small investments and never receives a board seat. In 52 of the 198 non-Norwegian cases (25.6%), the investing SWF obtained one or more board seats (usually only one), and another six companies were acquired by the SWF—which presumably obtained a controlling number of seats, bringing the total to 58 of 203 cases (28.6%) where funds obtained board representation. This is almost twice the 15% of companies that Dewenter, Li, and Malatesta (2009) find give board seats to non-Norwegian SWFs (no investments by Norway's GPF are in their sample). In 145 cases, the fund did not obtain board representation within two years of investment (71.4%). Table 8 details the observations and lists how frequently individual funds and their subsidiaries obtain board seats, and aggregates the data for funds and their subsidiaries. Khazanah and Temasek obtained board seats far more frequently than did other funds, whereas ADIA, Kuwait Investment Authority, and Qatar Investment Authority rarely if ever did. Funds were much more likely to obtain seats following domestic (and regional) investments than for foreign investments—especially in OECD countries. Only 4 of the 37 usable US investments by non-Norwegian funds were followed by board seat acquisitions and *none* of the twelve UK deals resulted in board seats.

****** Insert Table 8 about here ******

Non-Norwegian SWFs are significantly more likely to acquire seats in domestic than in foreign companies (in 15.27% versus 10.35% of all cases), and are especially unlikely to acquire seats on a target company headquartered in an OECD country (7.4% of cases). Furthermore, when non-Norwegian funds do acquire board seats, they are more likely to nominate a representative from a fund subsidiary than from the main fund itself, and this propensity is strikingly higher when acquiring a seat on a foreign (especially OECD) company's board. These results suggest that SWFs are reluctant to exercise effective corporate governance over their foreign investments, but are much more willing to do so domestically.¹⁴ This is strongly supported by (unreported) supplemental analysis that examines seat acquisitions just by the main SWFs, rather than by both the funds and their subsidiaries. The difference between these findings and those for subsidiaries are striking. Main funds obtained board seats in only 32 of the 150 usable observations (21.3%), plus only 4 acquisitions (24.0% total) versus 22 board seat acquisitions and two

¹⁴ There is at least one other, practical reason why SWFs do not demand board seats more frequently: lack of staff. Johnson (2010) and Anderlini (2009) report that the largest and third largest SWFs, Norway's Global Pension Fund-Global and China Investment Corporation, have only 250 and 400 employees, respectively.

acquisitions out of 53 usable SWF-subsidary investments (41.5%). Subsidiaries are also much more likely to take seats in foreign deals than are the main funds. This suggests that SWFs deliberately and rationally choose to funnel controversial foreign investments through low-visibility subsidiaries rather than by investing directly using the main funds.

The results described above support the Constrained Foreign Investor Hypothesis. As state-owned investment funds from largely non-democratic countries, these funds are politically constrained from exercising effective discipline of target firm managements--especially in the United States, Britain, and continental Europe, where expressed hostility to SWFs was intense in 2006-08. This hypothesis explains the behavior of funds besides Norway's GPF (exercised through NBIM). That fund's behavior is better explained by the accumulated evidence that passive institutional investors create no value whatever in investee companies, since that fund never purchases more than 1% of outstanding shares and never takes any board seats.

7. Cross-Sectional Regression Analyses of Initial and Long-Run Abnormal Returns

In order to further investigate the determinants of the market reaction to announcements of investments by SWFs, we perform a series of cross-sectional regressions. For each regression, only observations with available data for all explanatory variables are used. The final number of observations employed in each market-reaction regression specification ranges from 239 to 244. The exact number of observations used in each regression is detailed in Table 9.

****** Insert Table 9 about here ******

In the first set of regressions, we use the three-day local market index-adjusted abnormal return as a response variable. As explanatory variables, we use the variables defined in Table 3 plus dummy variables set equal to one if the target firm is headquartered in an OECD country (the variable is labeled *OECD*), or in an emerging economy of the BRIC group (Brazil, Russian Federation, India and China; variable *BRIC*), as we assume market reactions might depend on country of location of the target. We further add a variable measuring the size of the stake purchased (*Stake*), to test whether market reaction depends on the proportion of the firm that was acquired, a binary variable equal to one if this particular transaction constitutes the first investment in a particular target by a particular SWF (*First Investment*) and a binary variable equal to one if the SWF investment is in a foreign company (*Foreign Target*). We further wish to control for the market value of the target firm (*Market Value*), its leverage (*Leverage*), proxied by debt-to-asset ratio, and its short-term solvency (*Quick Ratio*), all measured as of the end of the calendar year prior to the SWF investment. Further, we control for the fraction of closely held shares (*Closely Held*), as we assume there might be some supply-side effects that would be stronger the smaller the float of the firm, and for the degree of internationalization of the firm (proxied by the percentage of

sales that are based in foreign markets (*Foreign Sales*). We also identify direct investments with a dummy variable labeled *Direct Investment*, set equal to one if the investment is by the main SWF, rather than an investment vehicle or subsidiary, and a binary variable equal to one if the investment included a capital infusion in the target firm (*Capital Infusion*). Finally, we add three control variables measuring abnormal stock market returns over the one-month, six-month and one-year periods preceding investment, to control for possible momentum or reversal effects.

Aside from this common set of variables, we also wish to gain insights into which, if any, SWF characteristics determine the extent of the market reaction. Accordingly, we add to the described set of variables the Linaburg-Maduell Transparency Index (*LM*) for the investing SWF.¹⁵ In a second specification, we remove the Linaburg-Maduell Transparency Index and we instead add Truman's Total SWF score (*Truman Total*).¹⁶ In a third model, we substitute the disaggregated Truman scores, measuring the SWF structure, governance, accountability and transparency and behavior (respectively, *Truman Structure*, *Truman Governance*, *Truman Accountability* and *Truman Behavior*) for Truman's Total SWF score. In a fourth model, we remove all Truman's scores and add instead binary variables identifying Norway's SWF (*Norway*) and SWFs based in Middle-Eastern or North African countries (*MENA SWF*), leaving Asian SWFs as the omitted set. In a fifth and final specification, we remove these last two binary variables and add SWF fixed effects. All our regressions are estimated with year fixed effects and with standard errors clustered by target firm, to mitigate potential econometric problems caused by multiple investments in the same target firms.

7.1. Cross-Sectional Regression Analyses of Announcement-Period Abnormal Returns

The results we obtain for analyzing initial returns, presented in Table 9, are fairly robust across the five models. In terms of SWF characteristics, the *LM* and *Truman Total* scores appear to not be related to the market's reaction. On the other side, we find that the market reaction is significantly positive for funds with higher *Truman Governance* but significantly lower for funds with higher *Truman Accountability* (both results are significant at the 10% level), which we find puzzling. The market reaction appears to be strongly positive for Norway's investments (significant at 5%). This last result appears, at

¹⁵ The Linaburg-Maduell transparency index for Sovereign Wealth Funds has been developed by Carl Linaburg and Michael Maduell. The index values range from 1 to 10, with 10 indicating the highest level of transparency. Details on this index are available at: <http://www.swfinstitute.org/research/transparencyindex.php>.

¹⁶ Truman (2007, 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 (2007 and 2008) also scores SWFs on their level of accountability and transparency, structure, and behavior. The 'total' score is a simple average of the scores on governance, accountability and transparency, structure and behavior. Each of the disaggregated scores and the total score range from 0 to a 100, where 100 indicates the highest level.

first, to contradict our event study findings, as we have shown that the positive market reaction over the three-day event window surrounding announcements of SWF investments is much larger for non-Norway SWFs. Yet, this apparent puzzle is solved once we notice that the market reaction is strongly positively related to the size of the acquisition, which is generally very small for Norway's investments. Market reactions appear significantly negative for OECD targets (significant at 1% in four of the five tested models), possibly because the latter have access to more financing options, or perhaps because developed markets are more accurately predicting the negative long term impact of SWF investments. As anticipated, the size of the stake acquired is positively and significantly (in four of the five models) related to the market's reaction. The coefficient on *First Investment* is positive, as expected, but not statistically significant. The market's reaction is significantly more positive if the investment is in a foreign target; we hypothesize that might possibly be due to stronger coverage of foreign investments in the media. Market value of the target is negatively related to initial market reaction, but the result is not statistically significant. *Leverage* is similarly negatively related, while *Quick Ratio*, *Closely Held* and *Foreign Sales* all have positive coefficients, but since those coefficients are not statistically significant, we do not attempt to interpret or discuss those results. Direct investments by SWFs appear to elicit a more negative response (statistically significant in three of the five models) than investments through investment vehicles or subsidiaries. We attribute this to negative perceptions of SWFs and we find this result consistent with SWFs investing ever less directly. Finally, we observe that capital infusions lead to a stronger and statistically significant market reaction, as expected.

**** Insert Table 9 about here ****

7.2. *Cross-Sectional Regression Analyses of Long-Term Abnormal Returns*

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 long-run performance of investment targets. Accordingly, we utilize a second set of cross-sectional regressions to analyze the long-term returns earned by SWFs. Our event study results indicate that firms in which SWFs invest display negative abnormal returns over the following years. The worsening performance of SWF investment targets suggests that SWFs do not successfully monitor the actions of managers in target firms, as do at least some other large shareholders such as private pension funds and hedge funds. An alternative explanation is that SWFs, being relatively new international investors buffeted by political pressures, might simply have been poor stock pickers. In this section, we attempt to explore which of those explanations is correct.

In our regressions, we utilize the six-month, one-year, and two-year buy-and-hold abnormal returns obtained in the matched-firm event studies. In unreported results, we attempt to investigate the

determinants of the three-year abnormal performance as well, but the number of available observations with complete datasets (less than 40) is too small to obtain any meaningful coefficient estimates. Accordingly, we choose not to discuss or report three-year cross-sectional results, though they are available upon request. As in the previous regressions, we include the OECD and BRIC binary variables as explanatory variables, as we hypothesize that the impact of SWF investments might be related to the country where the target firm is located. As with the market-reaction cross-sectional analysis, all our regressions are estimated with year fixed effects and with standard errors clustered by target firm, to mitigate potential econometric problems caused by multiple investments in the same target firms. The final number of observations employed in each market-reaction regression specification ranges from 261 to 115. The exact number of observations used in each regression is detailed in Table 10.

****** Insert Table 10 about here ******

As in the cross-sectional analysis of market reaction, we include a variable measuring the stake acquired (*Stake*), as we expect a stronger impact the larger the stake purchased. We also include a binary variable equal to one if this particular transaction constitutes the first investment in a particular target by a particular SWF (*First Investment*). We keep the binary variable equal to one if the SWF investment is in a foreign target (*Foreign Target*), expecting a negative coefficient estimate if our Constrained Foreign Investor Hypothesis is correct. We further wish to control for the market value of the target firm (*Market Value*), its leverage (*Leverage*, proxied by debt-to-asset ratio) and its short-term solvency (*Quick Ratio*), all measured as of the end of the calendar year prior to the SWF investment. Further, we control for number of closely held shares (*Closely Held*), as we assume there might be some supply-side effects that would be stronger the smaller the float of the firm, and for the degree of internationalization of the firm (proxied by the percentage of sales that are based in foreign markets, *Foreign Sales*). We also identify direct investments with a dummy variable labeled *Direct Investment*, set equal to one if the investment is by the SWF (rather than an investment vehicle or subsidiary). We add a binary variable equal to one if the SWF takes at least one seat on the board of directors; we did not include this variable in the market reaction cross-sectional regressions as the seat assignment had almost never taken place at the time of the investment announcement. Finally, we add the three variables measuring abnormal stock market returns over the one-month, six-months and one-year preceding investment, to control for possible momentum or reversal effects. As in the market reaction regressions, we use the five different models to investigate fund-specific effects, including, respectively, the Linaburg-Maduell Transparency Index, Truman's total score, Truman's disaggregated scores, Norway and MENA dummy variables and SWF fixed effects.

Results are presented in Table 10. *LM* has a positive coefficient, but is not statistically significant. *Truman Total* is positive and significant at the six-month horizon, but positive and insignificant over one year and negative and insignificant over two. *Truman Structure* is negative and significant but *Truman*

Behavior is positive and significant. Norway's investments appear to perform better over all horizons, but the results are statistically significant only over six-month and one-year intervals, and the same is true for investments by MENA SWFs (significant over one and two years). In other words, the underperformance appears to be stronger for targets of Asian SWFs. Coefficients on the *BRIC* binary variable are unstable, but the *OECD* coefficient is negative and often statistically significant, indicating that OECD targets underperform--which is also consistent with the weaker market reaction to announcements of SWF investments in OECD targets. The *Stake* coefficient is generally positive but insignificant at the six-month horizon, but negative and significant at the one and two-year horizons. Similarly, the *Foreign Target* coefficient is negative at all horizons, and significantly so over the one and two-year windows. The coefficients on *Market Value* are negative and generally significant over one and two years, but positive and insignificant over two, indicating that larger firms suffer stronger underperformance, but only early on. The coefficient on *Closely Held* is always positive and statistically significant over the six-month and one-year windows, probably indicating that there is a premium for illiquidity and a supply-side effect due to SWF investments reducing the float. The coefficient on *Direct Investments* is generally positive and significant over six months, positive and insignificant over one year and negative and significant over two years. We interpret this as evidence of the fact that, at least in the long term, close involvement by the SWF leads to deteriorating firm performance. Finally, the coefficients on the board-of-directors binary variables are always negative and often significant, indicating that target firms in which SWFs take board of director seats perform worse.

Overall, the results of this cross-sectional analysis indicate that the long-term performance of SWFs cannot be simply explained by poor stock picking alone. Clearly, SWF characteristics matter in determining the abnormal long-run return and evidence indicates that the most severe underperformance is associated with the Asian SWFs. But the strong negative coefficients associated with the size of the stake acquired, with the foreign target binary variable and with board of director seat assignments all indicate more severe underperformance when SWFs are more closely involved, indicating that the latter fail to perform the monitoring role usually associated with large shareholders. SWFs appear to be poor monitors and their investments in companies do not lead to increased firm valuations. Overall, these findings strongly support our Constrained Foreign Investor Hypothesis.

8. Operating Performance

We conclude the empirical analysis of how SWF investments impact target firm performance by investigating the post-acquisition operating performance of targets using accounting variables. We focus on *Tobin's Q*, *Market to Book Ratio*, *Dividend Yield*, *ROA*, *ROE*, *Total Assets*, *Quick Ratio*, *Debt Over Assets* and *Cash Over Total Assets* as the key operating metrics, and use methodology similar to that

suggested by Barber and Lyon (1996). When investigating each operating metric, we find a matching firm for each observation from the same country and industry as the transaction target, and with the closest value of the variable of interest, as of December 31 of the year preceding the SWF investment. For each variable, for each target firm, we compute the change between the value as of December 31 of the year prior to the SWF investment to December 31 of the year of SWF investment ('year 0') and to December 31 of the subsequent three years ('year 1', 'year 2' and 'year 3', respectively). While we present results for year 0, we do not discuss those, as it is impossible to infer causality; that is, we do not know whether the change occurred prior to, or after, the SWF investment. We repeat the same procedure for our set of matched firms. We present mean, median and standard deviation of these changes. We then compute 'differences-in-differences' by subtracting the change in the variable of interest of the matched firm from the change in the variable of interest of the target firm. We investigate the significance of this difference-in-difference by both parametric (*t*-test) and nonparametric (Wilcoxon sign rank) tests.

Most of the variables examined show that SWF target firms perform quite poorly over multi-year holding periods after the initial investment. Although matching firms also show generally poor performance, the changes are often significantly worse for SWF targets. Panel A of Table 11 presents results for *Tobin's Q*, *Market-to-Book*, and *Dividend Yield*. Both target and matching firms have, on an average, declining *Tobin's Q* after SWF investments, but the average difference-in-difference is negative over all periods (targets perform worse than matches), and medians are negative for years 2 and 3. The difference-in-difference is significant worse for targets in year 2 for both parametric and nonparametric tests. A similar pattern is observed for *Market-to-Book* ratios, but results are significant as of the end of year 2 only in parametric tests. *Dividend Yield* appears to rise after investments for both target and matched firms. As of the end of year 1, the difference-in-difference is statistically significant in nonparametric tests and indicates that dividend yields of target firms rise faster than those of matches. However, the sign of the difference-in-difference changes across windows.

**** **Insert Table 11 about here** ****

Panel B of Table 7 presents results for *ROA*, *ROE*, and *Total Assets*. Ignoring year 0, which is difficult to interpret, *ROA* and *ROE* decline quite dramatically for both target and matching firms. Nevertheless, the difference-in-difference is mostly negative, especially at longer time horizons, and parametric tests indicate a significantly worse *ROE* performance for target firms as of the end of years 2 and 3. The evidence regarding *Total Assets* is mixed. Both target firms and matched firms appear to increase total assets fairly dramatically over all event-time windows, though analyzing means and medians yields somewhat differing results. The mean increase is greater for target firms for years 1 and 2 after investment, but higher for matched firms for year 3—and thus overall. Similarly, target firms have a much higher median asset growth in year 1 than do matched firms, but the latter have significantly higher

median growth in assets over years 2 and 2, and thus overall. The difference-in-difference in means is never significant but the Wilcoxon signed rank test for medians is highly significant for all periods. Given the high skewness of operating metrics, and of *Total Assets* in particular, we consider the medians to be more accurate metrics than means and accordingly interpret the results as indicating that, while total assets increase for both targets and matched-firms, this increase is smaller among our target firms.

Finally, Panel C of Table 7 presents results for the leverage and liquidity variables *Debt Over Assets*, *Quick Ratio*, and *Cash Over Total Assets*. *Debt Over Assets* decreases for target firms while it tends to increase for matching firms. The difference-in-difference is statistically significant in a *t*-test as of the end of year 2 (and highly significant as of the end of year 0, but, as previously discussed, we are unable to draw a causal link for year 0). *Quick Ratio* increases for targets, while the evidence for matches is mixed. Overall, the difference-in-difference is not statistically significant. Similarly, *Cash Over Total Assets* decreases for targets, while the evidence is mixed for matched firms; the difference-in-difference is not significant. Overall, the degree of leverage of our target firms appears to decline, while an increasing *Quick Ratio* indicates higher levels of solvency. This is consistent with lower *ROA* and *ROE*.

Overall, these results indicate that operating performance of SWF investment targets declines after the stake acquisition, though a similar if often smaller decline is also seen for matching companies. Given that the analysis of pre-event firm characteristics indicates that SWF investment targets had above-industry-median measures of operating performance, at least some of these changes can be accounted for by the well-known tendency of accounting variables to mean-revert. But since the decline in operating performance amongst target firms is stronger than amongst the matched sample--indicating that SWFs do not just poorly time their investments by buying into firms after a positive rally—we conclude that SWFs have a separate and negative impact on the operating performance of investee companies.

9. Conclusions

This study presents an empirical analysis of sovereign wealth fund investment patterns and performance. We list and describe the investment philosophies of the major funds, analyze their overall size, and discuss estimates of future growth. Using a broad sample of SWF investments in listed firm stocks we provide a comprehensive overview of SWF investment patterns by fund, by industry sector, and by geography. We 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. We also find that SWFs (except for Norway's Pension Fund-Global) generally buy equity stakes in listed companies by purchasing newly-issued stock directly from target companies in friendly transactions that exclude outside participation by existing shareholders. This feature suggests that SWFs become the allies of target-firm managers and are

thus 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, which is predicted by the Constrained Foreign Investor Hypothesis.

On average, the stocks of companies receiving SWF investments appreciate significantly, over the three-day window surrounding the purchase announcement, suggesting that investors welcome SWFs as shareholders. Despite the enthusiastic announcement period market reactions, evidence indicates that SWFs are associated with negative abnormal stock returns over one and two years following the initial SWF investment; our results are robust to the use of multiple benchmarks and event study methodologies. Median excess returns and returns excluding Norway are consistently more negative than are mean excess returns. We also investigate the impact of SWF investments on target-firm metrics of accounting and operating performance and find evidence consistent with our long-run event studies, although statistical significance of the performance results are fairly weak. Funds only rarely acquire board of director seats after their investments—acquiring board representation in only 53 companies, or in only 14.9% of all cases, though this percentage rises to 26.8% when the 198 targets of Norway’s fund are excluded. Non-Norwegian SWFs are significantly more likely to acquire seats in domestic than in foreign companies, and are especially unlikely to acquire seats on a target company headquartered in an OECD country.

In cross-sectional analysis, we find that the longer-term post-acquisition target performance is related to fund characteristics and to the SWF’s level of involvement. In particular, underperformance is more severe for acquisitions involving largest stakes and when the SWF acquires a seat on the board of directors. Also, performance tends to further deteriorate when the SWF invests directly, rather than through an investment vehicle or subsidiary. The negative impact associated with larger stakes points to the fact that SWFs not only do not create value through monitoring, but may exacerbate conflicts between managers and minority shareholders by freeing the former from effective oversight. These results are highly consistent with our Constrained Foreign Investor Hypothesis, which predicts that SWFs should be especially reluctant to “interfere” in target firm management by demanding high performance or by holding managers to account.

Finally, we recognize that SWFs are a very heterogeneous group. Our analysis indicates that the Norwegian SWF performs better than others, and that long-term underperformance appears to affect particularly the targets of investments by Asian SWFs.

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Table 1. Descriptive Data and Investment Strategies of the 33 Sovereign Wealth Funds (SWFs) in the Monitor-FEEM SWF Transaction Database

This table lists the 33 funds that meet the Monitor-FEEM definition of a SWF, and offers information regarding country of origin; fund name; the estimated fund size in US\$ billions as of March 23, 2010; the year in which the fund was established; the principal source of funding for the fund; the desired or actual asset allocations of each fund; and the geographic distribution of fund investments.

Country	Fund Name	Total Assets US\$Bn	Launch Year	Source of Funds	Asset Classes	Geographic Distribution of Investments
Norway	Government Pension Fund – Global ¹	458.2	1990	Commodity (Oil)	Equities and units (53.0%); Bonds and other fixed income (41.9%); Short-term loans, other assets (5.1%)	Europe (54%); Americas & Africa (35%); Asia/Oceania (11%)
UAE/Abu Dhabi	Abu Dhabi Investment Authority ²	395	1976	Commodity (Oil)	Developed Market Stocks (35-55%); Emerging Markets Stocks (10-20%); Government Bonds (10-20%); Real Estate (5-10%); credit (5-10%); Small-Cap Stocks (1-5%); Alternative Investments (5-10%); Private Equity (2-8%);	North America (35-50%); Europe (25-35%); Developed Asia (10-20%); Emerging Markets (15-25%)
China	China Investment Corporation ³	297.5	2007	Trade Surplus	Long-term equity investments (57.5%); Cash and bank deposits (16.5%); Money market funds (11.4%); Held-to-maturity investments (5.1%); Short-term notes (4.7%); Other assets (4.6%)	Domestic (≥50%); Global (≥50%)
Kuwait	Kuwait Investment Authority ⁴	295	1953	Commodity (Oil)	Equities (55-65%); Bonds (8-12%); Real Estate (8-12%); Alternative Investments (3-7%); Cash (3-7%)	United States & Europe [equal shares] (76-86%); Asia & Japan (13-17%); Emerging Markets (4-6%)
Singapore	Government of Singapore Investment Corporation ⁵	179	1981	Trade Surplus	Developed Market equities (28%); Nominal Bonds (19%); Real Estate (12%); Private Equity, VC & Infrastructure (11%); Developing market equity (10%); Cash (8%); Inflation-Linked Bonds (5%); Natural Resources (4%); Absolute Return Strategies (3%);	United States (38%); Other North & South America (7%); United Kingdom (6%); France (5%); Germany (4%); Other Europe (14%); Japan (11%); China, Hong Kong, S. Korea & Taiwan (10%); Other Asia (3%); Australasia (2%)
Singapore	Temasek Holdings ⁶	119.3	1974	Government-Linked Firmss	Unlisted Assets (28%); Listed Large bloc shares [≥20%] (38%); Other listed and liquid assets (34%)	Domestic (31%); North Asia (27%); ASEAN [Excl. Singapore] (9%); South Asia (7%); OECD (22%); Latin America & Others (4%)
Qatar	Qatar Investment Authority ⁷	70	2003	Commodity (Oil & Gas)	No information disclosed	No information disclosed
Libya	Libyan Investment Authority ⁸	52	2006	Commodity (Oil)	No information disclosed	No information disclosed
Australia	Australian Future Fund ⁹	49.16	2006	Commodity (Various)	Cash (36.5%); Debt securities (20.5%); Telstra holding (11.3%); Developed markets equity (11.9%); Australian equities (7.4%); Developing markets equity (2.8%); Private equity (2.0%); Property (1.2%); Infrastructure (1.9%); Alternative assets (4.4%);	No information disclosed
Russia	National Wealth Fund ¹⁰	33.99	2008	Commodity (Oil)	No information disclosed	No information disclosed
Brunei	Brunei Investment	30	1983	Commodity	No information disclosed	No information disclosed

	Agency			(Oil)		
Kazakhstan	Kazakhstan National Fund ¹¹	26.5	2000	Commodity (Oil)	No information disclosed	No information disclosed
Malaysia	Khazanah Nasional Berhad ¹²	25	1993	Government-Linked Comps	No information disclosed	No information disclosed
UAE-Abu Dhabi	Mubadala Development Company PJSC ¹³	21.6	2002	Commodity (Oil)	Insufficient information disclosed	United Arab Emirates (33%); Qatar (41%); Others (26%)
UAE-Dubai	Investment Corporation of Dubai ¹⁴	19.6	2006	Government-Linked Firms	Transportation companies (~40%); Financial companies (~20%); Industrial Companies (~20%); Real Estate Companies (~15%); Others (~5%)	Dubai (100%)
Republic of Korea	Korea Investment Corporation ¹⁵	17.8	2005	Trade Surplus	Government Bonds (34.1%); Stocks (28.3%); ABS (16.7%); Corporate Bonds (12.9%); Agency Bonds (7.4%); Cash & derivatives (3.4%);	No information disclosed
UAE-Abu Dhabi	International Petroleum Investment Company ¹⁶	14	1984	Commodity (Oil)	No information disclosed	No information disclosed
Bahrain	Mumtalakat Holding Company	14	2006	Government-Linked Firms	No information disclosed	No information disclosed
São Tomé & Príncipe	National Oil Account	12.2	2004	Commodity (Oil)	Insufficient information disclosed	No information disclosed
UAE/Dubai	Istithmar World	11.5	2003	Government-Linked Companies	Real Estate (60%); Equity & Venture Capital (40%)	North America (40%); Europe (20%); Middle East (25%); Asia Pacific (5%); Sub-Saharan Africa (5%); Latin America (5%)
Total, oil-based funds (US\$ billion)		\$1,466.6				
Total, non-oil based funds(US\$ bn)		750.3				
Total, all funds (US\$ billion)		\$2,216.9				

Notes: ¹ AUM as of December 30, 2009. Norges Bank website http://www.norges-bank.no/templates/article_41397.aspx. Government Pension Fund – Global Annual Report 2009. <http://www.norges-bank.no/upload/77444/q3%2009%20report.pdf>; ² AUM as of September 2009. Estimate by International Institute of Finance, GCC Regional Overview, September 28, 2009. Asset allocation data from first ever annual report, presented March 15, 2010 (http://www.adia.ae/En/News/media_review.aspx); ³ AUM as of December 31, 2008. CIC Annual Report. ⁴ AUM as of September 2009. Estimate by Institute of International Finance, GCC Regional Overview, September 28, 2009; “Kuwait wealth fund invests most in US, Europe-paper”, Reuters, April 21, 2008. ⁵ AUM as of June 2009. Estimate by Rachel Ziemba and Brad Setser, “How Much Do the Major Sovereign Wealth Funds Manage?”, RGE Economist, August 3 2009; asset allocation as of 31 March 2009, GIC Annual Report. ⁶ AUM as of 31 July 2009. Temasek Holdings news release, <http://www.temasekholdings.com.sg/30> September, 2009. ⁷ AUM as of June 2009. Estimate by Institute of International Finance. ⁸ AUM as of June 2009 estimate by Rachel Ziemba and Brad Setser. ⁹ AUM as of December 31, 2009, Future Fund Portfolio update, 29 January 2009, http://www.futurefund.gov.au/_data/assets/pdf_file/0005/3677/Final_Portfolio_update_31Dec09.pdf; ¹⁰ AUM as of 1 March 2010, <http://www1.minfin.ru/en/nationalwealthfund/statistics/amount/index.php?id4=5830>. ¹¹ AUM as of December 1, 2009, Kazakhstan Ministry of Finance website, National Fund section <http://www.minfin.kz/index.php?uin=1231731724&chapter=1252038864&lang=eng>. ¹² AUM as of June 30, 2009. ¹³ AUM as of December 31, 2009, Mubadala Development Company PJSC website, <http://www.mubadala.ae/en/media/press-releases/mubadala-announces-2009-financial-results.html>. ¹⁴ AUM as of October 27, 2009, CL Jose, “ICD portfolios value rises to Dh72bn”, Emirates Business 24/7, November 5, 2009. ICD asset allocation calculated from publicly reported holdings and valuations. ¹⁵ AUM as of December 31, 2008. KIC Annual Report, <http://www.kic.go.kr/en/?mid=r106>. ¹⁶ Taken from fund website, <http://www.ipic.ae>.

Table 2. Characteristics of the Sample of SWF Investments in Publicly-Traded Firms

This table characterizes the sample of 802 sovereign wealth fund investments in listed companies between 1985 and November 2009. Panel A describes the number, total value, and average size of investments each year from 1985 through 2009. Panel B describes the funds for which investments are recorded and the total number, total value, and average value (both in US\$ millions) made by each fund. Panel C describes the industrial distribution of SWF investments in listed companies, and Panel D describes the geographic distribution of these investments.

Panel A. Annual distribution of SWF Investments in Listed firm stocks

Year	Number of investments	Total value, \$US million	Average value, \$US million
1985	1	24	24
1987	1	--	--
1988	3	1,952	1,952
1990	1	24	24
1991	2	112	58
1992	2	65	33
1993	3	713	357
1994	9	373	41
1996	4	75	24.9
1997	2	100	100
1998	1	--	--
1999	4	116	39
2000	7	360	72
2001	13	850	95
2002	17	978	109
2003	20	5,641	313
2004	32	2,621	175
2005	42	4,337	181
2006	49	11,492	328
2007	198	61,162	336
2008	340	61,306	191
2009	50	29,306	733
1985-2009	802	181,606	266

Panel B. Investments by Individual Sovereign Wealth Funds

Fund Name	Country	Number of Investments	Total Value \$US millions	Average value, \$US millions
Government Pension Fund – Global	Norway	403	4,762	12
Temasek Holdings	Singapore	132	42,375	441
Government Investment Corporation (GIC)	Singapore	79	22,571	364
Khazanah Nasional Berhad	Malaysia	32	3,240	154
Qatar Investment Authority (QIA)	Qatar	31	15,297	1,177
Kuwait Investment Authority (KIA)	Kuwait	19	13,235	1,018
China Investment Corporation (CIC)	China	18	38,933	2,781
Abu Dhabi Investment Authority (ADIA)	UAE-Abu Dhabi	18	8,518	710
Libyan Investment Authority	Libya	17	1,519	127
Istithmar World	UAE-Dubai	16	2,788	232
Mubadala Development Company PJSC	UAE-Abu Dhabi	11	2,618	436
International Petroleum Investment Company	UAE-Abu Dhabi	10	14,651	1,628
Dubai International Financial Center	UAE-Dubai	6	2,386	477
Investment Corporation of Dubai	UAE-Dubai	4	6,430	1,607
Brunei Investment Agency	Brunei	2	112	112
Oman Investment Fund	Oman	2	2	2
Korea Investment Corporation	Korea	1	2,000	2,000
Mumtalakat Holding Company	Bahrain	1	170	170

Table 2 (Continued). Characteristics of the Sample of SWF Investments in Publicly-traded Firms*Panel C. Industrial distribution of SWF investments in listed firm stocks*

Industry	Number of Investments	Total Value, \$US mn	Average Value, US\$ mn
Banking	77	55,243	1,228
Real estate development and services	46	49,782	1,158
Financial services	59	43,322	850
Oil and gas producers	33	6,918	239
General industrials	10	5,850	585
Chemicals	24	5,807	264
Technology hardware and equipment	29	4,434	153
Construction and materials	17	3,740	249
Automobiles and parts	22	3,048	160
Electricity	20	2,609	137
Mining	10	2,424	269
General retailers	22	2,376	113
Industrial transportation	30	2,025	78
Real estate investment trusts (REIT)	20	1,791	90
Fixed line telecommunications	19	1,753	117
Unclassified	11	25,308	48
Others (23 industries)	376	11,275	35

Panel D. Geographic distribution of SWF investments in listed firm stocks

Country of Target Firm	Number of Investments	Total Value, \$US mn	Average Value, US\$ mn
United States	426	58,336	140
China	43	32,049	916
Singapore	39	10,936	377
Malaysia	38	2,195	100
India	34	1,386	53
United Kingdom	28	20,883	906
Canada	19	5,517	307
Indonesia	16	3,758	470
Italy	15	1,092	135
Thailand	10	2,458	351
France	10	2,376	396
Australia	9	1,026	128
Qatar	7	1,085	362
Sweden	6	5,238	1,310
United Arab Emirates	6	2,810	937
Switzerland	5	12,839	3,210
OECD countries	560	120,207	232
Non-OECD countries	242	61,399	372
BRIC countries	85	34,166	502
Foreign (cross-border) investments	723	141,252	224
Domestic (home country) investments	79	40,351	761

Table 3. Description of the Explanatory Variables Used in the Empirical Analyses

We report the source of the each variable we use (and, where appropriate, the name or identifying code of the variable in the original database) and a brief definition of each variable employed in our study. Definitions of Worldscope variables are included in the Worldscope Database Datatype Definitions Guide (www.thomson.com/financial).

Variable	Source	Definition
Book Value of Equity	Worldscope, WC03501	Common shareholders' investment in a company.
Market Value (Firm)	Worldscope, WC08001	Aggregate market capitalization of the firm, including all common and/or ordinary shares.
Market Value (Security)	Datastream, MV	Shares outstanding times price per share.
Market to Book Ratio (Firm)	Worldscope, WC09704	Market capitalization of the firm divided by common equity.
Market to Book Ratio (Security)	Datastream, MTBV	Market value of individual security ÷ adjusted common equity.
Total Assets	Worldscope, WC02999	Total Assets;
Debt over Assets	Worldscope, (WC02999-WC03501)/WC02999	Debt over total assets.
Cash Over Total Assets	Worldscope, WC08111	Cash and Equivalents as a percentage of total assets.
Quick Ratio	Worldscope, WC08101	Cash and Equivalents plus net receivables, divided by total current liabilities.
ROA	Worldscope, WC08326	Return on assets
ROE	Worldscope, WC08301	Return on equity
Tobin's Q	Worldscope, (WC08001 + WC02999-WC03501) / WC02999	(Market Value of Common Equity + Total assets - Book value of common equity) ÷ Total Assets
Closely Held	Worldscope, WC08021	Number of closely held shares ÷ common shares outstanding.
Foreign Sales	Worldscope, WC08731	Foreign sales as a percentage of total sales.
Dividend Yield	Worldscope, WC09404	Dividends per share over market price.
Return - daily	Datastream	Daily percentage change in the total return index (RI), in USD.
Return - monthly	Datastream	Monthly percentage change in total return index (RI), in USD.
LM	Sovereign Wealth Fund Institute	The Linaburg-Maduaell Transparency Index . Detail available at: http://www.swfinstitute.org/research/transparencyindex.php
Truman Total	Truman (2008)	Average of <i>Truman Structure</i> , <i>Truman Governance</i> , <i>Truman Accountability</i> and <i>Truman Behavior</i>
Truman Structure	Truman (2008)	Score (0-100) rating the structure of the SWF
Truman Governance	Truman (2008)	Score (0-100) rating the governance of the SWF
Truman Accountability	Truman (2008)	Score (0-100) rating accountability and transparency of the SWF
Truman Behavior	Truman (2008)	Score (0-100) rating the behavior of the SWF.
Direct Investment	Monitor - FEEM SWF Database	Binary variable, equal to one if investment is transacted directly by the SWF (and not by an investment vehicle or subsidiary).
First Investment	Monitor - FEEM SWF Database	Binary variable, set equal to one if the transaction constitutes the first investment in a particular target firm by the investing SWF.
Capital Infusion	Monitor - FEEM SWF Database	Binary variable, set equal to one if the transaction resulted in a capital injection for the target firm.
BRIC Target	Monitor - FEEM SWF Database	Binary variable, set equal to one if the target firm headquarters are in either Brazil, Russian Federation, India or China.
OECD Target	Monitor - FEEM SWF Database	Binary variable, set equal to one if the target firm headquarters are in an OECD-member country.
Foreign Target	Monitor - FEEM SWF Database	Binary variable, equal to one if target firm headquarters are in a different country than the country of origin of the investing SWF.
Country	Datastream, Market	Home country of the firm, based on headquarter location.
Exchange	Datastream, Exchange	Primary Exchange on which the security is listed.
Industry	Datastream, FTAG3	Primary industrial sector of the firm, based on the FTSE level 3 classification.

Table 4. SWF Target Firm Characteristics Pre-Investment

The variables of interest are as defined in Table 3. *N* reports the number of observations, *Mean* and *Median* report, respectively, the mean and median value of the variable of interest as of Dec. 31 of the year preceding the SWF investment. *% Above Industry Median* reports the proportion of SWF investment targets for which the value of the variable of interest exceeds the median value of the same variable for all firms from the same country (same *Market*) and with the same primary industrial sector (same FTSE level 3 industrial sector classification) on the same date. *WSR p-value* reports the probability of rejecting the null hypothesis that *% Above Industry Median* is equal to .5 based on a Wilcoxon sign rank test. Significance is denoted as follows: “*” indicates significance at the 0.10 level; “**” indicates significance at the 0.05 level; “***” indicates significance at the 0.01 level.

Variable	N	Mean	Median	% Above Industry Median	WSR	p-value
Book Value of Equity (USD M)	744	4,021	890	86.73%	20.30 ***	< 0.01
Market Cap (USD M)	636	7,898	2,270	89.59%	19.80 ***	< 0.01
Market to Book Ratio	652	3.47	2.26	65.54%	10.73 ***	< 0.01
Total Assets (USD M)	743	53,000	2,795	87.93%	20.39 ***	< 0.01
Debt over Assets	743	63.07%	61.65%	55.51%	3.50 ***	< 0.01
Cash Over Total Assets	561	36.72%	29.81%	48.12%	2.80 ***	< 0.01
Quick Ratio	566	1.55	1.03	47.95%	2.55 **	0.01
ROA	698	5.43%	6.10%	69.37%	11.94 ***	< 0.01
ROE	705	6.56%	15.32%	65.16%	10.23 ***	< 0.01
Tobin's Q	636	1.96	1.40	50.31%	2.94 ***	< 0.01
Dividend Yield	648	1.71%	0.87%	49.41%	8.58 ***	< 0.01

Table 5. Short-Term Market Reaction to Announcements of SWF Investments

This table reports cumulative abnormal stock returns for target firms on the days surrounding the announcement of investment by a SWF. *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* and *Median Cumulative Abnormal Return* report, respectively, average and median abnormal cumulative returns. *Positive* and *Negative* report, respectively, the number of positive and negative cumulative abnormal returns for the period of interest, *Patell z* reports *p*-values of Patell's *z*-scores computed to test the statistical significance of the mean cumulative abnormal return relative to the period of interest, and *CDA t* the *p*-value associated with a *t*-test based on the portfolio time-series standard error computed with the 'crude dependency adjustment' proposed by Brown and Warner (1980). *Generalized Sign z* reports the *p*-value of a generalized nonparametric sign test for the significance of the mean cumulative (abnormal) return, and *Wilcoxon Signed Rank Test* reports the *p*-values associated with this non-parametric test of significance. The significance levels are denoted as follows: “*” indicates significance at the 0.10 level; “**” indicates significance at the 0.05 level; “***” indicates significance at the 0.01 level. Panel A includes all announcements of SWF investments in publicly traded companies, Panel B reports the same values for all investments announcements, excluding those made by Norway's SWF, while Panel C presents only investment announcements associated with the Norwegian fund.

Panel A: ALL observations

Interval	N	Mean Cumulative Abnormal Return	Median Cumulative Abnormal Return	Positive	Negative	Patell z	CDA t	Generalized Sign z	Wilcoxon Sign Rank Test
(-1,+1)	688	1.25%	0.17%	368	320	< 0.01 ***	< 0.01 ***	< 0.01 ***	0.05 **
(0,0)	688	1.10%	0.00%	342	344	< 0.01 ***	< 0.01 ***	0.10	0.19
(0,+1)	688	1.29%	0.15%	358	329	< 0.01 ***	< 0.01 ***	< 0.01 ***	0.04 **

Panel B: Excluding Norway

Interval	N	Mean Cumulative Abnormal Return	Median Cumulative Abnormal Return	Positive	Negative	Patell z	CDA t	Generalized Sign z	Wilcoxon Sign Rank Test
(-1,+1)	293	2.91%	0.37%	168	125	< 0.01 ***	< 0.01 ***	< 0.01 ***	< 0.01 ***
(0,0)	293	2.14%	0.01%	148	143	< 0.01 ***	< 0.01 ***	0.07 *	0.08 *
(0,+1)	293	2.70%	0.56%	163	129	< 0.01 ***	< 0.01 ***	< 0.01 ***	< 0.01 ***

Panel C: Norway Only

Interval	N	Mean Cumulative Abnormal Return	Median Cumulative Abnormal Return	Positive	Negative	Patell z	CDA t	Generalized Sign z	Wilcoxon Sign Rank Test
(-1,+1)	395	0.02%	2.00%	200	195	0.66	0.97	0.23	0.90
(0,0)	395	0.32%	-1.00%	194	201	0.01 **	0.24	0.56	0.83
(0,+1)	395	0.25%	-2.00%	195	200	0.28	0.52	0.49	0.76

Table 6. Long-Term Abnormal Returns Following SWF Investments

Interval indicates the time interval of interest, starting on the day following the SWF investment. *N* reports the number of observations. *Mean Compounded Abnormal Return* and *Median Compounded Abnormal Returns* report, respectively, average and median abnormal compounded returns. *Positive* and *Negative* report, respectively, the number of positive and negative cumulative abnormal returns for the period of interest, and *Bootstrapped, Skewness Adjusted t* presents the *p*-value associated with the bootstrapped, skewness adjusted *t*-statistic employed by Hall (1992). *Generalized Sign z* reports the *p*-values of a generalized nonparametric sign test for the significance of the mean cumulative (abnormal) return, and *Wilcoxon Signed Rank Test* reports the *p*-values associated with this non-parametric test of significance. The significance levels are denoted as follows: “*” indicates significance at the 0.10 level; “**” indicates significance at the 0.05 level; “***” indicates significance at the 0.01 level. Panel A reports market adjusted abnormal returns against a local-market total return. Panel B presents abnormal returns computed versus matching firms where matches are made based on country, exchange, size and book-to-market ratios. Panel C presents similar values computed versus a matching set of firms matched on country, exchange, industry, and pre-event performance. The sample used in Panels A, B and C includes all completed investments, while Panels D, E, and F present measures corresponding to Panels A, B, and C, respectively, but excluding observations for Norway’s sovereign fund.

Panel A: Local Index

Interval	N	Mean Compounded Abnormal Return	Median Compounded Abnormal Return	Positive	Negative	Bootstrapped, Skewness Adjusted <i>t</i>	Generalized Sign <i>z</i>	Wilcoxon Sign Rank Test
6 months	626	-1.24%	-3.44%	271	355	0.19	0.09 *	< 0.01 ***
1 year	618	-1.56%	-6.01%	374	344	0.21	0.24	< 0.02 ***
2 years	312	-4.00%	-10.00%	130	182	0.25	0.13	< 0.03 ***
3 years	134	3.72%	-9.30%	61	73	0.33	0.88	0.15

Panel B: Matched Firms, Country, Exchange, Size and Market-to-Book

Interval	N	Mean Compounded Abnormal Return	Median Compounded Abnormal Return	Positive	Negative	Bootstrapped, Skewness Adjusted <i>t</i>	Generalized Sign <i>z</i>	Wilcoxon Sign Rank Test
6 months	584	-1.67%	-2.86%	271	313	0.23	0.37	0.24
1 year	576	-3.96%	-1.88%	282	294	0.06 *	0.75	0.09 *
2 years	294	-6.25%	-14.71%	12	170	0.20	0.04 **	< 0.01 ***
3 years	128	-11.83%	-10.57%	55	73	0.21	0.32	0.21

Panel C: Matched Firms, Country, Exchange, Industry and Pre-event Performance

Interval	N	Mean Compounded Abnormal Return	Median Compounded Abnormal Return	Positive	Negative	Bootstrapped, Skewness Adjusted <i>t</i>	Generalized Sign <i>z</i>	Wilcoxon Sign Rank Test
6 months	547	-3.06%	-2.23%	263	283	0.07 *	0.98	0.19
1 year	539	-7.60%	-2.05%	254	284	0.01 ***	0.68	0.16
2 years	280	-2.64%	-6.79%	123	126	0.38	0.21	0.15
3 years	126	0.85%	2.82%	64	61	0.50	0.43	0.65

Table 6 (Continued): Long-Term Abnormal Returns Following SWF Investments

Panel D: Local Index, Excluding Norway

Interval	N	Mean Compounded Abnormal Return	Median Compounded Abnormal Return	Positive	Negative	Bootstrapped, Skewness Adjusted t	Generalized Sign z	Wilcoxon Sign Rank Test
6 months	231	-2.63%	-4.62%	93	138	0.11	0.12	0.01 **
1 year	223	-4.32%	-10.36%	90	133	0.13	0.14	< 0.01
2 years	187	-3.09%	-13.55%	78	109	0.38	0.27	0.02 **
3 years	134	3.72%	-9.30%	61	73	0.33	0.88	0.15

Panel E: Matched Firms, Country, Exchange, Size and Market-to-Book, Excluding Norway

Interval	N	Mean Compounded Abnormal Return	Median Compounded Abnormal Return	Positive	Negative	Bootstrapped, Skewness Adjusted t	Generalized Sign z	Wilcoxon Sign Rank Test
6 months	221	-0.55%	-5.16%	95	126	0.83	0.50	0.34
1 year	213	-2.41%	-5.43%	97	116	0.51	0.09 *	0.30
2 years	177	-1.55%	-11.99%	76	101	0.86	0.05 *	0.10 *
3 years	128	-11.83%	-10.57%	55	73	0.21	0.32	0.21

Panel F: Matched Firms, Country, Exchange, Industry and Pre-event Performance, Excluding Norway

Interval	N	Mean Compounded Abnormal Return	Median Compounded Abnormal Return	Positive	Negative	Bootstrapped, Skewness Adjusted t	Generalized Sign z	Wilcoxon Sign Rank Test
6 months	212	-0.69%	-1.54%	103	108	0.11	0.80	0.88
1 year	204	-6.22%	-0.28%	100	103	0.04 **	0.71	0.60
2 years	126	9.38%	-2.63%	61	64	0.20	0.81	0.71
3 years	126	0.85%	2.82%	64	61	0.83	0.43	0.65

Table 7. Long-Term Impact to SWF Investment, Cumulative Abnormal Returns and Calendar Time Abnormal Returns

Interval indicates the time interval of interest, starting on the day following the SWF investment. *N* reports the number of observations. *Mean Compounded Abnormal Return* and *Median Compounded Abnormal Returns* report, respectively, average and median abnormal compounded returns. *Calendar Time Abnormal Returns* and the related *Calendar Time t* are computed using the calendar-time methodology presented in Jaffe (1974) and Mandelker (1974). *Positive* and *Negative* report, respectively, the number of positive and negative cumulative abnormal returns for the period of interest, and *CDA t* the *p*-value associated with a *t*-test based on the portfolio time-series standard error computed with the 'crude dependency adjustment' proposed by Brown and Warner (1980). *Generalized Sign z* reports the *p*-values of a generalized nonparametric sign test for the significance of the mean cumulative (abnormal) return, and *Wilcoxon Signed Rank Test* reports the *p*-values associated with this non-parametric test of significance. The significance levels are denoted as follows: “*” indicates significance at the 0.10 level; “**” indicates significance at the 0.05 level; “***” indicates significance at the 0.01 level. Panel A reports market adjusted abnormal returns against a local-market total return index, while Panel B presents market model abnormal returns computed with local market indices. Panel C presents abnormal returns computed versus matching firms where matches are made based on country, exchange, size and book-to-market ratios. Panel D presents similar values computed versus a matching set of firms matched on country, exchange, industry, and pre-event performance. The sample used in Panels A, B, C and D includes all completed investments, while Panels E, F, G and H present measures corresponding to Panels A, B, C and D, respectively, but excluding observations for Norway’s sovereign fund.

Panel A: Local Index, Market Adjusted

Interval	N	Mean Cumulative Abnormal Return	Median Cumulative Abnormal Return	Calendar Time AR	Positive	Negative	CDA <i>t</i>	Calendar Time <i>t</i>	Generalized Sign <i>z</i>	Wilcoxon Sign Rank Test
6 months	563	-1.35%	-1.27%	-1.80%	273	290	0.49	0.39	0.14	0.58
1 year	472	-2.24%	3.92%	-7.29%	247	223	0.34	0.05 *	0.68	0.97
2 years	282	7.82%	11.19%	0.72%	170	112	0.06 *	0.57	<0.01 ***	<0.01***
3 years	121	-2.06%	9.97%	-0.65%	69	52	0.81	0.29	0.18	0.91

Panel B Local Index, Market Model

Interval	N	Mean Cumulative Abnormal Return	Median Cumulative Abnormal Return	Calendar Time AR	Positive	Negative	CDA <i>t</i>	Calendar Time <i>t</i>	Generalized Sign <i>z</i>	Wilcoxon Sign Rank Test
6 months	563	-7.99%	-3.97%	-11.05%	251	312	<0.01 ***	<0.01***	0.22	<0.01***
1 year	472	-8.98%	-5.59%	-23.08%	212	260	<0.01 ***	<0.01***	0.31	0.01**
2 years	282	-17.46%	-16.02%	-35.18%	116	166	<0.01 ***	<0.01***	0.05 *	<0.01***
3 years	121	-56.39%	-40.35%	-59.62%	41	80	<0.01 ***	<0.01***	0.01 **	<0.01***

Panel C: Matched Firms, Country, Exchange, Size and Market-to-Book

Interval	N	Mean Cumulative Abnormal Return	Median Cumulative Abnormal Return	Calendar Time AR	Positive	Negative	CDA <i>t</i>	Calendar Time <i>t</i>	Generalized Sign <i>z</i>	Wilcoxon Sign Rank Test
6 months	540	-1.59%	-2.96%	-1.67%	252	288	0.46	0.34	0.01**	0.26
1 year	453	-6.82%	-5.00%	-7.06%	206	247	0.02**	0.02**	<0.01***	<0.01 ***
2 years	270	-6.93%	-7.62%	-2.46%	121	149	0.21	0.05**	0.03*	0.04 **
3 years	113	0.11%	-3.63%	-4.08%	53	60	0.99	0.19	0.51	0.62

Panel D: Matched Firms, Country, Exchange, Industry and Pre-event Performance

Interval	N	Mean Cumulative Abnormal Return	Median Cumulative Abnormal Return	Calendar Time AR	Positive	Negative	CDA <i>t</i>	Calendar Time <i>t</i>	Generalized Sign <i>z</i>	Wilcoxon Sign Rank Test
6 months	544	-5.54%	-2.40%	-2.43%	256	288	0.02 **	0.35	0.05 *	0.11
1 year	462	-8.83%	-2.17%	-7.90%	227	235	0.01 ***	0.06 *	0.42	0.04 *
2 years	275	-6.95%	-6.32%	-3.74%	126	149	0.28	0.34	0.06 *	0.20
3 years	121	2.78%	-7.83%	2.42%	56	65	0.16	0.97	0.21	0.83

Table 7. Long-Term Impact to SWF Investment, Cumulative Abnormal Returns and Calendar Time Abnormal Returns, Excluding Norway

Panel E: Local Index, Market Adjusted, Excluding Norway

Interval	N	Mean Cumulative Abnormal Return	Median Cumulative Abnormal Return	Calendar Time AR	Positive	Negative	CDA t	Calendar Time t	Generalized Sign Z	Wilcoxon Sign Rank Test
6 months	210	-4.62%	-6.03%	-2.59%	89	121	0.16	0.33	0.05 **	0.03 **
1 year	202	-9.45%	-7.17%	-7.20%	89	113	0.02 **	0.03 **	0.15	0.01 **
2 years	169	-1.03%	2.16%	0.19%	91	78	0.86	0.29	0.31	0.80
3 years	121	-2.06%	9.97%	-0.65%	69	52	0.81	0.29	0.18	0.91

Panel F Local Index, Market Model, Excluding Norway

Interval	N	Mean Cumulative Abnormal Return	Median Cumulative Abnormal Return	Calendar Time AR	Positive	Negative	CDA t	Calendar Time t	Generalized Sign Z	Wilcoxon Sign Rank Test
6 months	210	-12.28%	-6.53%	-11.99%	86	124	< 0.01 ***	< 0.01 ***	0.17	< 0.01 ***
1 year	202	-22.74%	-14.78%	-23.45%	70	132	< 0.01 ***	< 0.01 ***	< 0.01 ***	< 0.01 ***
2 years	169	-37.53%	-28.38%	-36.84%	51	118	< 0.00 ***	< 0.00 ***	< 0.01 ***	< 0.00 ***
3 years	121	-56.39%	-40.35%	-59.62%	41	80	< 0.01 ***	< 0.01 ***	0.01 **	< 0.01 ***

Panel G: Matched Firms, Country, Exchange, Size and Market-to-Book, Excluding Norway

Interval	N	Mean Cumulative Abnormal Return	Median Cumulative Abnormal Return	Calendar Time AR	Positive	Negative	CDA t	Calendar Time t	Generalized Sign Z	Wilcoxon Sign Rank Test
6 months	199	-2.29%	-5.19%	-2.07%	85	114	0.39	0.39	0.07 *	0.16
1 year	190	-7.06%	-11.97%	-6.86%	81	109	0.04 **	0.04	0.07 *	0.02 **
2 years	157	-4.46%	-10.79%	-2.55%	75	82	0.07 *	0.07 *	0.67	0.30
3 years	113	0.11%	-3.63%	-4.08%	53	60	0.99	0.19	0.51	0.62

Panel H: Matched Firms, Country, Exchange, Industry and Pre-event Performance, Excluding Norway

Interval	N	Mean Cumulative Abnormal Return	Median Cumulative Abnormal Return	Calendar Time AR	Positive	Negative	CDA t	Calendar Time t	Generalized Sign Z	Wilcoxon Sign Rank Test
6 months	209	-4.51%	-2.95%	-2.29%	93	116	0.35	0.63	0.05	0.22
1 year	199	-11.31%	-2.26%	-8.37%	97	102	0.09 *	0.11	0.47	0.06 *
2 years	166	-5.41%	-3.98%	-4.22%	80	86	0.59	0.82	0.38	0.40
3 years	121	2.78%	-7.83%	2.42%	56	65	0.16	0.97	0.21	0.83

Table 8: Board of Director Seat Acquisition by Sovereign Wealth Funds and Subsidiaries Following Significant Investments

This table presents details about how frequently individual SWFs assume seats on board of directors of target firms, broken down by investing subsidiary, with detail on domestic vs. foreign investment and with specific information concerning investments in OECD target firms.

Parent Sovereign Wealth Fund	Region	Investing Entity (SWF or Subsidiary)	Country	Useable Observations	Yes-Acquired board seat(s)				No-Did not acquire board seat(s)			
					Number	Domestic	Foreign	OECD	Number	Domestic	Foreign	OECD
International Petroleum Investment Company (IPIC)	MENA	Aabar Investments	Abu Dhabi	2	0				2		2	2
	MENA	International Petroleum Investment Company	Abu Dhabi	4	3	1	2	2	1		1	1
International Petroleum Investment Company and subsidiaries				6	3	1	2	2	3	0	3	3
Abu Dhabi Investment Authority (ADIA)	MENA	Abu Dhabi Investment Authority (ADIA)	Abu Dhabi	4	0				4		4	3
Temasek Holdings	Asia-Pacific	Aranda Investment	Singapore	3	3	2	1		0			
	Asia-Pacific	Asia Financial Holdings Pte Ltd	Singapore	1	1		1		0			
	Asia-Pacific	Bank Danamon	Singapore	1	0				1		1	
	Asia-Pacific	Maxwell (Mauritius)Pte Ltd	Singapore	1	0				1		1	
	Asia-Pacific	NIB Bank Ltd	Pakistan	1	0	1			0			
	Asia-Pacific	Seletar Invest Pte Ltd	Singapore	3	1	1			2	2		
	Asia-Pacific	Sing Tel Electronics	Singapore	1	1	1			0			
	Asia-Pacific	Singapore Airlines Ltd	Singapore	1	0				1		1	1
	Asia-Pacific	Singapore Technologies Telemedia	Singapore	4	2	1	1		2		2	1
	Asia-Pacific	Sorak Finl Holdings Pte Ltd	Singapore	2	0				2		2	
	Asia-Pacific	Tazwell Pte Ltd	Singapore	1	0				1	1		
	Asia-Pacific	Temasek Holdings	Singapore	50	10	3	7	2	40	6	34	17
All Temasek and subsidiaries				69	19	9	10	2	50	9	41	19
Brunei Investment Agency	Asia-Pacific	Brunei Investment Agency	Brunei	1	1		1		0			
China Investment Corporation (CIC)	Asia-Pacific	Central Huijin Investment Co., Ltd	China	1	1	1			0			
	Asia-Pacific	China Investment Corporation (CIC)	China	4	0				4	1	3	3
	Asia-Pacific	Fullbloom Investment Corporation	China	0	0				0			
China Investment Corporation and subsidiaries				5	1	1	0	0	4	1	3	3
Dubai International Financial Centre (DIFC)	MENA	Dubai International Financial Centre	Dubai	3	0				3		3	3
Khazanah Nasional Bhd	Asia-Pacific	Khazanah Nasional Bd	Malaysia	12	7	6	1		5	3	2	0
	Asia-Pacific	Mount Kinabalu Investments Ltd	Malaysia	1	1		1		0			
	Asia-Pacific	Pangkor Investments Ltd.	Mhalaysia	1	0				1		1	
	Asia-Pacific	Trinity Saga Sdn Bhd	Malaysia	2	2	2			0			
	Asia-Pacific	UEM Group Bhd	Malaysia	2	1	1			1	1		
All Khazanah and subsidiaries				18	11	9	2	0	7	4	3	0
Government of Singapore Investment Corpor (GIC)	Asia-Pacific	GIC Real Estate	Singapore	6	2		2	1	4		4	2

	Asia-Pacific	GIC Special Investments Pte	Singapore	3	0				3	0	3	
	Asia-Pacific	Govt of Singapore Investment Corporation	Singapore	26	0				26		26	10
	Asia-Pacific	Reco Pearl Pte Ltd	Singapore	1	1		1		0			
All GIC and subsidiaries				36	3	0	3	1	33	0	33	12
Investment Corporation of Dubai	MENA	Borse Dubai	Dubai	1	1	0	1	1	0			
Istithmar	MENA	Istithmar	Dubai	8	3		3	1	5		5	3
	MENA	Leisurecorp LLC	Dubai	1	1		1	1	0			
All Istithmar and subsidiaries				9	4	0	4	2	5	0	5	3
Korea Investment Corporation (KIC)	Asia-Pacific	Korea Investment Corporation (KIC)	Korea	1	0				1		1	1
Kuwait Investment Authority (KIA)	MENA	Kuwait Investment Authority (KIA)	Kuwait	10	1		1	1	9	1	8	6
Libyan Investment Authority	MENA	Libya Oil Holding	Libya	1	1		1	1	0			
	MENA	Libyan Arab African Investment Company	Libya	6	0				6		6	4
	MENA	Libyan Investment Authority (LIA)	Libya	3	1		1	1	2		2	2
All Libyan Investment Authority and subsidiaries				10	2	0	2	2	8	0	8	6
Mubadala Development Company	MENA	Mubadala Development Company	Abu Dhabi	9	5	2	3	3	4	0	4	4
Mumtalakat Holding Company	MENA	Mumtalakat Holding Company	Bahrain	1	0	0	0	0	1	1	0	0
Oman Investment Fund	MENA	Oman Investment Fund	Oman	1	0				1		1	1
Qatar Investment Authority (QIA)	MENA	Qatar Holdings	Qatar	4	0				4		4	3
	MENA	Qatar Investment Authority (QIA)	Qatar	9	1		1		8	1	7	5
	MENA	Qatari Diar	Qatar	1	1		1	1	0			
All Qatar Investment Authority and subsidiaries				14	2	0	2	1	12	1	11	8
Government Pension Fund-Global	Europe	Government Pension Fund-Global	Norway	157	0				157		157	157
Total, All observations				355	53	22	31	15	302	17	285	229
Total, All observations excluding Norway				198	53	22	31	15	145	17	128	72

Table 9. Cross-Sectional Analysis of Announcement Period Abnormal Returns

This table reports results from OLS regressions; the response variable is a market-adjusted abnormal return, with local total return indices as benchmarks, over the event window comprising trading days -1, 0 and +1 (day 0 being the day on which a SWF investment is announced). Variables are as defined in Table 3, with the exception of the *Pre-Event BHARs*, which are buy-and-hold market adjusted abnormal returns computed over the indicated time horizon ending two days prior to the day prior on which the SWF investment was announced. *N* reports the number of observations and *R-sq* the R squared statistic. All regressions are estimated with heteroskedasticity robust standard errors clustered by target firm and year fixed effects. The table included parameter estimates and, in grey italicized font, related p-values. Significance is denoted as follows: “*” indicates significance at the 0.10 level “**” indicates significance at the 0.05 level; “***” indicates significance at the 0.01 level.

	CAR, Market Adjusted Vs. Local Market Index, Window (-1,+1)				
LM	-0.0008 <i>0.80</i>				
Truman Total		< 0.0001 <i>0.91</i>			
Truman Structure			0.0061 <i>0.44</i>		
Truman Governance			0.0064 * <i>0.1</i>		
Truman Accountability			-0.0060 * <i>0.09</i>		
Truman Behavior			-0.0046 <i>0.36</i>		
Norway				0.1001 ** <i>0.03</i>	
MENA SWF				0.0088 <i>0.58</i>	
BRIC Target	-0.0238 <i>0.72</i>	0.0169 <i>0.43</i>	-0.0568 <i>0.49</i>	-0.0362 <i>0.48</i>	-0.0669 <i>0.68</i>
OECD Target	-0.1164 ** <i>< 0.01</i>	-0.0936 *** <i>< 0.01</i>	-0.1792 * <i>0.04</i>	-0.1562 *** <i>< 0.01</i>	-0.1879 <i>0.23</i>
Stake	0.1002 <i>0.37</i>	0.2386 *** <i>< 0.01</i>	0.3367 *** <i>< 0.01</i>	0.2657 *** <i>< 0.01</i>	0.3451 ** <i>0.04</i>
First Investment	0.0087 <i>0.14</i>	0.0077 <i>0.19</i>	0.0089 <i>0.14</i>	0.0076 <i>0.19</i>	0.0089 <i>0.14</i>
Foreign Target	0.1263 *** <i>< 0.01</i>	0.1040 *** <i>< 0.01</i>	0.1717 *** <i>< 0.01</i>	0.1268 *** <i>< 0.01</i>	0.2554 <i>0.27</i>
Market Value	-0.0037 <i>0.28</i>	-0.0038 <i>0.26</i>	-0.0034 <i>0.31</i>	-0.0048 <i>0.16</i>	-0.0034 <i>0.33</i>
Leverage	-0.0021 <i>0.91</i>	-0.0016 <i>0.93</i>	-0.0027 <i>0.88</i>	-0.0046 <i>0.79</i>	-0.0026 <i>0.88</i>
Quick Ratio	0.0014 <i>0.55</i>	0.0014 <i>0.56</i>	0.0015 <i>0.53</i>	0.0013 <i>0.60</i>	0.0015 <i>0.53</i>
Closely Held	< 0.0001 <i>0.80</i>	< 0.0001 <i>0.83</i>	< 0.0001 <i>0.91</i>	< 0.0001 <i>0.83</i>	< 0.0001 <i>0.91</i>
Foreign Sales	< 0.0001 <i>0.99</i>	< 0.0001 <i>0.91</i>	< 0.0001 <i>0.96</i>	< 0.0001 <i>0.91</i>	< 0.0001 <i>0.96</i>
Direct Investment	-0.0752 <i>0.11</i>	-0.1127 *** <i>< 0.01</i>	-0.1436 *** <i>< 0.01</i>	-0.0141 <i>0.77</i>	-0.1478 ** <i>0.04</i>
Capital Infusion	0.0784 ** <i>0.01</i>	0.1042 *** <i>< 0.01</i>	0.1379 ** <i>0.04</i>	0.0729 *** <i>0.01</i>	0.0667 * <i>0.09</i>
Pre-Event BHAR 1 year	-0.0102 ** <i>0.04</i>	-0.0099 * <i>0.06</i>	-0.0103 ** <i>0.05</i>	-0.0113 ** <i>0.03</i>	-0.0103 ** <i>0.05</i>
Pre-Event BHAR 6 months	0.0043 <i>0.77</i>	0.0018 <i>0.90</i>	0.0029 <i>0.85</i>	0.0061 <i>0.63</i>	0.003 <i>0.85</i>
Pre-Event BHAR 1 month	0.0678 ** <i>0.02</i>	0.0678 ** <i>0.02</i>	0.0677 ** <i>0.03</i>	0.0637 ** <i>0.03</i>	0.0677 ** <i>0.03</i>
Intercept	0.0273 <i>0.54</i>	0.0145 <i>0.77</i>	-0.2697 <i>0.43</i>	-0.0336 <i>0.51</i>	-0.0136 <i>0.72</i>
N	239	242	242	244	244
R-Squared	16.88%	21.60%	22.19%	20.80%	23.01%
Year FE	Yes	Yes	Yes	Yes	Yes
SWF FE	No	No	No	No	Yes
SE Clustered	By Target	By Target	By Target	By Target	By Target

Table 10. Cross-Sectional Analysis of Long-Term Matched-Firm Abnormal Returns

This table reports results from OLS regressions; the response variable is a market-adjusted abnormal return, with local total return indices as benchmarks, over the indicated post-investment event window. Variables are as defined in Table 3, with the exception of the *Pre-Event BHARs*, which are buy-and-hold market adjusted abnormal returns computed over the indicated time horizon ending two days prior to the day prior on which the SWF investment was announced. *N* reports the number of observations and *R-sq* the R squared statistic. All regressions are estimated with heteroskedasticity robust standard errors clustered by target firm and year fixed effects. The table included parameter estimates and, in grey italicized font, related p-values. Significance is denoted as follows: “**” indicates significance at the 0.10 level “***” indicates significance at the 0.05 level; “****” indicates significance at the 0.01 level.

Variable	Model 1			Model 2			Model 3		
	6 months	1 year	2 years	6 months	1 year	2 years	6 months	1 year	2 years
LM	0.0151 <i>0.52</i>	0.0333 <i>0.24</i>	0.0008 <i>0.98</i>						
Truman Total				0.0062 ** <i>0.01</i>	0.0051 <i>0.15</i>	-0.0047 <i>0.29</i>			
Truman Structure							-0.0225 ** <i>0.03</i>	-0.0439 *** <i>< 0.01</i>	-0.0517 ** <i>0.01</i>
Truman Governance							0.0041 <i>0.75</i>	0.0013 <i>0.94</i>	0.0102 <i>0.68</i>
Truman Accountability							0.0031 <i>0.76</i>	0.0106 <i>0.40</i>	0.0004 <i>0.98</i>
Truman Behavior							0.0181 *** <i>< 0.01</i>	0.0294 *** <i>< 0.01</i>	0.0279 ** <i>0.02</i>
BRIC Target	-0.0043 <i>0.97</i>	0.0622 <i>0.68</i>	-0.0527 <i>0.78</i>	-0.0276 <i>0.80</i>	-0.0258 <i>0.87</i>	-0.2148 <i>0.27</i>	0.0229 <i>0.83</i>	0.0361 <i>0.77</i>	-0.2346 * <i>0.09</i>
OECD Target	0.128 <i>0.41</i>	-0.061 <i>0.78</i>	-0.1813 <i>0.44</i>	0.1255 <i>0.44</i>	-0.1044 <i>0.64</i>	-0.3211 <i>0.21</i>	-0.0891 <i>0.60</i>	-0.4995 ** <i>0.02</i>	-0.6977 ** <i>0.01</i>
Stake	-0.3336 <i>0.42</i>	-1.2909 ** <i>0.03</i>	-2.5688 *** <i>< 0.01</i>	0.243 <i>0.62</i>	-0.7624 <i>0.29</i>	-2.8638 *** <i>< 0.01</i>	0.3789 <i>0.38</i>	-0.7491 <i>0.22</i>	-2.3626 *** <i>< 0.01</i>
First Investment	-0.0373 <i>0.45</i>	-0.0132 <i>0.81</i>	0.0936 <i>0.13</i>	-0.0309 <i>0.53</i>	-0.0087 <i>0.88</i>	0.0682 <i>0.27</i>	-0.0254 <i>0.62</i>	-0.0047 <i>0.93</i>	0.0907 <i>0.16</i>
Foreign Target	-0.1855 <i>0.23</i>	-0.5367 *** <i>< 0.01</i>	-0.9635 *** <i>< 0.01</i>	-0.168 <i>0.19</i>	-0.3868 ** <i>0.04</i>	-0.7637 *** <i>< 0.01</i>	-0.1274 <i>0.46</i>	-0.2692 <i>0.21</i>	-0.5282 * <i>0.06</i>
Market Value	-0.0921 *** <i>< 0.01</i>	-0.0377 <i>0.11</i>	0.0119 <i>0.77</i>	-0.0926 *** <i>< 0.01</i>	-0.0406 * <i>0.08</i>	0.0118 <i>0.76</i>	-0.0950 *** <i>< 0.01</i>	-0.0435 * <i>0.06</i>	-0.0008 <i>0.98</i>
Leverage	-0.0729 <i>0.57</i>	0.1392 <i>0.35</i>	-0.0794 <i>0.75</i>	-0.082 <i>0.52</i>	0.1188 <i>0.42</i>	-0.1087 <i>0.66</i>	-0.1013 <i>0.43</i>	0.0839 <i>0.56</i>	-0.1417 <i>0.56</i>
Quick Ratio	-0.0034 <i>0.87</i>	-0.0065 <i>0.75</i>	0.0364 <i>0.37</i>	-0.0046 <i>0.82</i>	-0.0091 <i>0.65</i>	0.0311 <i>0.44</i>	-0.0059 <i>0.77</i>	-0.0105 <i>0.60</i>	0.0312 <i>0.44</i>
Closely Held	0.0021 <i>0.11</i>	0.0028 * <i>0.07</i>	0.0027 <i>0.3</i>	0.0024 <i>0.07</i>	0.0029 * <i>0.06</i>	0.0027 <i>0.31</i>	0.0025 <i>0.06</i>	0.0031 ** <i>0.04</i>	0.0027 <i>0.29</i>
Foreign Sales	-0.0007 <i>0.35</i>	-0.0003 <i>0.70</i>	<0.0001 <i>0.98</i>	-0.0006 <i>0.38</i>	-0.0002 <i>0.76</i>	-0.0002 <i>0.87</i>	-0.0005 <i>0.55</i>	<0.0001 <i>0.96</i>	0.0002 <i>0.90</i>
Direct Investment	0.1432 <i>0.38</i>	0.0411 <i>0.85</i>	-0.2368 <i>0.22</i>	0.3538 <i>0.04</i>	0.1465 <i>0.54</i>	-0.4193 <i>0.11</i>	0.3468 ** <i>0.02</i>	0.116 <i>0.57</i>	-0.4096 * <i>0.07</i>
BOD	-0.0678 <i>0.65</i>	-0.3311 ** <i>0.03</i>	-0.3822 * <i>0.06</i>	-0.0252 <i>0.85</i>	-0.209 <i>0.14</i>	-0.3570 * <i>0.06</i>	-0.0705 <i>0.61</i>	-0.3369 ** <i>0.02</i>	-0.4338 ** <i>0.01</i>
Pre-Event BHAR 1 year	-0.0523 <i>0.28</i>	-0.0992 * <i>0.08</i>	-0.1640 ** <i>0.04</i>	-0.0542 <i>0.26</i>	-0.0974 * <i>0.08</i>	-0.1628 ** <i>0.05</i>	-0.0572 <i>0.23</i>	-0.1025 * <i>0.06</i>	-0.1582 * <i>0.05</i>
Pre-Event BHAR 6 months	0.035 <i>0.79</i>	0.1071 <i>0.52</i>	0.4676 ** <i>0.03</i>	0.0417 <i>0.75</i>	0.1248 <i>0.46</i>	0.4848 ** <i>0.02</i>	0.0478 <i>0.71</i>	0.1184 <i>0.47</i>	0.45148 ** <i>0.03</i>
Pre-Event BHAR 1 month	0.3048 <i>0.28</i>	0.1063 <i>0.71</i>	0.1825 <i>0.65</i>	0.2895 <i>0.31</i>	0.092 <i>0.75</i>	0.2533 <i>0.54</i>	0.2546 <i>0.37</i>	0.0528 <i>0.85</i>	0.1337 <i>0.73</i>
Intercept	0.6895 ** <i>0.02</i>	0.4552 <i>0.25</i>	0.9404 * <i>0.07</i>	0.2649 <i>0.39</i>	0.255 <i>0.58</i>	1.3503 ** <i>0.03</i>	1.2290 ** <i>0.01</i>	2.0206 *** <i>< 0.01</i>	3.1321 *** <i>< 0.01</i>
N	258	258	115	259	259	116	259	259	116
R-Squared	13.82%	12.46%	42.89%	14.58%	11.97%	40.83%	15.56%	14.07%	44.27%
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
SWF FE	No	No	No	No	No	No	No	No	No
SE Clustered	By Target	By Target	By Target	By Target	By Target	By Target	By Target	By Target	By Target

Table 11. Analysis of Operating Performance

For each variable we investigate, defined as in Table 3, we identify a set of matched firms (our matching procedure is based on country of incorporation, FTSE level 3 industrial sector and on the value of the variable of interest, as of Dec. 31 of the year preceding the SWF investment). For both target and matched firms, we compute the change in the value of the variable of interest between Dec. 31 of the year preceding the SWF investment and Dec. 31 of the year of the SWF investment (Year 0) and Dec. 31 of each of the following three years. We report means and medians of such changes, for both the set of target firms and of matches. We also compute ‘differences-in-differences’ and reports means and medians. We test the significance of the difference-in-difference by both *t*-tests and Wilcoxon sign rank tests. Panel A includes results for *Tobin’s Q*, *Market-to-Book Ratio* and *Dividend Yield*. Panel B contains results for *ROA*, *ROE* and *Total Assets*. Panel C contains results for *Debt Over Assets*, *Quick Ratio* and *Cash Over Total Assets*. The significance levels are denoted as follows: “*” indicates significance at the 0.10 level; “**” indicates significance at the 0.05 level; “***” indicates significance at the 0.01 level.

Panel A

		<i>Tobin’s Q</i>				<i>Market to Book Ratio</i>				<i>Dividend Yield</i>			
		Year 0	Year 1	Year 2	Year 3	Y0	Y1	Y2	Y3	Y0	Y1	Y2	Y3
Target	Mean	-0.29	-0.35	-0.31	-0.16	-1.16	-1.00	-0.62	-0.09	0.70	0.79	0.66	0.47
	Median	-0.11	-0.15	-0.08	0.00	-0.47	-0.62	-0.38	0.08	0.00	0.28	0.51	0.00
	SE	1.61	0.96	1.13	1.02	4.83	3.28	2.45	2.45	2.97	3.28	2.76	3.57
	N	562	374	174	89	540	367	168	85	570	435	208	90
Match	Mean	-0.26	-0.23	0.20	0.15	-0.79	-0.59	0.04	0.40	0.77	0.56	1.02	0.56
	Median	-0.10	-0.10	-0.05	-0.02	-0.31	-0.42	-0.23	-0.15	0.00	0.00	0.11	0.00
	SE	1.60	0.95	2.96	1.19	3.41	2.36	2.24	2.75	2.80	2.86	3.22	2.94
	N	500	333	147	91	489	345	161	94	527	398	191	100
Difference	Mean	-0.04	-0.09	-0.50	-0.31	-0.12	-0.05	-0.45	-0.21	0.01	0.23	-0.33	0.12
	Median	0.01	0.00	-0.03	-0.03	-0.02	0.02	-0.11	0.18	0.00	0.00	0.00	0.00
	SE	1.51	1.12	3.30	1.31	2.85	2.51	2.50	3.01	3.27	3.82	2.82	4.45
	N	488	261	123	77	461	255	117	72	512	340	164	81
T-Test	Statistic	-0.54	-1.33	-1.67 ***	-1.31	-0.94	-0.29	-1.93 *	-0.60	0.04	1.13	-1.15	0.25
	<i>p</i> -value	0.59	0.18	0.01	0.20	0.35	0.77	0.06	0.55	0.97	0.26	0.13	0.40
WSR	Statistic	0.60	-0.42	-2.03 **	-1.12	-0.82	0.15	-1.63	0.65	-0.17	1.78 *	-1.25	-0.21
	<i>p</i> -value	0.55	0.68	0.04	0.26	0.41	0.88	0.10	0.51	0.86	0.08	0.21	0.84

Table 11 (Continued). Analysis of Operating Performance

Panel B

		<i>ROA</i>				<i>ROE</i>				<i>Total Assets (USD M)</i>			
		Y0	Y1	Y2	Y3	Y0	Y1	Y2	Y3	Y0	Y1	Y2	Y3
Target	Mean	0.59	-2.99	-1.01	0.39	-9.30	-10.89	-9.77	-10.26	2,147	5,060	11,426	4,935
	Median	-0.54	-1.11	-0.83	-0.84	-1.33	-4.19	-3.92	-2.71	106	211	270	295
	SE	42.76	21.06	20.77	23.23	77.49	51.05	39.24	39.41	76,161	101,539	64,864	19,173
	N	613	397	186	93	597	393	187	91	660	444	210	105
Match	Mean	-1.59	-3.74	-3.76	-1.58	-6.34	-9.34	-6.43	-0.33	1,656	4,565	10,960	7,781
	Median	-1.01	-1.49	-1.04	-0.29	-3.10	-3.62	-6.36	-1.99	59	110	238	279
	SE	24.30	16.12	16.43	13.36	25.15	30.39	33.30	40.97	34,581	61,004	77,014	37,454
	N	577	389	176	102	526	342	170	91	636	447	222	112
Delta	Mean	2.43	1.57	2.59	-0.98	-2.15	-1.51	-8.35	-10.47	544	-1,391	-4,168	-2,238
	Median	0.54	0.05	-0.08	-0.47	2.01	1.37	-0.05	-1.73	35	64	65	102
	SE	50.50	22.33	25.87	15.29	80.96	41.50	47.29	53.76	65,414	109,232	70,667	34,943
	N	565	312	136	78	514	278	128	75	626	360	163	93
T-Test	Statistic	1.14	1.24	1.17	-0.56	-0.60	-0.61	-1.2 *	-1.69 *	0.21	-0.24	-0.75	-0.62
	p-value	0.25	0.22	0.25	0.57	0.55	0.55	0.05	0.10	0.84	0.81	0.45	0.54
WSR	Statistic	2.61 ***	-0.01	0.09	-1.25	2.09 **	0.28	-1.00	-1.23	3.00 ***	2.51 **	2.68 ***	2.65 ***
	p-value	0.01	0.99	0.93	0.21	0.04	0.78	0.32	0.22	< 0.01	0.01	< 0.01	< 0.01

Panel C

		<i>Debt Over Assets</i>				<i>Quick Ratio</i>				<i>Cash Over Total Assets</i>			
		Y0	Y1	Y2	Y3	Y0	Y1	Y2	Y3	Y0	Y1	Y2	Y3
Target	Mean	0.00	-0.01	-0.04	-0.09	0.04	0.17	0.11	0.31	-1.88	-1.58	-1.05	-0.91
	Median	0.00	0.00	-0.01	-0.01	-0.01	0.02	0.02	0.00	-0.38	-0.03	0.28	-0.46
	SE	0.29	0.34	0.40	0.54	2.68	2.27	1.40	2.90	15.09	20.35	22.84	19.94
	N	660	444	210	105	509	291	125	80	505	336	159	81
Match	Mean	0.17	0.10	0.09	0.17	-0.09	-0.03	0.11	-0.07	-1.19	1.58	-0.89	-0.32
	Median	0.01	0.01	0.00	-0.02	-0.09	-0.02	-0.04	-0.04	-0.65	-0.04	0.65	0.01
	SE	1.70	0.86	0.80	1.86	2.87	1.30	3.11	1.02	21.81	21.03	17.28	18.89
	N	607	406	192	105	467	282	144	79	453	300	143	74
Difference	Mean	-0.17	-0.03	-0.12	-0.24	0.28	0.19	0.16	0.43	-1.58	-2.76	-1.16	-2.28
	Median	-0.01	0.00	0.01	0.00	0.07	0.06	-0.04	-0.04	0.05	-1.47	-4.17	-3.09
	SE	1.72	0.39	0.89	2.01	3.47	2.72	1.43	3.77	25.43	27.11	22.78	21.87
	N	598	330	152	89	458	222	104	63	445	244	101	63
T-Test	Statistic	-2.44 **	-1.25	-1.70 *	-1.13	1.70 *	1.02	1.16	0.91	-1.31	-1.59	-0.51	-0.83
	p-value	0.01	0.21	0.09	0.26	0.09	0.31	0.25	0.37	0.19	0.11	0.61	0.41
WSR	Statistic	-3.60 ***	-0.85	-0.32	-0.18	2.86	0.35	-0.12	-0.25	-0.47	-1.03	-0.78	-0.80
	p-value	< 0.01	0.40	0.75	0.86	0.00	0.73	0.90	0.81	0.64	0.30	0.43	0.42

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